

Traffic Noise Assessment

Half Moon Bay South

Phase 5

Proposed Residential Development
In the vicinity of Greenbank Road and Dundonald Drive
City of Ottawa

February 8, 2019
Project: 108-363-300

Prepared for

Mattamy Homes

Prepared by


Seema Nagaraj, Ph.D., P.Eng.



Reviewed by


Ian Matthew, M.Sc., P.Eng.



VALCOUSTICS

Canada Ltd.

Version History

Version #	Date	Comments
1.0	February 8, 2019	Issued to client

TABLE OF CONTENTS

EXECUTIVE SUMMARY	1
1.0 INTRODUCTION.....	2
1.1 INTRODUCTION	2
1.2 THE SITE AND SURROUNDING AREA.....	2
1.3 THE PROPOSED DEVELOPMENT.....	2
2.0 ENVIRONMENTAL NOISE ASSESSMENT	2
2.1 NOISE SENSITIVE RECEPTORS	2
2.2 NOISE SOURCES	2
2.3 ENVIRONMENTAL NOISE GUIDELINES.....	3
2.3.1 MECP Publication NPC-300	3
2.3.2 City of Ottawa	3
2.4 NOISE IMPACT ASSESSMENT	4
3.0 NOISE ABATEMENT REQUIREMENTS.....	4
3.1 INDOORS.....	5
3.2 OUTDOORS.....	6
3.2.1 Dwellings Close to Realigned Greenbank Road.....	6
3.2.2 Dwellings at a Greater Setback from Realigned Greenbank Road.....	8
3.2.3 Notes Regarding Barriers.....	8
3.3 WARNING CLAUSES.....	8
4.0 CONCLUSIONS.....	9
5.0 REFERENCES.....	9

LIST OF TABLES

TABLE 1	ROAD TRAFFIC DATA.....	11
TABLE 2	PREDICTED UNMITIGATED SOUND LEVELS OUTDOORS DUE TO ROAD TRAFFIC.....	11
TABLE 3	NOISE ABATEMENT MEASURES.....	14
TABLE 4	OLA MITIGATION OPTIONS.....	16

.../cont'd

TABLE OF CONTENTS (continued)

LIST OF FIGURES

FIGURE 1 KEY PLAN

FIGURE 2 DRAFT PLAN OF SUBDIVISION AND MITIGATION REQUIREMENTS

FIGURE 3 ACOUSTIC GATE CONCEPT

LIST OF APPENDICES

APPENDIX A ROAD TRAFFIC DATA

APPENDIX B ENVIRONMENTAL NOISE GUIDELINES

APPENDIX C STAMSON CALCULATIONS

APPENDIX D SAMPLE STC CALCULATIONS

APPENDIX E BERM REQUIREMENTS

Traffic Noise Assessment

Half Moon Bay South

Phase 5

Proposed Residential Development In the vicinity of Greenbank Road and Dundonald Drive City of Ottawa

EXECUTIVE SUMMARY

Valcoustics Canada Ltd. (VCL) has been retained to prepare a Traffic Noise Assessment for Phase 5 of the Half Moon Bay South development in the City of Ottawa. The development consists of 67 detached dwellings (Lots 1 to 67) and 18 townhouse blocks (Blocks 68 to 85). All dwellings will be provided with grade-level rear yard amenity areas.

The significant traffic noise source in the vicinity is road traffic on Realigned Greenbank Road and Kilbirnie Drive.

The sound levels on site have been determined and compared to the applicable Ministry of the Environment, Conservation and Parks (MECP) noise guidelines and the City of Ottawa Environmental noise Control Guidelines (ENCG) to determine the need for noise mitigation.

Based on the predicted sound levels, the following mitigation measures are recommended:

- Mandatory air conditioning at the dwellings closest to Realigned Greenbank Road (Lots 1 to 4 and 50 to 59 as well as Block 83);
- The provision for adding air conditioning at the dwellings in the vicinity of Realigned Greenbank Road (Lots 5 to 11, 28 to 31 and 39 to 49, as well as Blocks 81 and 82);
- Sound barriers at dwellings with rear yards exposed to Realigned Greenbank Road (Lots 1 to 7, 40, 49, 50 and 59 as well as Block 83); and
- Upgraded wall and/or window construction may be required at the dwellings closest to Realigned Greenbank Road (Lots 1 to 4 and 50 to 59 as well as Block 83). The requirements should be determined once the building plans are available.

1.0 INTRODUCTION

1.1 INTRODUCTION

Valcoustics Canada Ltd. (VCL) previously prepared a Stationary Noise Source Study, dated May 3, 2018, to address the noise impact of operations at the sand and gravel pits to the west of Realigned Greenbank Road onto Phase 5 of the Half Moon Bay South development in Ottawa. This report has been prepared to address the impact of the transportation (road traffic) noise sources onto the proposed development. The potential sound levels, due to road traffic noise, and mitigation measures needed to comply with the MECP and City of Ottawa noise guidelines are outlined herein.

1.2 THE SITE AND SURROUNDING AREA

The proposed development is bounded by:

- A community park and future residential dwellings in Phase 4 of the Half Moon Bay South development to the north;
- Alex Polowin Street, with future residential dwellings in Phase 4 of the Half Moon Bay South development beyond, to the east;
- Future residential dwellings, with Kilbirnie Drive beyond, to the south; and
- Realigned Greenbank Road, with future commercial development in Phase 7 of the Half Moon Bay South development beyond, to the west.

Figure 1 shows a Key Plan. The assessment is based on the Draft Plan of Subdivision, prepared by J.D. Barnes, with a date plotted of January 24, 2019. The Draft Plan of Subdivision is shown (in reduced form) as Figure 2.

1.3 THE PROPOSED DEVELOPMENT

The development consists of 67 detached dwellings (Lots 1 to 67) and 18 townhouse blocks (Blocks 68 to 85). All dwellings will be provided with grade-level rear yard amenity areas.

2.0 ENVIRONMENTAL NOISE ASSESSMENT

2.1 NOISE SENSITIVE RECEPTORS

The noise sensitive receptors as defined by the MECP Publication NPC-300, “*Stationary and Transportation Sources - Approval and Planning*” (see Appendix B), and the City of Ottawa Environmental Noise Control Guidelines (ENCG), are all residential units within the development.

2.2 NOISE SOURCES

The main noise source with potential for impact on Phase 5 of the proposed development will be road traffic on Realigned Greenbank Road and Kilbirnie Drive.

Standard ultimate traffic volumes and compositions were used. These volumes were obtained from the City of Ottawa ENCG Appendix B: Table of Traffic Parameters To Be Used for Sound Level Predictions.

Bus traffic volumes for the dedicated bus lanes on Realigned Greenbank Road were obtained via email from the City of Ottawa.

The road traffic data is summarized in Table 1.

The site is well outside of the NEF/NEP 25 aircraft noise contour and the Ottawa Airport Operating Influence Zone. Thus, aircraft noise is not a concern and is not considered further.

2.3 ENVIRONMENTAL NOISE GUIDELINES

City of Ottawa has implemented the “Environmental Noise Control Guideline” (ENCG) for use in the planning applications. With a few exceptions, the current version of the ENCG, dated January 2016, is based on the MECP Publication NPC-300, “*Stationary and Transportation Sources - Approval and Planning*”. The environmental noise guidelines in NPC-300, as well as some items in the ENCG which are distinct from NPC-300, are described below.

2.3.1 MECP Publication NPC-300

In accordance with NPC-300, if the daytime sound level, $L_{eq\ Day}$, at the exterior plane of living/dining room windows is greater than 65 dBA, or if the nighttime sound level, $L_{eq\ Night}$, at the exterior plane of bedroom windows is greater than 60 dBA, means must be provided so that windows can be kept closed for noise control purposes and central air conditioning is required. For daytime sound levels greater than 55 dBA and less than or equal to 65 dBA, or for nighttime sound levels greater than 50 dBA and less than or equal to 60 dBA, there need only be the provision for adding air conditioning at a later date. For single family and townhouse dwellings, the provision is typically in the form of a ducted ventilation system suitably sized to permit the addition of central air conditioning by the occupant. A warning clause advising the occupants of the potential interference with some activities is also required.

For outdoor amenity areas (“Outdoor Living Areas” - OLAs), the design goal is 55 dBA $L_{eq\ Day}$, with an excess not exceeding 5 dBA considered acceptable if it is technically not practicable to achieve the 55 dBA objective, provided warning clauses are registered on title.

Note that for road traffic sources, a balcony is not considered an OLA, unless it is the only OLA for the occupant and it is:

- at least 4 m in depth; and
- unenclosed.

For indoor areas, the daytime guideline for living and dining rooms is $L_{eq\ Day} \leq 45$ dBA for road traffic sound sources. The nighttime guideline for bedrooms is $L_{eq\ Night} \leq 40$ dBA for road traffic sound sources.

2.3.2 City of Ottawa

The City of Ottawa requires that the noise analysis use standard ultimate road traffic volumes, subject to the road type and number of lanes. The ultimate daily traffic volumes listed in the ENCG Appendix B: Table of Traffic and Road Parameters To Be Used For Sound Level Predictions. The Table is included in Appendix A of this report.

The City of Ottawa also requires that the use of the 5 dB allowable excess in OLA sound levels be justified. For this purpose, the City requires an analysis of the sound levels for various alternative planning and engineering options (including setbacks, grades and calculated barrier height options) in increments of one dB from Leq Day 55 to 60 dBA.

Warning clauses are required whenever noise is expected to meet or exceed 55 dBA during the daytime (Leq,16hr) in the outdoor living area or plane of window of any living space prior to mitigation.

The City of Ottawa has a minimum sound barrier fence height requirement of 2.2 m. The maximum sound barrier fence height is 2.5 m, unless otherwise indicated by the City.

2.4 NOISE IMPACT ASSESSMENT

Using the road traffic data in Table 1, the sound levels, in terms of $L_{eq\ Day}$ and $L_{eq\ Night}$, were determined using STAMSON V5.04 – ORNAMENT, the computerized road traffic noise prediction model of the MECP.

As per Table 2.2b of the ENCG, the indoor criteria for road noise are:

- Living rooms, dining rooms, etc; daytime or nighttime: 45 dBA
- Sleeping quarters; daytime (0700 to 2300 hours): 45 dBA
- Sleeping quarters; nighttime (2300 to 0700 hours): 40 dBA

The predicted sound levels at the upper storey of a dwelling (where the bedrooms are typically located) are generally expected to be higher than the sound levels at the lower storey (where the living rooms are typically located) due to ground attenuation effects. Thus, to ensure that the daytime and nighttime criteria will be met for both living rooms and bedrooms, the sound levels at all dwellings were assessed at a top-storey plane of window height of 4.5 m above grade, for both the daytime and nighttime cases.

For OLA calculations, a receptor height of 1.5 m above grade was used (representing a standing height).

Inherent screening of each building face due to its orientation to the noise source was taken into account. Screening from the future dwellings to the south of the site, between south property line and Kilbirnie Drive, was also included in the assessment.

The highest *unmitigated daytime* sound level of 73 dBA is predicted to occur at the west facade of Lot 1 and Block 83, closest to Realigned Greenbank Road. The highest *unmitigated nighttime* sound level of 66 dBA is predicted to occur at the same locations.

Table 2 summarizes the predicted sound levels outdoors at specific locations. Sound level calculations for all receptor locations are presented in Appendix C.

3.0 NOISE ABATEMENT REQUIREMENTS

The noise control measures can generally be classified into two categories which are interrelated, but which the designer can treat separately for the most part:

- (a) Architectural elements to achieve acceptable indoor noise guidelines;
- (b) Design features to protect the OLA's.

Noise abatement requirements are summarized in Table 3 and the notes to Table 3.

3.1 INDOORS

The indoor noise exposure guidelines can be achieved by using appropriate construction for exterior walls, windows and doors. The specific STC requirements of these building components will depend on the wall and window areas relative to the floor areas of the associated rooms. Since building plans have not yet been established for this phase of the development, it is not possible to calculate the specific STC requirements at this time. However, based on the predicted sound levels, upgraded exterior wall and window construction is anticipated at all dwellings in proximity to Realigned Greenbank Road. Specific STC requirements for walls and windows should be determined once architectural plans are available. This would likely be a condition of site plan approval or a condition of building permit.

To assess the feasibility of meeting the indoor noise criteria, a sample calculation was done at a worst-case location (Lot 1) adjacent to Realigned Greenbank Road. The daytime sound level at the west facade of Lot 1 (with full exposure to the roadway) is predicted to be 73 dBA. The daytime sound level at the south facade (with half exposure to the roadway) would be 3 dB lower. Based on typical assumptions, a corner bedroom with windows on both the northwest and northeast facades could be expected to have wall and window areas that are 80% and 30%, respectively, of the associated floor area, on each facade.

Based on the analysis procedures outlined in Building Practice Note BPN 56, “*Controlling Sound Transmission Into Buildings*”, as well as the assumptions outlined above, the STC requirements for elements of the building envelope were assessed. To meet the indoor noise criteria, exterior wall construction meeting STC 54 (e.g. brick veneer) and exterior window construction meeting STC 31 can be used. It is noted that windows with higher STC ratings may be required if the wall and window dimensions are greater than those used in this sample calculation, or if exterior walls with a lower STC rating are used. It is anticipated that dwellings farther setback from the roadway would have lower STC requirements due to the lower sound levels at the building facades.

Calculation details, as well as example window configurations and their STC ratings are shown in Appendix D.

As outlined in NPC-300, where the sound level on the outside of a window is greater than 60 dBA during the night or 65 dBA during the day, ventilation provisions must be made to permit the windows to remain closed. A commonly used technique is to provide central air conditioning. Table 3 indicates which dwellings would require mandatory air conditioning.

Where the nighttime sound levels are between 51 dBA and 60 dBA (or the daytime sound level is between 56 dBA and 65 dBA), the provision for the addition of air conditioning at the occupant's discretion is required. Table 3 indicates which dwellings would require the provision for the addition of air conditioning. In practice, this means forced air heating with adequately sized ductwork.

3.2 OUTDOORS

Without additional noise mitigation, the MECP and ENCG outdoor noise guideline of 55 dBA is predicted to be exceeded in the OLA's at the dwellings that side onto Realigned Greenbank Road. The ENCG requires that noise mitigation options, including increased setback, intervening non-noise sensitive land uses and earthen berms, be investigated prior to recommending sound barriers.

In extraordinary cases, the ENCG may allow a minor excess (up to 5 dBA) over the provincial guideline for outdoor receptors. The minor excess may be acceptable if further mitigation is not technically or economically feasible.

The City of Ottawa ENCG has a minimum sound barrier fence height requirement of 2.2 m and a maximum of 2.5 m, unless otherwise indicated by the City. For sound barriers in excess of 2.5 m the use of earth berms or retaining wall structures may be required.

For Phases 7 and 8 of the Half Moon Bay North development, the City has indicated that sound barriers up to 3.0 m in height are permitted without implementing earth berms or retaining walls. For consistency of appearance with the Half Moon Bay North development, subject to approval by the City, 3.0 m has been used as the maximum fence height for Half Moon Bay South Phase 5 dwellings adjacent to Realigned Greenbank Road.

In all cases, where the outdoor sound level exceeds 55 dBA, warning clauses will need to be registered on title. Lots which require warning clauses are shown in Table 3.

3.2.1 Dwellings Close to Realigned Greenbank Road

For those dwellings adjacent to Realigned Greenbank Road, the lot layout has been formulated to minimize the number of lots which are close to the road noise source. The single-family dwellings are provided with a "window street" to increase the setback from the road noise source to the nearest façade of the dwellings. Moreover, the window street design screens the majority of rear yard OLA's from the road noise source. As is typical in this design, a small number of dwellings must side towards the road noise source with reduced setback compared to those that front the window street. In these cases (unlike those dwellings fronting onto the window street), additional setback distance and building orientation are not available as mitigation measures to further reduce the outdoor sound level in the rear yard. Mitigation options on a lot-by-lot basis are provided below for those affected units.

- At Lot 1, the unmitigated daytime sound level is predicted to be 69 dBA in the rear yard outdoor amenity area ("Outdoor Living Area" - OLA's). A sound barrier 3.9 m in height would be required to meet the 55 dBA design objective (clearly, this exceeds the ENCG barrier height requirement). A 3.0 m high sound barrier is expected to mitigate the sound level in the rear yard OLA to 58 dBA. The inclusion of a 0.9 m high earth berm with a 3:1 slope on each side would reduce the usable width of the rear yard of the dwelling by 5.9 m (3×0.9 m slope on the road side + 0.5 m on top + 3×0.9 m on the dwelling side = 5.9 m). The width of the rear yard for Lot 1 is approximately 9.3 m, meaning that the berm would occupy more than half of the rear yard (see Appendix E for graphical representation). Therefore, a 3.0 m high acoustic fence along the property line is recommended at this location. Warning clauses advising of the elevated sound levels should be registered on title for this dwelling.

- At Lot 2, the unmitigated daytime sound level at the rear yard OLA is predicted to be 65 dBA. A sound barrier 4.2 m in height would be required to meet the 55 dBA design objective (note that sound barrier height is greater for Lot 2 than Lot 1 because of the increased barrier-receiver distance). The inclusion of a 1.2 m high earth berm with a 3:1 slope on each side would reduce the usable width of the rear yard of the dwelling by 7.7 m (3×1.2 m slope on the road side + 0.5 m on top + 3×1.2 m on the dwelling side = 7.7 m). This berm would be required along the property lines of both Lots 1 and 2 to be effective. As discussed above, this berm would not be feasible, as it would occupy the majority of the rear yard space (see Appendix E for graphical representation). A 3.0 m high acoustic fence along the property line would mitigate the sound level at the rear yard OLA to 58 dBA and is recommended. Warning clauses advising of the elevated sound levels should be registered on title for this dwelling.
- At Lot 3, the unmitigated daytime sound level at the rear yard OLA is predicted to be 63 dBA. A sound barrier 3.7 m in height would be required to meet the 55 dBA design objective. The inclusion of a 0.7 m high earth berm with a 3:1 slope on each side would reduce the usable width of the rear yard of the dwelling by 4.7 m (3×0.7 m slope on the road side + 0.5 m on top + 3×0.7 m on the dwelling side = 4.7 m). This berm would be required along the property lines of Lot 1 to 3 to be effective. As the berm would occupy half of the rear yard space for these units, it is not considered feasible (see Appendix E for graphical representation). A 3.0 m high acoustic fence along the property line would mitigate the sound level at the rear yard OLA to 57 dBA and is recommended. Warning clauses advising of the elevated sound levels should be registered on title for this dwelling.
- At Lot 4, the unmitigated daytime sound level at the rear yard OLA is predicted to be 61 dBA. A sound barrier 3.1 m in height would be required to meet the 55 dBA design objective. A 3.0 m high acoustic fence would mitigate the sound level at the rear yard to 55 dBA. The 1 dB difference in sound level would not be audible to the human ear and is considered acoustically insignificant. A 3.0 m high acoustic fence is therefore recommended at this location to be consistent with Lots 1 to 4. Warning clauses advising of the elevated sound levels should be registered on title for this dwelling.
- At Block 83 (the westernmost unit), the unmitigated daytime sound level is predicted to be 73 dBA in the rear yard OLA. A sound barrier 4.1 m in height would be required to meet the 55 dBA design objective. The inclusion of an earth berm with a height of 1.1 m and a 3:1 slope on each side would reduce the usable width of the rear yard of the dwelling by 7.1 m (3×1.1 m on the road side + 0.5 m on top + 3×1.1 m on the dwelling side = 7.1 m). The width of this berm would likely be greater than the width of the rear yard of the westerly unit (see Appendix E for graphical representation). A 3.0 m high sound barrier is expected to mitigate the sound level in the rear yard to 59 dBA (the sound levels would be further reduced at the units farther east in Blocks 82 and 83). Therefore, a 3.0 m high barrier sound barrier is recommended at this location. Warning clauses advising of the elevated sound levels should be registered on title for this dwelling.

Note, the sound barrier for Block 83 is assumed to continue south and tie in to the future dwelling to the south, as it is assumed that the future development to the south will be built before Realigned Greenbank Road is in use.

3.2.2 Dwellings at a Greater Setback from Realigned Greenbank Road

- At Lot 5, the unmitigated daytime OLA sound level is predicted to be 60 dBA. A 2.3 m high acoustic fence at Lot 5 will mitigate the daytime OLA sound level at this lot to 55 dBA and is recommended.
- At Lots 6 and 7, the unmitigated daytime OLA sound level is predicted to be 59 dBA and 58 dBA, respectively. A 2.2 m high acoustic fence at Lots 6 and 7 will mitigate the daytime OLA sound levels at these lots to 54 dBA. These fences will also provide screening to Lots 8 and 9 such that the mitigated daytime OLA sound levels at these locations are 55 dBA. Thus, 2.2 m high acoustic fences are recommended at these locations.
- At Lots 40 and 49, the unmitigated daytime OLA sound levels are predicted to be 60 dBA. The OLA's at Lots 50 and 59 (adjacent to the rear property line of Lots 40 and 49) are further screened from road traffic noise and would therefore have lower sound levels. A 2.2 m high acoustic fence at Lots 40, 49, 50 and 59 will mitigate the daytime OLA sound levels at these lots to 54 dBA or lower. Thus, 2.2 m high acoustic fences are recommended at these locations.

3.2.3 Notes Regarding Barriers

- The assessment was based on flat topography (i.e. the grade of the rear yard, base of the barrier and the roadway were all assumed to be zero). The assessment should be updated once the grading plan is available.
- Where possible, the site grading should be designed with higher grades along the property lines, relative to the rear yards. This may result in mitigated sound levels that are lower than the levels discussed in Section 3.2.1 above.
- The sound barriers may be designed with acoustic gates to provide access to the rear yard while ensuring that the acoustic performance of the barrier is not compromised. A sample detail for the acoustic gate is included in this report.
- Table 3 summarizes the required mitigation. Additionally, Table 4 provides the mitigated sound levels based on recommended mitigation as well as the mitigation required to achieve the 55 dBA guideline limit. Table 5 indicates the sound barrier heights required to achieve the range of 55 dBA to 60 dBA in one decibel increments.
- The sound barriers must be of solid construction with no gaps, cracks or holes (except for small gaps for drainage) and must have a minimum surface weight of 20 kg/m². A variety of materials are available, including concrete, masonry, glass, wood, specialty composite materials, or a combination of the above.

3.3 WARNING CLAUSES

Where the sound level guidelines are exceeded, appropriate warning clauses should be registered on title and included on Offers of Purchase and Sale to make future occupants aware of the potential noise situation. Lots requiring warning clauses and the wording for the City of Ottawa warning clauses are given in Table 3 and the notes to Table 3. Note, warning clauses in the ENCG have ventilation and sound barrier requirements grouped together. The ventilation and sound barrier requirements have been separated for use in Table 3 but the wording has been maintained.

As noted above, exact calculations of wall and window requirements cannot be completed at this point as architectural plans are not available, although a sample calculation based on typical room dimensions indicates that it will be feasible to meet the indoor noise criteria. Reviews of building components (wall and window constructions) will be done prior to the application for building permit with dwelling-specific building component requirements to be included in the building permit application package.

Where upgraded wall and/or window constructions are anticipated, warning clauses include language indicating that building components have been designed to provide sound isolation performance that will result in the indoor sound level limits being met when windows and exterior doors are closed.

4.0 CONCLUSIONS

Based on the predicted sound levels, the mitigation requirements for the proposed development are:

- Mandatory air conditioning at Lots 1 to 4 and 50 to 50, as well as Block 83;
- The provision for adding air conditioning at Lots 5 to 11, 28 to 31 and 39 to 49, as well as Blocks 81 and 82;
- Upgraded exterior wall and/or window construction is expected at Lots 1 to 4 and 50 to 50, as well as Block 83;
- Upgraded exterior wall and/or window construction may be required at Lots 1 to 4 and 50 to 50, as well as Block 83;
- The following acoustic fences are required:
 - 3.0 m high acoustic fences at Lots 1 to 4 and Block 83;
 - 2.3 m high acoustic fences at Lot 5;
 - 2.2 m high acoustic fences at Lots 6, 7, 40, 49, 50 and 59.

With the incorporation of the recommendations above, the indoor noise guidelines will be met at all units. None of the sound levels at the OLA's will exceed the 5 dB excess allowed by the MECP guidelines with the mitigation that is indicated as the minimum requirement. Future occupants will be made aware of the potential noise situation through warning clauses, as per MECP guidelines.

5.0 REFERENCES

1. "PC STAMSON 5.04 Computer Program for Road Traffic Noise Assessment", Ontario Ministry of the Environment.
2. Building Practice Note No. 56: "Controlling Sound Transmission into Buildings", by J. D. Quirt, Division of Building Research, National Council of Canada, September, 1985.
3. Environmental Noise Guideline NPC-300, "Stationary and Transportation Noise Sources - Approval and Planning", Ontario Ministry of the Environment and Climate Change, August 2013.

4. “Road and Rail Noise: Effects on Housing”, Canada Mortgage and Housing Corporation, Publication NHA 5156, 81/10.
5. “City of Ottawa Environmental Noise Control Guidelines”, January 2016.

SN\LM\tk

J:\2008\108363\300 Phase 5 Detailed Noise\Reports\Half Moon Bay South - Phase 5 - Transportation v1_0 Fnl.docx

TABLE 1: ROAD TRAFFIC DATA

Roadway	Classification	Ultimate AADT	% Trucks		Speed Limit (kph)	Day / Night Split (%)
			Medium	Heavy		
Realigned Greenbank Road ⁽¹⁾	4-UAD	35,000	7	5	70	92/8
Greenbank BRT ⁽²⁾	Bus Rapid Transit Lane	270	100	0	80	74/26
Kilbirnie Drive ⁽¹⁾	2-UCU	8,000	7	5	50	92/8

Notes:

- (1) As per Appendix B of the City of Ottawa “Environmental Noise Control Guidelines”, dated January 2016.
(2) Provided in an email from the City of Ottawa.

TABLE 2: PREDICTED UNMITIGATED SOUND LEVELS OUTDOORS DUE TO ROAD TRAFFIC

Location ⁽¹⁾	Source	Distance (m)	Leq Day	Leq Night
Lot 1 (West Façade)	Realigned Greenbank Road	22	73	66
	Greenbank BRT	22	58	56
	TOTAL	-	73	66
Lot 2 (South Façade)	Realigned Greenbank Road	31	69	61
	Greenbank BRT	31	53	52
	TOTAL	-	69	62
Lot 3 (South Façade)	Realigned Greenbank Road	42	68	60
	Greenbank BRT	42	52	51
	TOTAL	-	68	60
Lot 4 (South Façade)	Realigned Greenbank Road	53	65	58
	Greenbank BRT	53	50	48
	TOTAL	-	66	58
Lot 5 (South Façade)	Realigned Greenbank Road	65	63	56
	Greenbank BRT	65	48	47
	TOTAL	-	64	56
Lot 5 (North Façade)	Realigned Greenbank Road	65	61	53
	Greenbank BRT	65	45	44
	TOTAL	-	61	54
Lot 8 (South Façade)	Realigned Greenbank Road	110	58	50
	Greenbank BRT	110	42	41
	TOTAL	-	58	51
Lot 11 (South Façade)	Realigned Greenbank Road	146	56	48
	Greenbank BRT	146	50	39
	TOTAL	-	56	48
Lot 11 (North Façade)	Realigned Greenbank Road	146	55	48
	Greenbank BRT	146	39	38
	TOTAL	-	55	48

.../cont'd

TABLE 2: PREDICTED UNMITIGATED SOUND LEVELS OUTDOORS DUE TO ROAD TRAFFIC (continued)

Lot 12 (South Façade)	Realigned Greenbank Road	157	55	48
	Greenbank BRT	157	40	38
	TOTAL	-	55	48
Lot 27 (North Façade)	Realigned Greenbank Road	157	55	47
	Greenbank BRT	157	40	38
	TOTAL	-	55	48
Lot 28 (North Façade)	Realigned Greenbank Road	145	56	49
	Greenbank BRT	145	41	39
	TOTAL	-	56	49
Lot 31 (North Façade)	Realigned Greenbank Road	111	58	51
	Greenbank BRT	111	43	41
	TOTAL	-	58	51
Lot 32 (West Façade)	Realigned Greenbank Road	113	53	45
	Greenbank BRT	113	37	35
	TOTAL	-	53	45
Lot 39 (South Façade)	Realigned Greenbank Road	113	57	49
	Greenbank BRT	113	41	40
	TOTAL	-	57	50
Lot 40 (South Façade)	Realigned Greenbank Road	70	61	54
	Greenbank BRT	70	46	44
	TOTAL	-	61	54
Lot 45 (West Façade)	Realigned Greenbank Road	70	57	49
	Greenbank BRT	70	41	40
	TOTAL	-	57	49
Lot 49 (North Façade)	Realigned Greenbank Road	70	62	54
	Greenbank BRT	70	46	44
	TOTAL	-	62	55
Lot 54 (West Façade)	Realigned Greenbank Road	41	70	63
	Greenbank BRT	41	55	53
	TOTAL	-	70	63
Block 81 (North Façade)	Realigned Greenbank Road	109	58	50
	Greenbank BRT	109	42	41
	TOTAL	-	58	51
Block 82 (North Façade)	Realigned Greenbank Road	65	63	55
	Greenbank BRT	65	48	46
	TOTAL	-	63	56
Block 83 (West Façade)	Realigned Greenbank Road	22	73	66
	Greenbank BRT	22	58	45
	TOTAL	-	73	66
Block 83 (South Façade)	Realigned Greenbank Road	22	70	63
	Greenbank BRT	22	55	53
	Kilbirnie Drive	45	58	50
	TOTAL	-	71	63
Block 84 (South Façade)	Realigned Greenbank Road	142	54	47
	Greenbank BRT	142	39	38
	TOTAL	-	55	47

.../cont'd

TABLE 2: PREDICTED UNMITIGATED SOUND LEVELS OUTDOORS DUE TO ROAD TRAFFIC (continued)

Lot 1 (OLA)	Realigned Greenbank Road	26	69	-
	Greenbank BRT	26	53	-
	TOTAL	-	69	-
Lot 2 (OLA)	Realigned Greenbank Road	35	65	-
	Greenbank BRT	35	50	-
	TOTAL	-	65	-
Lot 3 (OLA)	Realigned Greenbank Road	45	63	-
	Greenbank BRT	45	48	-
	TOTAL	-	63	-
Lot 4 (OLA)	Realigned Greenbank Road	56	61	-
	Greenbank BRT	56	46	-
	TOTAL	-	61	-
Lot 5 (OLA)	Realigned Greenbank Road	68	60	-
	Greenbank BRT	68	45	-
	TOTAL	-	60	-
Lot 6 (OLA)	Realigned Greenbank Road	81	59	-
	Greenbank BRT	81	43	-
	TOTAL	-	59	-
Lot 7 (OLA)	Realigned Greenbank Road	94	58	-
	Greenbank BRT	94	42	-
	TOTAL	-	58	-
Lot 8 (OLA)	Realigned Greenbank Road	113	56	-
	Greenbank BRT	113	41	-
	TOTAL	-	56	-
Lot 9 (OLA)	Realigned Greenbank Road	126	56	-
	Greenbank BRT	126	40	-
	TOTAL	-	56	-
Lot 10 (OLA)	Realigned Greenbank Road	139	55	-
	Greenbank BRT	139	39	-
	TOTAL	-	55	-
Lot 40 (OLA)	Realigned Greenbank Road	67	60	-
	Greenbank BRT	67	44	-
	TOTAL	-	60	-
Lot 49 (OLA)	Realigned Greenbank Road	67	60	-
	Greenbank BRT	67	44	-
	TOTAL	-	60	-
Block 81 Westerly Unit (OLA)	Realigned Greenbank Road	112	51	-
	Greenbank BRT	112	36	-
	Kilbirnie Drive	42	50	-
	TOTAL	-	54	-

.../cont'd

TABLE 2: PREDICTED UNMITIGATED SOUND LEVELS OUTDOORS DUE TO ROAD TRAFFIC (continued)

Block 82 Westerly Unit (OLA)	Realigned Greenbank Road	68	55	-
	Greenbank BRT	68	40	-
	Kilbirnie Drive	42	50	-
	TOTAL	-	57	-
Block 83 Westerly Unit (OLA)	Realigned Greenbank Road	25	69	-
	Greenbank BRT	25	54	-
	Kilbirnie Drive	42	58	-
	TOTAL	-	69	-
Block 83 2 nd Westerly Unit (OLA)	Realigned Greenbank Road	31	66	-
	Greenbank BRT	31	50	-
	Kilbirnie Drive	42	57	-
	TOTAL	-	66	-

Notes:

- (1) See Appendix C for figures showing distances and angles to roadways.
- (2) Daytime and nighttime sound levels at the building facades were assessed at a height of 4.5 m above grade. Daytime sound levels at the OLA's were assessed at a height of 1.5 m above grade.

TABLE 3: NOISE ABATEMENT MEASURES

Location	Air Conditioning	Exterior Wall and Window	Sound Barrier	Warning Clauses
Lots 1 to 4	Mandatory	Upgraded construction expected	3.0 m high	A + B + D + E
Lot 5	Provision for adding	Upgraded construction may be required	2.3 m high	A + B + C + E
Lots 6, 7, 40 and 49	Provision for adding	Upgraded construction may be required	2.2 m high	A + B + C + E
Lots 8 and 9	Provision for adding	Upgraded construction may be required	OLA's screened by barriers at Lots 1 o 7	A + C
Lots 10, 11, 28 to 31, 39 and 41 to 48 Block 81 and 82	Provision for adding	Upgraded construction may be required	None	A + C
Lots 50 and 59	Mandatory	Upgraded construction expected	2.2 m high	A + B + D + E
Lots 51 to 58	Mandatory	Upgraded construction expected	None	A + D
Block 83	Mandatory	Upgraded construction expected	3.0 m high at westerly unit (ties in to dwelling to the south)	A + B + D + E
All other units	No special noise abatement measures required			

For notes to this table, see following page.

NOTES TO TABLE 3

- (1) Where means must be provided to allow windows to remain closed for noise control purposes, a commonly used technique is that of central air conditioning. Where possible, air cooled condenser units, if any, should be located in a noise insensitive area.

Provision for air conditioning would correspond to a ducted, forced air heating system, which would allow the addition of central air conditioning at a later date by the occupant.
- (2) STC - Sound Transmission Class Rating (Reference ASTM-E413). Values, where shown, are based on assumed areas. Requirements should be checked once building plans become available.
- (3) STC - Sound Transmission Class Rating (Reference ASTM-E413). A sliding glass walkout door should be considered as a window and be included in the percentage of glazing. Values shown are based on assumed areas. Requirements should be checked once building plans become available.
- (4) Sound barriers must be of solid construction having a minimum face density of 20 kg/m² with no gaps or cracks. Earthen berms, solid fences or combinations of berms/fences are acceptable.
- (5) Warning clauses to be registered on title and be included in Offers of Purchase and Sale for designated lots:
 - A. "The Transferee, for himself, his heirs, executors, administrators, successors and assigns acknowledge being advised that despite the inclusion of noise control features in the development and/or within the building unit sound levels due to increasing road traffic may occasionally interfere with some indoor and/or outdoor activities of the dwelling occupants as the sound levels may at times exceed the sound level limits of the City of Ottawa and the Ministry of the Environment, Conservation and Parks noise criteria."

"This development includes a number of measures to help reduce noise impacts, listed below. To ensure that provincial and municipal sound level limits are not exceeded and/or to keep sound levels as low as possible it is important to maintain the sound attenuation features provided."

"This development includes building and street orientation to help increase setback distances to major noise sources and shield some rear yards from excessive noise levels."
 - B. "This development includes an acoustic barrier to help reduce the sound levels within the rear yard of this and other nearby units."
 - 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 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 and Climate Change."

"The building components of this dwelling unit (walls, windows and exterior doors) have been designed to provide acoustic insulation so that, when windows and exterior doors are closed, the indoor sound levels are within the sound level limits of the City of Ottawa and the Ministry of Environment, Conservation and Parks. The details of this building component design are available by contacting the builder of this unit."
 - 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 City and the Ministry of the Environment, Conservation and Parks."

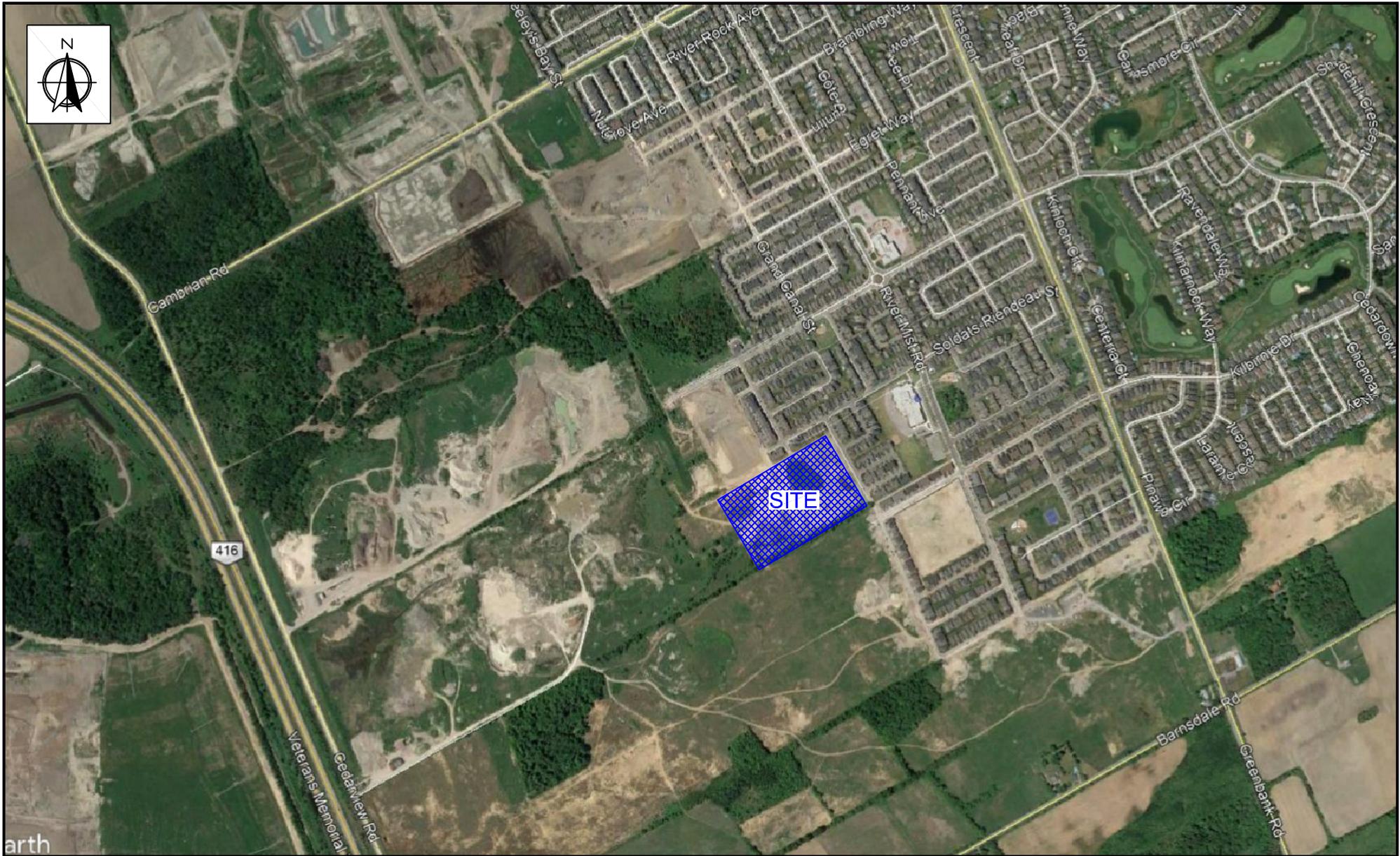
"The building components of this dwelling unit (walls, windows and exterior doors) have been designed to provide acoustic insulation so that, when windows and exterior doors are closed, the indoor sound levels are within the sound level limits of the City of Ottawa and the Ministry of Environment, Conservation and Parks. The details of this building component design are available by contacting the builder of this unit."
 - E. "The Transferee, for himself, his heirs, executors, administrators, successors and assigns acknowledge being additionally advised that the installed acoustic barrier is on private property and must be maintained and kept in good repair by the property owner. Any maintenance, repair or replacement is the responsibility of the owner and shall be the same material or to the same standards, having the same colour, appearance and function of the original."
- (6) Conventional ventilated attic roof construction meeting OBC requirements is satisfactory.
- (7) All exterior doors shall be fully weatherstripped.

TABLE 4: OLA⁽¹⁾ MITIGATION OPTIONS

OLA Location ⁽²⁾	Sound Barrier Height (m) Required to Mitigate to Sound Levels (Leq 16) (dBA)					
	60	59	58	57	56	55
Lot 1	2.5	2.7	2.9	3.2	3.5	3.9
Lot 2	2.2	2.5	2.9	3.3	3.7	4.2
Lot 3	2.2 ⁽³⁾	2.2 ⁽³⁾	2.2	2.8	3.2	3.7
Lot 4	2.2 ⁽³⁾	2.2 ⁽³⁾	2.2 ⁽³⁾	2.2	2.5	3.1
Lot 5	-	2.2 ⁽³⁾	2.2 ⁽³⁾	2.2 ⁽³⁾	2.2 ⁽³⁾	2.3
Lot 6	-	-	2.2 ⁽³⁾	2.2 ⁽³⁾	2.2 ⁽³⁾	2.2 ⁽³⁾
Lot 7	-	-	-	2.2 ⁽³⁾	2.2 ⁽³⁾	2.2 ⁽³⁾
Lot 8	-	-	-	-	-	2.2 ^(3,4)
Lot 9	-	-	-	-	-	2.2 ^(3,4)
Lots 40 and 49 ⁽⁵⁾	-	2.2 ⁽³⁾				
Block 83	2.6	2.8	3.1	3.4	3.7	4.1

Notes:

- (1) OLA - Outdoor Living Area.
- (2) See Figure 2.
- (3) Minimum 2.2 m acoustic fence height as specified in the ENCG.
- (4) Screening from sound barriers at Lots 1 to 7.
- (5) The OLA's at Lots 50 and 49 are more screened from road traffic noise by the building facades. The sound barrier requirements at these locations are therefore determined by Lots 40 and 49.



No.	Revision/Issue	Date


VALCOUSTICS
 Canada Ltd.

30 Wertheim Court, Unit 25
 Richmond Hill, Ontario
 Canada L4B 1B9
solutions@valcoustics.com
 Phone: (905) 764-5223
 Fax: (905) 764-6813

Title
Key Plan

Project No.
108-363-300

Date
Jan. 31, 2019

Project Name
Half Moon Bay South - Phase 5

Scale
N.T.S.

Figure
1



REGISTERED PLAN
rue Des Soldats Riendeau Street

LEGEND

D: Daytime Sound Level
N: Nighttime Sound Level
O: Unmitigated OLA Sound Level

Daytime Sound Level > 65 dBA
(Nighttime Sound Level > 57 dBA)
Mandatory Air Conditioning
Exterior Wall/Window Upgrades Expected

55 dBA < Daytime Sound Level <= 65 dBA
(47 dBA < Nighttime Sound Level <= 57 dBA)
Provision for Adding Air Conditioning

Sound Barrier



CONCESSION

BASE DRAWING BY J.D. BARNES

VALCOUSTICS
Canada Ltd.

30 Wertheim Court, Unit 25
Richmond Hill, Ontario
Canada L4B 1B9
solutions@valcoustics.com
Phone: (905) 764-5223
Fax: (905) 764-6813

Title
Draft Plan of Subdivision and Mitigation Requirements

Project Name
Half Moon Bay South - Phase 5

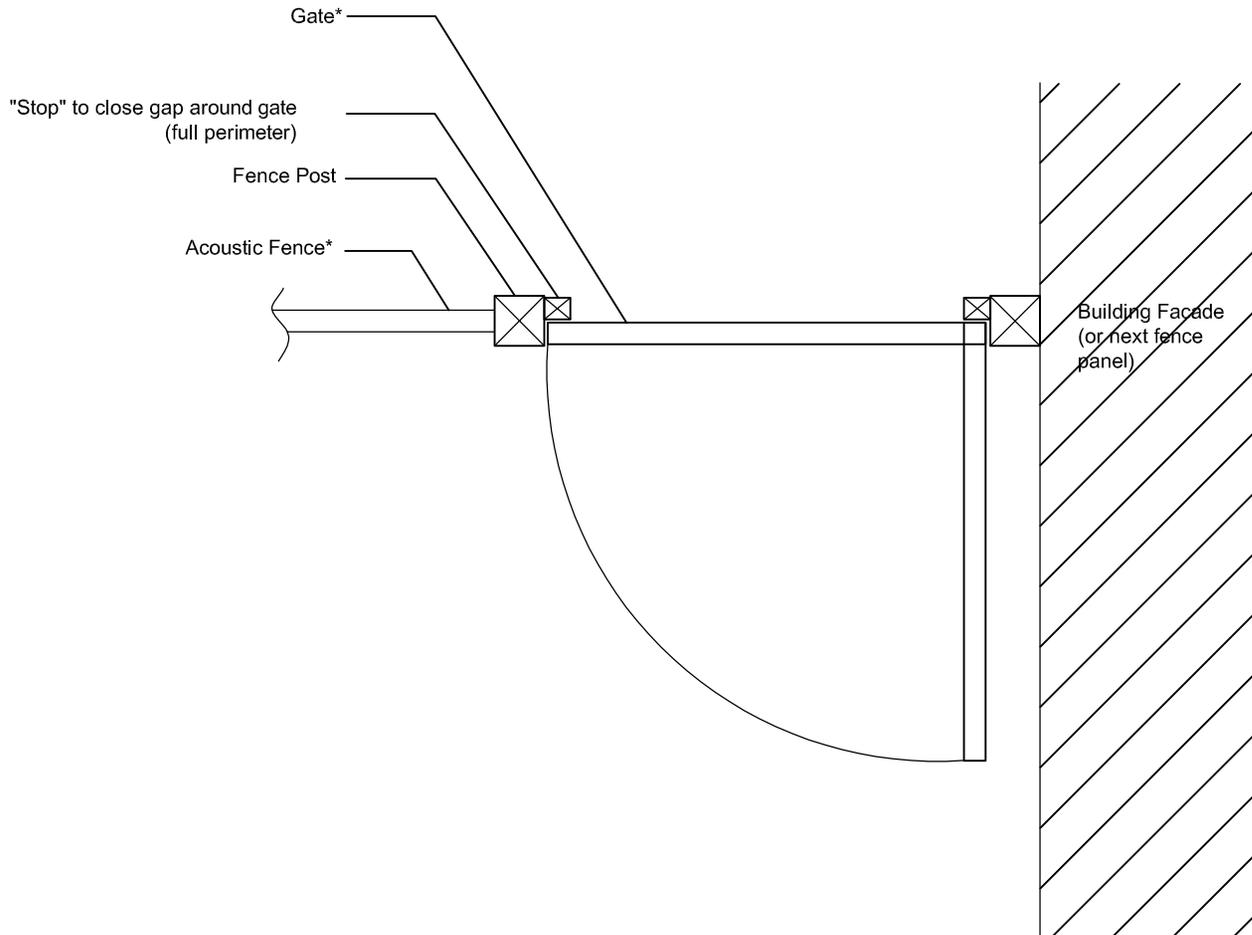
Project No.
108-363-300

Scale
N.T.S.

Date
Jan. 31, 2019

Figure
2

No.	Revision/Issue	Date



* Acoustic Fence including gate must be of solid construction having a minimum face density of 20 kg/m² with no gaps or cracks.

Note: Bottom edge of gate must be no more than 25 mm above grade, if required for drainage.
The acoustic gates should be placed as close to the building facade as practical.

			 30 Wertheim Court, Unit 25 Richmond Hill, Ontario Canada L4B 1B9 solutions@valcoustics.com Phone: (905) 764-5223 Fax: (905) 764-6813	Title Acoustic Gate Concept	Project No. 108-363-300	Date Feb. 1, 2019
				Project Name Half Moon Bay South - Phase 8	Scale N.T.S.	Figure 3
No.	Revision/Issue	Date				

APPENDIX A

ROAD TRAFFIC DATA

Seema Nagaraj

From: Baggs, Rosanna <Rosanna.Baggs@ottawa.ca>
Sent: Thursday, November 29, 2018 1:19 PM
To: Seema Nagaraj
Cc: Ian Matthew
Subject: RE: Road traffic data for Half Moon Bay South - Phase 5 (VCL File: 108-363-300)

Hi Seema,

It is the consultant's responsibility to confirm the information with relevant planning information. Here is some basic info and where it can be found.

Realigned Greenbank: Refer to the EA

- Arterial
- BRT info (confirmed by OC):
 - o It is estimated future bus volumes along the Transitway are approximately 270 buses per day.
 - o Use a speed of 80 km/h with a day/night split of 74/26 (%).

Alex Polowin Avenue – Barrhaven South Expansion Lands CDP and supporting TMP

- Local

Kilbirne – Barrhaven South Expansion Lands CDP and supporting TMP

- Collector
- Will have to be considered and analyzed to ensure that the Outdoor Living Area and POWs are not affected; the proposed houses between Kilbirne and the locations in question can be assumed as a row of houses with a reasonable %.

Please let me know if you have any questions or concerns.

Regards,

Rosanna Baggs, C.E.T.

Project Manager, Infrastructure Approvals | GPRJ Approbation demandes infrastructure
Development Review West Branch | Dir Services d'examen des demandes d'aménagement
Tel | Tél. : 613-580- 2424 ext. | poste 26388

Appendix B: Table of Traffic and Road Parameters To Be Used For Sound Level Predictions

Table B1 Traffic And Road Parameters To Be Used For Sound Level Predictions

Row Width (m)	Implied Roadway Class	AADT Vehicles/Day	Posted Speed Km/Hr	Day/Night Split %	Medium Trucks %	Heavy Trucks % ¹
NA ²	Freeway, Queensway, Highway	18,333 per lane	100	92/8	7	5
37.5-44.5	6-Lane Urban Arterial-Divided (6 UAD)	50,000	50-80	92/8	7	5
34-37.5	4-Lane Urban Arterial-Divided (4-UAD)	35,000	50-80	92/8	7	5
23-34	4-Lane Urban Arterial-Undivided (4-UAU)	30,000	50-80	92/8	7	5
23-34	4-Lane Major Collector (4-UMCU)	24,000	40-60	92/8	7	5
30-35.5	2-Lane Rural Arterial (2-RAU)	15,000	50-80	92/8	7	5
20-30	2-Lane Urban Arterial (2-UAU)	15,000	50-80	92/8	7	5
20-30	2-Lane Major Collector (2-UMCU)	12,000	40-60	92/8	7	5
30-35.5	2-Lane Outer Rural Arterial (near the extremities of the City) (2-RAU)	10,000	50-80	92/8	7	5
20-30	2-Lane Urban Collector (2-UCU)	8,000	40-50	92/8	7	5

¹ The MOE Vehicle Classification definitions should be used to estimate automobiles, medium trucks and heavy trucks.

² The number of lanes is determined by the future mature state of the roadway.

APPENDIX B

ENVIRONMENTAL NOISE GUIDELINES

APPENDIX B

ENVIRONMENTAL NOISE GUIDELINES

MINISTRY OF THE ENVIRONMENT, CONSERVATION AND PARKS (MECP)

Reference: MECP Publication NPC-300, October 2013: “*Environmental Noise Guideline, Stationary and Transportation Source – Approval and Planning*”.

SPACE	SOURCE	TIME PERIOD	CRITERION
Living/dining, den areas of residences, hospitals, nursing homes, schools, daycare centres, etc.	Road	07:00 to 23:00	45 dBA
	Rail	07:00 to 23:00	40 dBA
	Aircraft	24-hour period	NEF/NEP 5
Living/dining, den areas of residences, hospitals, nursing homes, etc. (except schools or daycare centres)	Road	23:00 to 07:00	45 dBA
	Rail	23:00 to 07:00	40 dBA
	Aircraft	24-hour period	NEF/NEP 5
Sleeping quarters	Road	07:00 to 23:00	45 dBA
	Rail	07:00 to 23:00	40 dBA
	Aircraft	24-hour period	NEF/NEP 0
Sleeping quarters	Road	23:00 to 07:00	40 dBA
	Rail	23:00 to 07:00	35 dBA
	Aircraft	24-hour period	NEF/NEP 0
Outdoor Living Areas	Road and Rail	07:00 to 23:00	55 dBA
Outdoor Point of Reception	Aircraft	24-hour period	NEF/NEP 30 [#]
	Stationary Source		
	Class 1 Area	07:00 to 19:00 ⁽¹⁾	50 ⁺ dBA
		19:00 to 23:00 ⁽¹⁾	50 ⁺ dBA
	Class 2 Area	07:00 to 19:00 ⁽²⁾	50 ⁺ dBA
		19:00 to 23:00 ⁽²⁾	45 ⁺ dBA
	Class 3 Area	07:00 to 19:00 ⁽³⁾	45 ⁺ dBA
		19:00 to 23:00 ⁽³⁾	40 ⁺ dBA
Class 4 Area	07:00 to 19:00 ⁽⁴⁾	55 ⁺ dBA	
	19:00 to 23:00 ⁽⁴⁾	55 ⁺ dBA	

.../cont'd

SPACE	SOURCE	TIME PERIOD	CRITERION
Plane of a Window of Noise Sensitive Spaces	Stationary Source Class 1 Area	07:00 to 19:00 ⁽¹⁾	50 ⁺ dBA
		19:00 to 23:00 ⁽¹⁾	50 ⁺ dBA
		23:00 to 07:00 ⁽¹⁾	45 ⁺ dBA
	Class 2 Area	07:00 to 19:00 ⁽²⁾	50 ⁺ dBA
		19:00 to 23:00 ⁽²⁾	50 ⁺ dBA
		23:00 to 07:00 ⁽²⁾	45 ⁺ dBA
	Class 3 Area	07:00 to 19:00 ⁽³⁾	45 ⁺ dBA
		19:00 to 23:00 ⁽³⁾	45 ⁺ dBA
		23:00 to 07:00 ⁽³⁾	40 ⁺ dBA
	Class 4 Area	07:00 to 19:00 ⁽⁴⁾	60 ⁺ dBA
		19:00 to 23:00 ⁽⁴⁾	60 ⁺ dBA
		23:00 to 07:00 ⁽⁴⁾	55 ⁺ dBA

- # may not apply to in-fill or re-development.
 * or the minimum hourly background sound exposure $L_{eq(1)}$, due to road traffic, if higher.
 (1) Class 1 Area: Urban.
 (2) Class 2 Area: Urban during day; rural-like evening and night.
 (3) Class 3 Area: Rural.
 (4) Class 4 Area: Subject to land use planning authority's approval.

Reference: MECP Publication ISBN 0-7729-2804-5, 1987: "Environmental Noise Assessment in Land-Use Planning".

EXCESS ABOVE RECOMMENDED SOUND LEVEL LIMITS (dBA)	CHANGE IN SUBJECTIVE LOUDNESS ABOVE	MAGNITUDE OF THE NOISE PROBLEM	NOISE CONTROL MEASURES (OR ACTION TO BE TAKEN)
No excess (<55 dBA)	—	No expected noise problem	None
1 to 5 inclusive (56 to 60 dBA)	Noticeably louder	Slight noise impact	If no physical measures are taken, then prospective purchasers or tenants should be made aware by suitable warning clauses.
6 to 10 inclusive (61 - 65 dBA)	Almost twice as loud	Definite noise impact	Recommended.
11 to 15 inclusive (66 - 70 dBA)	Almost three times as loud	Serious noise impact	Strongly Recommended.
16 and over (>70 dBA)	Almost four times as loud	Very serious noise impact	Strongly Recommended (may be mandatory).

APPENDIX C

STAMSON CALCULATIONS

STAMSON 5.04 NORMAL REPORT Date: 29-01-2019 15:11:56
MINISTRY OF ENVIRONMENT, CONSERVATION AND PARKS / NOISE ASSESSMENT

Filename: 11_wf.te Time Period: Day/Night 16/8 hours

Description: Lot 1 - West Facade

Road data, segment # 1: R Greenbank (day/night)

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

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

Data for Segment # 1: R Greenbank (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 : 22.00 / 22.00 m
Receiver height : 4.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 0/0 veh/TimePeriod *
Medium truck volume : 200/70 veh/TimePeriod *
Heavy truck volume : 0/0 veh/TimePeriod *
Posted speed limit : 80 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 270
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 100.00
Heavy Truck % of Total Volume : 0.00
Day (16 hrs) % of Total Volume : 74.00

Data for Segment # 2: BRT (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 : 22.00 / 22.00 m
Receiver height  :   4.50 / 4.50 m
Topography      :      1      (Flat/gentle slope; no barrier)
Reference angle  :      0.00
  
```

Results segment # 1: R Greenbank (day)

Source height = 1.50 m

ROAD (0.00 + 73.33 + 0.00) = 73.33 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	75.00	0.00	-1.66	0.00	0.00	0.00	0.00	73.33

Segment Leq : 73.33 dBA

Results segment # 2: BRT (day)

Source height = 0.50 m

ROAD (0.00 + 57.95 + 0.00) = 57.95 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	59.61	0.00	-1.66	0.00	0.00	0.00	0.00	57.95

Segment Leq : 57.95 dBA

Total Leq All Segments: 73.45 dBA

Results segment # 1: R Greenbank (night)

Source height = 1.50 m

ROAD (0.00 + 65.74 + 0.00) = 65.74 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	67.40	0.00	-1.66	0.00	0.00	0.00	0.00	65.74

Segment Leq : 65.74 dBA

Results segment # 2: BRT (night)

Source height = 0.50 m

ROAD (0.00 + 56.40 + 0.00) = 56.40 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	58.06	0.00	-1.66	0.00	0.00	0.00	0.00	56.40

Segment Leq : 56.40 dBA

Total Leq All Segments: 66.22 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 73.45
(NIGHT): 66.22

STAMSON 5.04 NORMAL REPORT Date: 29-01-2019 15:12:30
MINISTRY OF ENVIRONMENT CONSERVATION AND PARKS/ NOISE ASSESSMENT

Filename: l2_sf.te Time Period: Day/Night 16/8 hours

Description: Lot 2 - South Facade

Road data, segment # 1: R Greenbank (day/night)

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

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

Data for Segment # 1: R Greenbank (day/night)

Angle1 Angle2 : -90.00 deg 0.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 31.00 / 31.00 m
Receiver height : 4.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 0/0 veh/TimePeriod *
Medium truck volume : 200/70 veh/TimePeriod *
Heavy truck volume : 0/0 veh/TimePeriod *
Posted speed limit : 80 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 270
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 100.00
Heavy Truck % of Total Volume : 0.00
Day (16 hrs) % of Total Volume : 74.00

Data for Segment # 2: BRT (day/night)

Angle1 Angle2 : -90.00 deg 0.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 31.00 / 31.00 m
Receiver height : 4.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: R Greenbank (day)

Source height = 1.50 m

ROAD (0.00 + 68.83 + 0.00) = 68.83 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	0	0.00	75.00	0.00	-3.15	-3.01	0.00	0.00	0.00	68.83

Segment Leq : 68.83 dBA

Results segment # 2: BRT (day)

Source height = 0.50 m

ROAD (0.00 + 53.45 + 0.00) = 53.45 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	0	0.00	59.61	0.00	-3.15	-3.01	0.00	0.00	0.00	53.45

Segment Leq : 53.45 dBA

Total Leq All Segments: 68.95 dBA

Results segment # 1: R Greenbank (night)

Source height = 1.50 m

ROAD (0.00 + 61.24 + 0.00) = 61.24 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	0	0.00	67.40	0.00	-3.15	-3.01	0.00	0.00	0.00	61.24

Segment Leq : 61.24 dBA

Results segment # 2: BRT (night)

Source height = 0.50 m

ROAD (0.00 + 51.90 + 0.00) = 51.90 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	0	0.00	58.06	0.00	-3.15	-3.01	0.00	0.00	0.00	51.90

Segment Leq : 51.90 dBA

Total Leq All Segments: 61.72 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 68.95
(NIGHT): 61.72

STAMSON 5.04 NORMAL REPORT Date: 29-01-2019 15:13:05
MINISTRY OF ENVIRONMENT, CONSERVATION AND PARKS / NOISE ASSESSMENT

Filename: l3_sf.te Time Period: Day/Night 16/8 hours

Description: Lot 3 - South Facade

Road data, segment # 1: R Greenbank (day/night)

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

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

Data for Segment # 1: R Greenbank (day/night)

Angle1 Angle2 : -90.00 deg 0.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 42.00 / 42.00 m
Receiver height : 4.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 0/0 veh/TimePeriod *
Medium truck volume : 200/70 veh/TimePeriod *
Heavy truck volume : 0/0 veh/TimePeriod *
Posted speed limit : 80 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 270
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 100.00
Heavy Truck % of Total Volume : 0.00
Day (16 hrs) % of Total Volume : 74.00

Data for Segment # 2: BRT (day/night)

Angle1 Angle2 : -90.00 deg 0.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 42.00 / 42.00 m
Receiver height : 4.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: R Greenbank (day)

Source height = 1.50 m

ROAD (0.00 + 67.51 + 0.00) = 67.51 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	0	0.00	75.00	0.00	-4.47	-3.01	0.00	0.00	0.00	67.51

Segment Leq : 67.51 dBA

Results segment # 2: BRT (day)

Source height = 0.50 m

ROAD (0.00 + 52.13 + 0.00) = 52.13 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	0	0.00	59.61	0.00	-4.47	-3.01	0.00	0.00	0.00	52.13

Segment Leq : 52.13 dBA

Total Leq All Segments: 67.63 dBA

Results segment # 1: R Greenbank (night)

Source height = 1.50 m

ROAD (0.00 + 59.92 + 0.00) = 59.92 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	0	0.00	67.40	0.00	-4.47	-3.01	0.00	0.00	0.00	59.92

Segment Leq : 59.92 dBA

Results segment # 2: BRT (night)

Source height = 0.50 m

ROAD (0.00 + 50.58 + 0.00) = 50.58 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	0	0.00	58.06	0.00	-4.47	-3.01	0.00	0.00	0.00	50.58

Segment Leq : 50.58 dBA

Total Leq All Segments: 60.40 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 67.63
(NIGHT): 60.40

STAMSON 5.04 NORMAL REPORT Date: 29-01-2019 15:13:18
MINISTRY OF ENVIRONMENT, CONSERVATION AND PARKS / NOISE ASSESSMENT

Filename: l4_sf.te Time Period: Day/Night 16/8 hours
Description: Lot 4 - South Facade

Road data, segment # 1: R Greenbank (day/night)

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

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

Data for Segment # 1: R Greenbank (day/night)

Angle1 Angle2 : -70.00 deg 0.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 53.00 / 53.00 m
Receiver height : 4.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 0/0 veh/TimePeriod *
Medium truck volume : 200/70 veh/TimePeriod *
Heavy truck volume : 0/0 veh/TimePeriod *
Posted speed limit : 80 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 270
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 100.00
Heavy Truck % of Total Volume : 0.00
Day (16 hrs) % of Total Volume : 74.00

Data for Segment # 2: BRT (day/night)

Angle1 Angle2 : -70.00 deg 0.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 53.00 / 53.00 m
Receiver height : 4.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: R Greenbank (day)

Source height = 1.50 m

ROAD (0.00 + 65.41 + 0.00) = 65.41 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-70	0	0.00	75.00	0.00	-5.48	-4.10	0.00	0.00	0.00	65.41

Segment Leq : 65.41 dBA

Results segment # 2: BRT (day)

Source height = 0.50 m

ROAD (0.00 + 50.03 + 0.00) = 50.03 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-70	0	0.00	59.61	0.00	-5.48	-4.10	0.00	0.00	0.00	50.03

Segment Leq : 50.03 dBA

Total Leq All Segments: 65.53 dBA

Results segment # 1: R Greenbank (night)

Source height = 1.50 m

ROAD (0.00 + 57.81 + 0.00) = 57.81 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-70	0	0.00	67.40	0.00	-5.48	-4.10	0.00	0.00	0.00	57.81

Segment Leq : 57.81 dBA

Results segment # 2: BRT (night)

Source height = 0.50 m

ROAD (0.00 + 48.48 + 0.00) = 48.48 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-70	0	0.00	58.06	0.00	-5.48	-4.10	0.00	0.00	0.00	48.48

Segment Leq : 48.48 dBA

Total Leq All Segments: 58.29 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 65.53
(NIGHT): 58.29

STAMSON 5.04 NORMAL REPORT Date: 29-01-2019 15:13:43
MINISTRY OF ENVIRONMENT, CONSERVATION AND PARKS / NOISE ASSESSMENT

Filename: 15_nf.te Time Period: Day/Night 16/8 hours
Description: Lot 5 - North Facade

Road data, segment # 1: R Greenbank (day/night)

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

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

Data for Segment # 1: R Greenbank (day/night)

Angle1 Angle2 : 0.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 65.00 / 65.00 m
Receiver height : 4.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 0/0 veh/TimePeriod *
Medium truck volume : 200/70 veh/TimePeriod *
Heavy truck volume : 0/0 veh/TimePeriod *
Posted speed limit : 80 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 270
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 100.00
Heavy Truck % of Total Volume : 0.00
Day (16 hrs) % of Total Volume : 74.00

Data for Segment # 2: BRT (day/night)

```

-----
Angle1  Angle2      :    0.00 deg   90.00 deg
Wood depth      :          0      (No woods.)
No of house rows :          0 / 0
Surface         :          1      (Absorptive ground surface)
Receiver source distance : 65.00 / 65.00 m
Receiver height :    4.50 / 4.50 m
Topography     :          1      (Flat/gentle slope; no barrier)
Reference angle :    0.00
  
```

Results segment # 1: R Greenbank (day)

Source height = 1.50 m

ROAD (0.00 + 60.68 + 0.00) = 60.68 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	90	0.57	75.00	0.00	-10.00	-4.31	0.00	0.00	0.00	60.68

Segment Leq : 60.68 dBA

Results segment # 2: BRT (day)

Source height = 0.50 m

ROAD (0.00 + 45.06 + 0.00) = 45.06 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	90	0.60	59.61	0.00	-10.19	-4.37	0.00	0.00	0.00	45.06

Segment Leq : 45.06 dBA

Total Leq All Segments: 60.80 dBA

Results segment # 1: R Greenbank (night)

Source height = 1.50 m

ROAD (0.00 + 53.09 + 0.00) = 53.09 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	90	0.57	67.40	0.00	-10.00	-4.31	0.00	0.00	0.00	53.09

Segment Leq : 53.09 dBA

Results segment # 2: BRT (night)

Source height = 0.50 m

ROAD (0.00 + 43.51 + 0.00) = 43.51 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	90	0.60	58.06	0.00	-10.19	-4.37	0.00	0.00	0.00	43.51

Segment Leq : 43.51 dBA

Total Leq All Segments: 53.54 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 60.80
(NIGHT): 53.54

STAMSON 5.04 NORMAL REPORT Date: 29-01-2019 15:13:59
MINISTRY OF ENVIRONMENT, CONSERVATION AND PARKS/ NOISE ASSESSMENT

Filename: 15_sf.te Time Period: Day/Night 16/8 hours

Description: Lot 5 - South Facade

Road data, segment # 1: R Greenbank (day/night)

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

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

Data for Segment # 1: R Greenbank (day/night)

Angle1 Angle2 : -55.00 deg 0.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 65.00 / 65.00 m
Receiver height : 4.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 0/0 veh/TimePeriod *
Medium truck volume : 200/70 veh/TimePeriod *
Heavy truck volume : 0/0 veh/TimePeriod *
Posted speed limit : 80 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 270
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 100.00
Heavy Truck % of Total Volume : 0.00
Day (16 hrs) % of Total Volume : 74.00

Data for Segment # 2: BRT (day/night)

```

-----
Angle1  Angle2      : -55.00 deg   0.00 deg
Wood depth      :      0      (No woods.)
No of house rows :      0 / 0
Surface         :      2      (Reflective ground surface)
Receiver source distance : 65.00 / 65.00 m
Receiver height  :      4.50 / 4.50 m
Topography      :      1      (Flat/gentle slope; no barrier)
Reference angle  :      0.00
  
```

Results segment # 1: R Greenbank (day)

Source height = 1.50 m

ROAD (0.00 + 63.48 + 0.00) = 63.48 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-55	0	0.00	75.00	0.00	-6.37	-5.15	0.00	0.00	0.00	63.48

Segment Leq : 63.48 dBA

Results segment # 2: BRT (day)

Source height = 0.50 m

ROAD (0.00 + 48.10 + 0.00) = 48.10 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-55	0	0.00	59.61	0.00	-6.37	-5.15	0.00	0.00	0.00	48.10

Segment Leq : 48.10 dBA

Total Leq All Segments: 63.60 dBA

Results segment # 1: R Greenbank (night)

Source height = 1.50 m

ROAD (0.00 + 55.88 + 0.00) = 55.88 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-55	0	0.00	67.40	0.00	-6.37	-5.15	0.00	0.00	0.00	55.88

Segment Leq : 55.88 dBA

Results segment # 2: BRT (night)

Source height = 0.50 m

ROAD (0.00 + 46.55 + 0.00) = 46.55 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-55	0	0.00	58.06	0.00	-6.37	-5.15	0.00	0.00	0.00	46.55

Segment Leq : 46.55 dBA

Total Leq All Segments: 56.36 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 63.60
(NIGHT): 56.36

STAMSON 5.04 NORMAL REPORT Date: 29-01-2019 15:14:17
MINISTRY OF ENVIRONMENT, CONSERVATION AND PARKS/ NOISE ASSESSMENT

Filename: 18_sf.te Time Period: Day/Night 16/8 hours
Description: Lot 8 - South Facade

Road data, segment # 1: R Greenbank (day/night)

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

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

Data for Segment # 1: R Greenbank (day/night)

Angle1 Angle2 : -25.00 deg 0.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 110.00 / 110.00 m
Receiver height : 4.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 0/0 veh/TimePeriod *
Medium truck volume : 200/70 veh/TimePeriod *
Heavy truck volume : 0/0 veh/TimePeriod *
Posted speed limit : 80 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 270
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 100.00
Heavy Truck % of Total Volume : 0.00
Day (16 hrs) % of Total Volume : 74.00

Data for Segment # 2: BRT (day/night)

Angle1 Angle2 : -25.00 deg 0.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 110.00 / 110.00 m
Receiver height : 4.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: R Greenbank (day)

Source height = 1.50 m

ROAD (0.00 + 57.77 + 0.00) = 57.77 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-25	0	0.00	75.00	0.00	-8.65	-8.57	0.00	0.00	0.00	57.77

Segment Leq : 57.77 dBA

Results segment # 2: BRT (day)

Source height = 0.50 m

ROAD (0.00 + 42.39 + 0.00) = 42.39 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-25	0	0.00	59.61	0.00	-8.65	-8.57	0.00	0.00	0.00	42.39

Segment Leq : 42.39 dBA

Total Leq All Segments: 57.89 dBA

Results segment # 1: R Greenbank (night)

Source height = 1.50 m

ROAD (0.00 + 50.17 + 0.00) = 50.17 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-25	0	0.00	67.40	0.00	-8.65	-8.57	0.00	0.00	0.00	50.17

Segment Leq : 50.17 dBA

Results segment # 2: BRT (night)

Source height = 0.50 m

ROAD (0.00 + 40.84 + 0.00) = 40.84 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-25	0	0.00	58.06	0.00	-8.65	-8.57	0.00	0.00	0.00	40.84

Segment Leq : 40.84 dBA

Total Leq All Segments: 50.65 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 57.89
(NIGHT): 50.65

STAMSON 5.04 NORMAL REPORT Date: 29-01-2019 15:14:38
MINISTRY OF ENVIRONMENT, CONSERVATION AND PARKS/ NOISE ASSESSMENT

Filename: l11_nf.te Time Period: Day/Night 16/8 hours

Description: Lot 11 - North Facade

Road data, segment # 1: R Greenbank (day/night)

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

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

Data for Segment # 1: R Greenbank (day/night)

Angle1 Angle2 : 0.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 146.00 / 146.00 m
Receiver height : 4.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 0/0 veh/TimePeriod *
Medium truck volume : 200/70 veh/TimePeriod *
Heavy truck volume : 0/0 veh/TimePeriod *
Posted speed limit : 80 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 270
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 100.00
Heavy Truck % of Total Volume : 0.00
Day (16 hrs) % of Total Volume : 74.00

Data for Segment # 2: BRT (day/night)

```

-----
Angle1  Angle2      :    0.00 deg   90.00 deg
Wood depth      :          0      (No woods.)
No of house rows :          0 / 0
Surface         :          1      (Absorptive ground surface)
Receiver source distance : 146.00 / 146.00 m
Receiver height  :    4.50 / 4.50 m
Topography      :          1      (Flat/gentle slope; no barrier)
Reference angle  :    0.00
  
```

Results segment # 1: R Greenbank (day)

Source height = 1.50 m

ROAD (0.00 + 55.16 + 0.00) = 55.16 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	90	0.57	75.00	0.00	-15.52	-4.31	0.00	0.00	0.00	55.16

Segment Leq : 55.16 dBA

Results segment # 2: BRT (day)

Source height = 0.50 m

ROAD (0.00 + 39.44 + 0.00) = 39.44 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	90	0.60	59.61	0.00	-15.81	-4.37	0.00	0.00	0.00	39.44

Segment Leq : 39.44 dBA

Total Leq All Segments: 55.27 dBA

Results segment # 1: R Greenbank (night)

Source height = 1.50 m

ROAD (0.00 + 47.57 + 0.00) = 47.57 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	90	0.57	67.40	0.00	-15.52	-4.31	0.00	0.00	0.00	47.57

Segment Leq : 47.57 dBA

Results segment # 2: BRT (night)

Source height = 0.50 m

ROAD (0.00 + 37.89 + 0.00) = 37.89 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	90	0.60	58.06	0.00	-15.81	-4.37	0.00	0.00	0.00	37.89

Segment Leq : 37.89 dBA

Total Leq All Segments: 48.01 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 55.27
(NIGHT): 48.01

STAMSON 5.04 NORMAL REPORT Date: 29-01-2019 15:14:38
MINISTRY OF ENVIRONMENT, CONSERVATION AND PARKS/ NOISE ASSESSMENT

Filename: 111_nf.te Time Period: Day/Night 16/8 hours
Description: Lot 11 - North Facade

Road data, segment # 1: R Greenbank (day/night)

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

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

Data for Segment # 1: R Greenbank (day/night)

Angle1 Angle2 : 0.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 146.00 / 146.00 m
Receiver height : 4.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 0/0 veh/TimePeriod *
Medium truck volume : 200/70 veh/TimePeriod *
Heavy truck volume : 0/0 veh/TimePeriod *
Posted speed limit : 80 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 270
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 100.00
Heavy Truck % of Total Volume : 0.00
Day (16 hrs) % of Total Volume : 74.00

Data for Segment # 2: BRT (day/night)

Angle1 Angle2 : 0.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 146.00 / 146.00 m
Receiver height : 4.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: R Greenbank (day)

Source height = 1.50 m

ROAD (0.00 + 55.16 + 0.00) = 55.16 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	90	0.57	75.00	0.00	-15.52	-4.31	0.00	0.00	0.00	55.16

Segment Leq : 55.16 dBA

Results segment # 2: BRT (day)

Source height = 0.50 m

ROAD (0.00 + 39.44 + 0.00) = 39.44 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	90	0.60	59.61	0.00	-15.81	-4.37	0.00	0.00	0.00	39.44

Segment Leq : 39.44 dBA

Total Leq All Segments: 55.27 dBA

Results segment # 1: R Greenbank (night)

Source height = 1.50 m

ROAD (0.00 + 47.57 + 0.00) = 47.57 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	90	0.57	67.40	0.00	-15.52	-4.31	0.00	0.00	0.00	47.57

Segment Leq : 47.57 dBA

Results segment # 2: BRT (night)

Source height = 0.50 m

ROAD (0.00 + 37.89 + 0.00) = 37.89 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	90	0.60	58.06	0.00	-15.81	-4.37	0.00	0.00	0.00	37.89

Segment Leq : 37.89 dBA

Total Leq All Segments: 48.01 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 55.27
(NIGHT): 48.01

STAMSON 5.04 NORMAL REPORT Date: 29-01-2019 15:14:55
MINISTRY OF ENVIRONMENT, CONSERVATION AND PARKS/ NOISE ASSESSMENT

Filename: l11_sf.te Time Period: Day/Night 16/8 hours

Description: Lot 11 - South Facade

Road data, segment # 1: R Greenbank (day/night)

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

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

Data for Segment # 1: R Greenbank (day/night)

Angle1 Angle2 : -20.00 deg 0.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 146.00 / 146.00 m
Receiver height : 4.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 0/0 veh/TimePeriod *
Medium truck volume : 200/70 veh/TimePeriod *
Heavy truck volume : 0/0 veh/TimePeriod *
Posted speed limit : 80 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 270
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 100.00
Heavy Truck % of Total Volume : 0.00
Day (16 hrs) % of Total Volume : 74.00

Data for Segment # 2: BRT (day/night)

Angle1 Angle2 : -20.00 deg 0.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 146.00 / 146.00 m
Receiver height : 4.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: R Greenbank (day)

Source height = 1.50 m

ROAD (0.00 + 55.57 + 0.00) = 55.57 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-20	0	0.00	75.00	0.00	-9.88	-9.54	0.00	0.00	0.00	55.57

Segment Leq : 55.57 dBA

Results segment # 2: BRT (day)

Source height = 0.50 m

ROAD (0.00 + 40.19 + 0.00) = 40.19 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-20	0	0.00	59.61	0.00	-9.88	-9.54	0.00	0.00	0.00	40.19

Segment Leq : 40.19 dBA

Total Leq All Segments: 55.69 dBA

Results segment # 1: R Greenbank (night)

Source height = 1.50 m

ROAD (0.00 + 47.97 + 0.00) = 47.97 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-20	0	0.00	67.40	0.00	-9.88	-9.54	0.00	0.00	0.00	47.97

Segment Leq : 47.97 dBA

Results segment # 2: BRT (night)

Source height = 0.50 m

ROAD (0.00 + 38.64 + 0.00) = 38.64 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-20	0	0.00	58.06	0.00	-9.88	-9.54	0.00	0.00	0.00	38.64

Segment Leq : 38.64 dBA

Total Leq All Segments: 48.45 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 55.69
(NIGHT): 48.45

STAMSON 5.04 NORMAL REPORT Date: 29-01-2019 15:15:11
MINISTRY OF ENVIRONMENT, CONSERVATION AND PARKS / NOISE ASSESSMENT

Filename: 112_sf.te Time Period: Day/Night 16/8 hours

Description: Lot 12 - South Facade

Road data, segment # 1: R Greenbank (day/night)

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

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

Data for Segment # 1: R Greenbank (day/night)

Angle1 Angle2 : -20.00 deg 0.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 157.00 / 157.00 m
Receiver height : 4.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 0/0 veh/TimePeriod *
Medium truck volume : 200/70 veh/TimePeriod *
Heavy truck volume : 0/0 veh/TimePeriod *
Posted speed limit : 80 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 270
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 100.00
Heavy Truck % of Total Volume : 0.00
Day (16 hrs) % of Total Volume : 74.00

Data for Segment # 2: BRT (day/night)

Angle1 Angle2 : -20.00 deg 0.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 157.00 / 157.00 m
Receiver height : 4.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: R Greenbank (day)

Source height = 1.50 m

ROAD (0.00 + 55.25 + 0.00) = 55.25 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-20	0	0.00	75.00	0.00	-10.20	-9.54	0.00	0.00	0.00	55.25

Segment Leq : 55.25 dBA

Results segment # 2: BRT (day)

Source height = 0.50 m

ROAD (0.00 + 39.87 + 0.00) = 39.87 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-20	0	0.00	59.61	0.00	-10.20	-9.54	0.00	0.00	0.00	39.87

Segment Leq : 39.87 dBA

Total Leq All Segments: 55.37 dBA

Results segment # 1: R Greenbank (night)

Source height = 1.50 m

ROAD (0.00 + 47.66 + 0.00) = 47.66 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-20	0	0.00	67.40	0.00	-10.20	-9.54	0.00	0.00	0.00	47.66

Segment Leq : 47.66 dBA

Results segment # 2: BRT (night)

Source height = 0.50 m

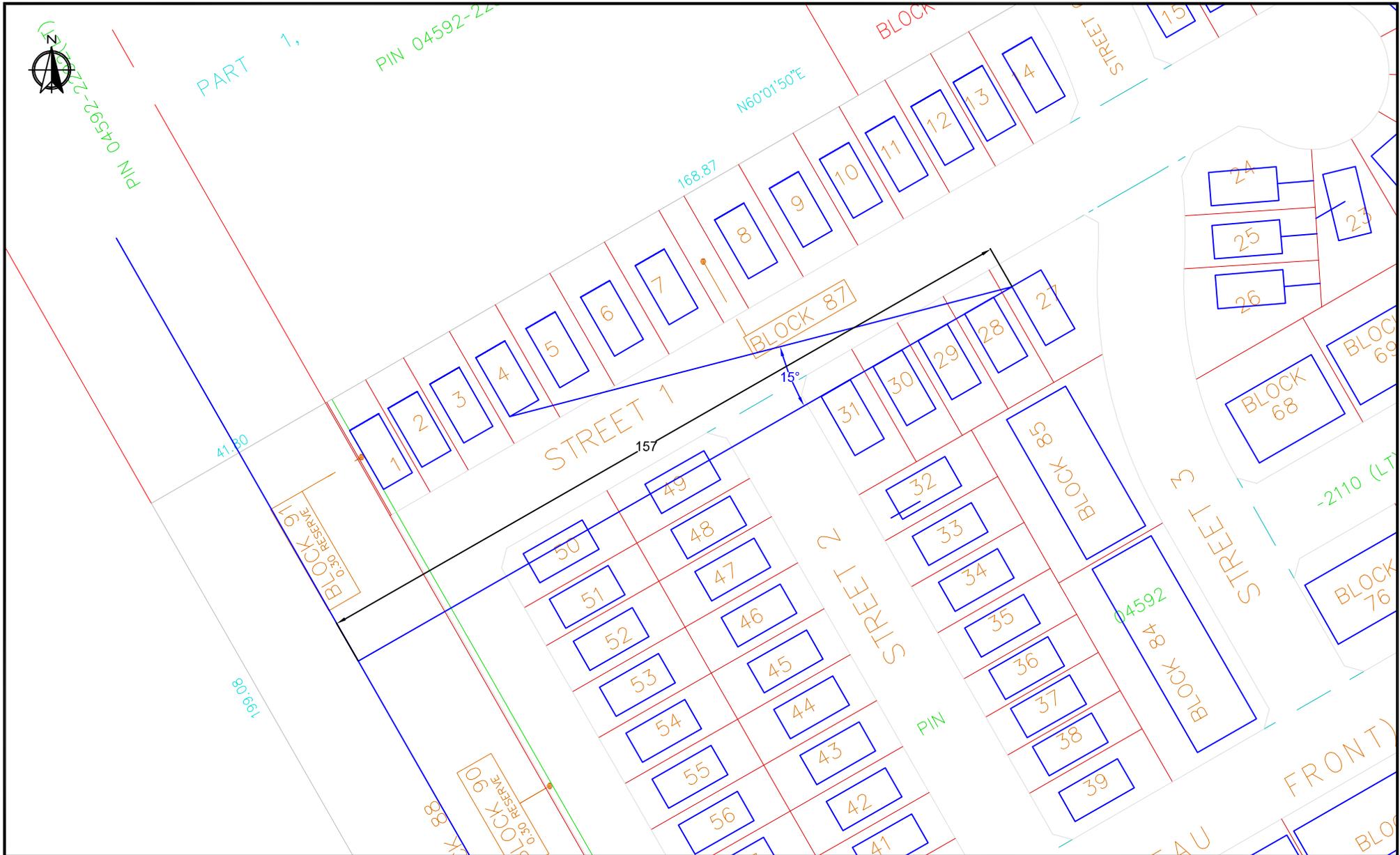
ROAD (0.00 + 38.32 + 0.00) = 38.32 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-20	0	0.00	58.06	0.00	-10.20	-9.54	0.00	0.00	0.00	38.32

Segment Leq : 38.32 dBA

Total Leq All Segments: 48.14 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 55.37
(NIGHT): 48.14



No.	Revision/Issue	Date


VALCOUSTICS
 Canada Ltd.

30 Wertheim Court, Unit 25
 Richmond Hill, Ontario
 Canada L4B 1B9
 solutions@valcoustics.com
 Phone: (905) 764-5223
 Fax: (905) 764-6813

Title
 Distances and Angles - Lot 27
 (Facades)

Project No.
 108-363-300

Date
 Jan. 29, 2019

Project Name
 Half Moon Bay South - Phase 5

Scale
 N.T.S.

Figure
C2

STAMSON 5.04 NORMAL REPORT Date: 29-01-2019 15:15:29
MINISTRY OF ENVIRONMENT, CONSERVATION AND PARKS / NOISE ASSESSMENT

Filename: 127_nf.te Time Period: Day/Night 16/8 hours
Description: Lot 27 - North Facade

Road data, segment # 1: R Greenbank (day/night)

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

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

Data for Segment # 1: R Greenbank (day/night)

Angle1 Angle2 : 0.00 deg 15.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 157.00 / 157.00 m
Receiver height : 4.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 0/0 veh/TimePeriod *
Medium truck volume : 200/70 veh/TimePeriod *
Heavy truck volume : 0/0 veh/TimePeriod *
Posted speed limit : 80 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 270
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 100.00
Heavy Truck % of Total Volume : 0.00
Day (16 hrs) % of Total Volume : 74.00

Data for Segment # 2: BRT (day/night)

Angle1 Angle2 : 0.00 deg 15.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 157.00 / 157.00 m
Receiver height : 4.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 3: R Greenbank (day/night)

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

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

Data for Segment # 3: R Greenbank (day/night)

Angle1 Angle2 : 15.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 1 / 1
House density : 80 %
Surface : 1 (Absorptive ground surface)
Receiver source distance : 157.00 / 157.00 m
Receiver height : 4.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 4: BRT (day/night)

Car traffic volume : 0/0 veh/TimePeriod *
Medium truck volume : 200/70 veh/TimePeriod *
Heavy truck volume : 0/0 veh/TimePeriod *
Posted speed limit : 80 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 270
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00

Medium Truck % of Total Volume : 100.00
 Heavy Truck % of Total Volume : 0.00
 Day (16 hrs) % of Total Volume : 74.00
 Data for Segment # 4: BRT (day/night)

 Angle1 Angle2 : 15.00 deg 90.00 deg
 Wood depth : 0 (No woods.)
 No of house rows : 1 / 1
 House density : 80 %
 Surface : 1 (Absorptive ground surface)
 Receiver source distance : 157.00 / 157.00 m
 Receiver height : 4.50 / 4.50 m
 Topography : 1 (Flat/gentle slope; no barrier)
 Reference angle : 0.00

Results segment # 1: R Greenbank (day)

 Source height = 1.50 m

ROAD (0.00 + 54.01 + 0.00) = 54.01 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	15	0.00	75.00	0.00	-10.20	-10.79	0.00	0.00	0.00	54.01

 Segment Leq : 54.01 dBA

Results segment # 2: BRT (day)

 Source height = 0.50 m

ROAD (0.00 + 38.62 + 0.00) = 38.62 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	15	0.00	59.61	0.00	-10.20	-10.79	0.00	0.00	0.00	38.62

 Segment Leq : 38.62 dBA

Results segment # 3: R Greenbank (day)

 Source height = 1.50 m

ROAD (0.00 + 48.06 + 0.00) = 48.06 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
15	90	0.57	75.00	0.00	-16.01	-5.41	0.00	-5.51	0.00	48.06

 Segment Leq : 48.06 dBA

Results segment # 4: BRT (day)

Source height = 0.50 m

ROAD (0.00 + 32.31 + 0.00) = 32.31 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
15	90	0.60	59.61	0.00	-16.32	-5.48	0.00	-5.51	0.00	32.31

Segment Leq : 32.31 dBA

Total Leq All Segments: 55.12 dBA

Results segment # 1: R Greenbank (night)

Source height = 1.50 m

ROAD (0.00 + 46.41 + 0.00) = 46.41 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	15	0.00	67.40	0.00	-10.20	-10.79	0.00	0.00	0.00	46.41

Segment Leq : 46.41 dBA

Results segment # 2: BRT (night)

Source height = 0.50 m

ROAD (0.00 + 37.07 + 0.00) = 37.07 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	15	0.00	58.06	0.00	-10.20	-10.79	0.00	0.00	0.00	37.07

Segment Leq : 37.07 dBA

Results segment # 3: R Greenbank (night)

Source height = 1.50 m

ROAD (0.00 + 40.47 + 0.00) = 40.47 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
15	90	0.57	67.40	0.00	-16.01	-5.41	0.00	-5.51	0.00	40.47

Segment Leq : 40.47 dBA

Results segment # 4: BRT (night)

Source height = 0.50 m

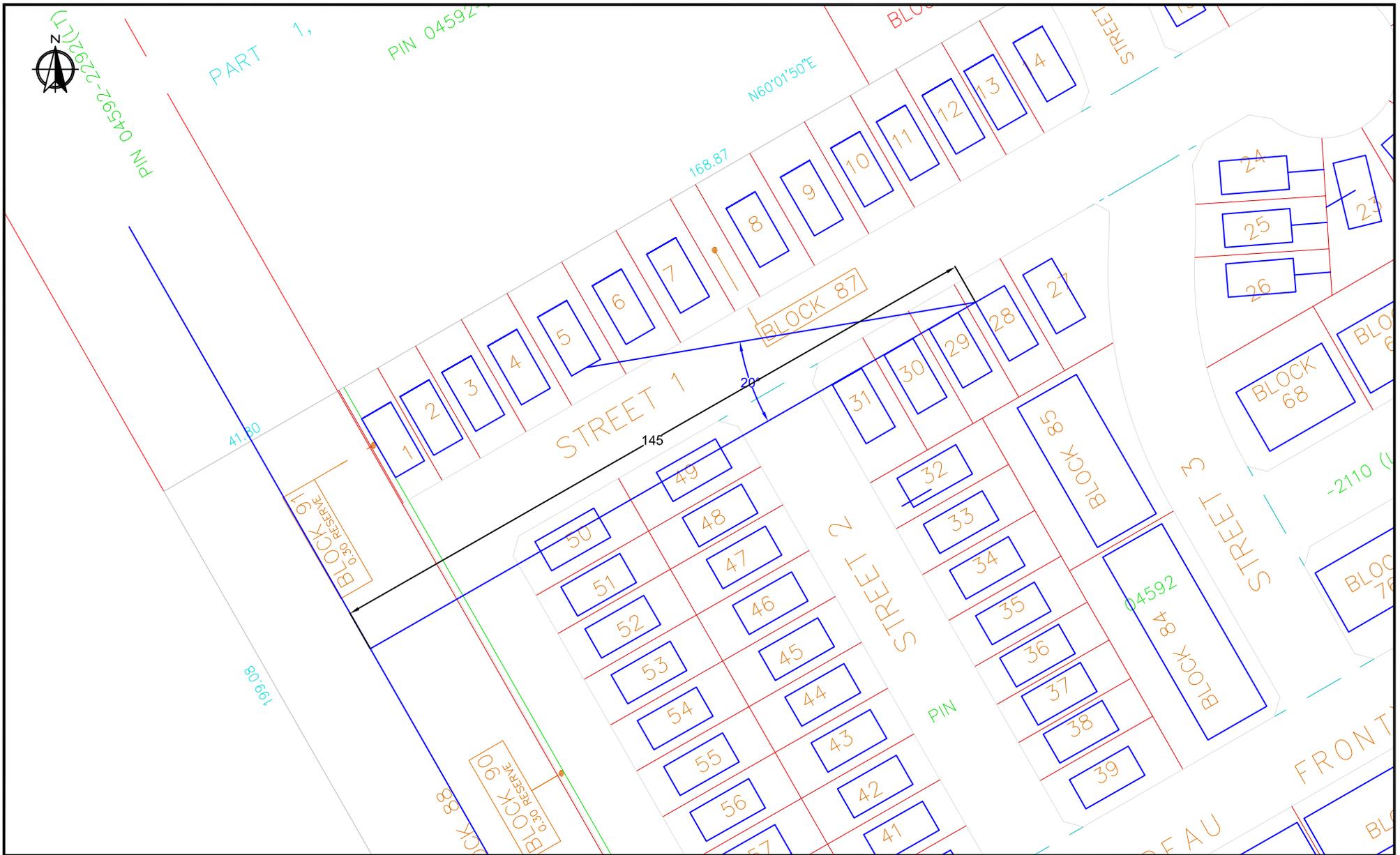
ROAD (0.00 + 30.76 + 0.00) = 30.76 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
15	90	0.60	58.06	0.00	-16.32	-5.48	0.00	-5.51	0.00	30.76

Segment Leq : 30.76 dBA

Total Leq All Segments: 47.87 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 55.12
(NIGHT): 47.87



No.	Revision/Issue	Date


VALCOUSTICS
 Canada Ltd.
 30 Wertheim Court, Unit 25
 Richmond Hill, Ontario
 Canada L4B 1B9
 solutions@valcoustics.com
 Phone: (905) 764-5223
 Fax: (905) 764-6813

Title
**Distances and Angles - Lot 28
 (Facades)**
 Project Name
Half Moon Bay South - Phase 5

Project No.
 108-363-300
 Scale
 N.T.S.

Date
 Jan. 29, 2019
 Figure
C3

STAMSON 5.04 NORMAL REPORT Date: 29-01-2019 15:15:43
MINISTRY OF ENVIRONMENT, CONSERVATION AND PARKS/ NOISE ASSESSMENT

Filename: 128_nf.te Time Period: Day/Night 16/8 hours
Description: Lot 28 - North Facade

Road data, segment # 1: R Greenbank (day/night)

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

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

Data for Segment # 1: R Greenbank (day/night)

Angle1 Angle2 : 0.00 deg 20.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 145.00 / 145.00 m
Receiver height : 4.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 0/0 veh/TimePeriod *
Medium truck volume : 200/70 veh/TimePeriod *
Heavy truck volume : 0/0 veh/TimePeriod *
Posted speed limit : 80 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 270
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 100.00
Heavy Truck % of Total Volume : 0.00
Day (16 hrs) % of Total Volume : 74.00

Data for Segment # 2: BRT (day/night)

Angle1 Angle2 : 0.00 deg 20.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 145.00 / 145.00 m
Receiver height : 4.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 3: R Greenbank (day/night)

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

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

Data for Segment # 3: R Greenbank (day/night)

Angle1 Angle2 : 20.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 1 / 1
House density : 80 %
Surface : 1 (Absorptive ground surface)
Receiver source distance : 145.00 / 145.00 m
Receiver height : 4.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 4: BRT (day/night)

Car traffic volume : 0/0 veh/TimePeriod *
Medium truck volume : 200/70 veh/TimePeriod *
Heavy truck volume : 0/0 veh/TimePeriod *
Posted speed limit : 80 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 270
Percentage of Annual Growth : 0.00

Number of Years of Growth : 0.00
 Medium Truck % of Total Volume : 100.00
 Heavy Truck % of Total Volume : 0.00
 Day (16 hrs) % of Total Volume : 74.00

Data for Segment # 4: BRT (day/night)

 Angle1 Angle2 : 20.00 deg 90.00 deg
 Wood depth : 0 (No woods.)
 No of house rows : 1 / 1
 House density : 80 %
 Surface : 1 (Absorptive ground surface)
 Receiver source distance : 145.00 / 145.00 m
 Receiver height : 4.50 / 4.50 m
 Topography : 1 (Flat/gentle slope; no barrier)
 Reference angle : 0.00

Results segment # 1: R Greenbank (day)

 Source height = 1.50 m

ROAD (0.00 + 55.60 + 0.00) = 55.60 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	20	0.00	75.00	0.00	-9.85	-9.54	0.00	0.00	0.00	55.60

Segment Leq : 55.60 dBA

Results segment # 2: BRT (day)

 Source height = 0.50 m

ROAD (0.00 + 40.22 + 0.00) = 40.22 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	20	0.00	59.61	0.00	-9.85	-9.54	0.00	0.00	0.00	40.22

Segment Leq : 40.22 dBA

Results segment # 3: R Greenbank (day)

 Source height = 1.50 m

ROAD (0.00 + 48.15 + 0.00) = 48.15 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
20	90	0.57	75.00	0.00	-15.47	-5.84	0.00	-5.54	0.00	48.15

Segment Leq : 48.15 dBA

Results segment # 4: BRT (day)

Source height = 0.50 m

ROAD (0.00 + 32.40 + 0.00) = 32.40 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
20	90	0.60	59.61	0.00	-15.76	-5.91	0.00	-5.54	0.00	32.40

Segment Leq : 32.40 dBA

Total Leq All Segments: 56.44 dBA

Results segment # 1: R Greenbank (night)

Source height = 1.50 m

ROAD (0.00 + 48.00 + 0.00) = 48.00 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	20	0.00	67.40	0.00	-9.85	-9.54	0.00	0.00	0.00	48.00

Segment Leq : 48.00 dBA

Results segment # 2: BRT (night)

Source height = 0.50 m

ROAD (0.00 + 38.67 + 0.00) = 38.67 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	20	0.00	58.06	0.00	-9.85	-9.54	0.00	0.00	0.00	38.67

Segment Leq : 38.67 dBA

Results segment # 3: R Greenbank (night)

Source height = 1.50 m

ROAD (0.00 + 40.55 + 0.00) = 40.55 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
20	90	0.57	67.40	0.00	-15.47	-5.84	0.00	-5.54	0.00	40.55

Segment Leq : 40.55 dBA

Results segment # 4: BRT (night)

Source height = 0.50 m

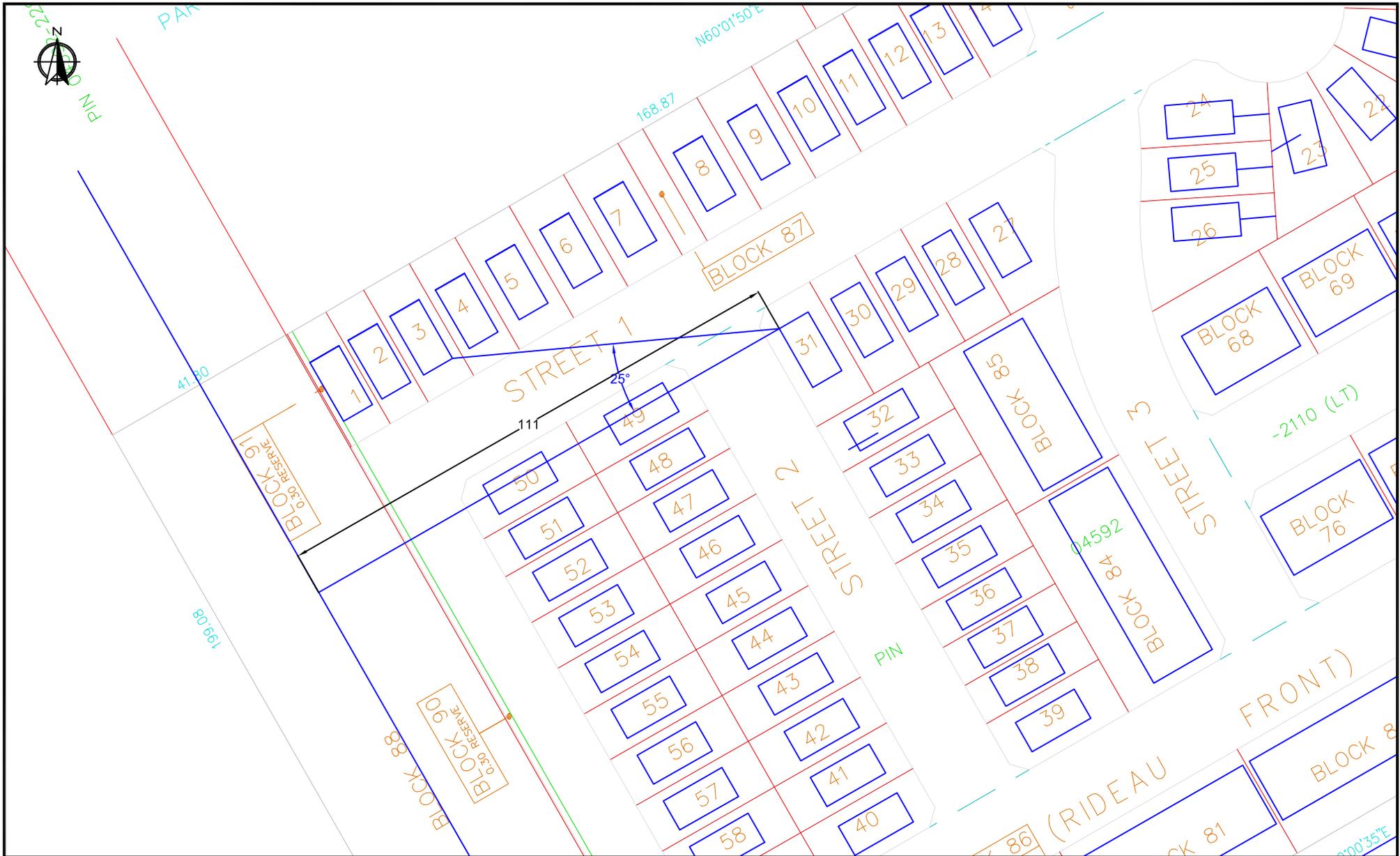
ROAD (0.00 + 30.85 + 0.00) = 30.85 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
20	90	0.60	58.06	0.00	-15.76	-5.91	0.00	-5.54	0.00	30.85

Segment Leq : 30.85 dBA

Total Leq All Segments: 49.19 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 56.44
(NIGHT): 49.19



No.	Revision/Issue	Date


VALCOUSTICS
 Canada Ltd.

30 Wertheim Court, Unit 25
 Richmond Hill, Ontario
 Canada L4B 1B9
 solutions@valcoustics.com
 Phone: (905) 764-5223
 Fax: (905) 764-6813

Title
 Distances and Angles - Lot 31
 (Facades)

Project Name
 Half Moon Bay South - Phase 5

Project No.
 108-363-300

Scale
 N.T.S.

Date
 Jan. 29, 2019

Figure
C4

STAMSON 5.04 NORMAL REPORT Date: 29-01-2019 15:15:56
MINISTRY OF ENVIRONMENT, CONSERVATION AND PARKS/ NOISE ASSESSMENT

Filename: l31_nf.te Time Period: Day/Night 16/8 hours

Description: Lot 31 - North Facade

Road data, segment # 1: R Greenbank (day/night)

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

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

Data for Segment # 1: R Greenbank (day/night)

Angle1 Angle2 : 0.00 deg 25.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 111.00 / 111.00 m
Receiver height : 4.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 0/0 veh/TimePeriod *
Medium truck volume : 200/70 veh/TimePeriod *
Heavy truck volume : 0/0 veh/TimePeriod *
Posted speed limit : 80 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 270
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 100.00
Heavy Truck % of Total Volume : 0.00
Day (16 hrs) % of Total Volume : 74.00

Data for Segment # 2: BRT (day/night)

Angle1 Angle2 : 0.00 deg 25.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 111.00 / 111.00 m
Receiver height : 4.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 3: R Greenbank (day/night)

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

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

Data for Segment # 3: R Greenbank (day/night)

Angle1 Angle2 : 25.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 1 / 1
House density : 80 %
Surface : 1 (Absorptive ground surface)
Receiver source distance : 111.00 / 111.00 m
Receiver height : 4.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 4: BRT (day/night)

Car traffic volume : 0/0 veh/TimePeriod *
Medium truck volume : 200/70 veh/TimePeriod *
Heavy truck volume : 0/0 veh/TimePeriod *
Posted speed limit : 80 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 270
Percentage of Annual Growth : 0.00

Number of Years of Growth : 0.00
 Medium Truck % of Total Volume : 100.00
 Heavy Truck % of Total Volume : 0.00
 Day (16 hrs) % of Total Volume : 74.00

Data for Segment # 4: BRT (day/night)

 Angle1 Angle2 : 25.00 deg 90.00 deg
 Wood depth : 0 (No woods.)
 No of house rows : 1 / 1
 House density : 80 %
 Surface : 1 (Absorptive ground surface)
 Receiver source distance : 111.00 / 111.00 m
 Receiver height : 4.50 / 4.50 m
 Topography : 1 (Flat/gentle slope; no barrier)
 Reference angle : 0.00

Results segment # 1: R Greenbank (day)

 Source height = 1.50 m

ROAD (0.00 + 57.73 + 0.00) = 57.73 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	25	0.00	75.00	0.00	-8.69	-8.57	0.00	0.00	0.00	57.73

 Segment Leq : 57.73 dBA

Results segment # 2: BRT (day)

 Source height = 0.50 m

ROAD (0.00 + 42.35 + 0.00) = 42.35 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	25	0.00	59.61	0.00	-8.69	-8.57	0.00	0.00	0.00	42.35

 Segment Leq : 42.35 dBA

Results segment # 3: R Greenbank (day)

 Source height = 1.50 m

ROAD (0.00 + 49.39 + 0.00) = 49.39 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
25	90	0.57	75.00	0.00	-13.65	-6.31	0.00	-5.64	0.00	49.39

 Segment Leq : 49.39 dBA

Results segment # 4: BRT (day)

Source height = 0.50 m

ROAD (0.00 + 33.67 + 0.00) = 33.67 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
25	90	0.60	59.61	0.00	-13.91	-6.39	0.00	-5.64	0.00	33.67

Segment Leq : 33.67 dBA

Total Leq All Segments: 58.45 dBA

Results segment # 1: R Greenbank (night)

Source height = 1.50 m

ROAD (0.00 + 50.13 + 0.00) = 50.13 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	25	0.00	67.40	0.00	-8.69	-8.57	0.00	0.00	0.00	50.13

Segment Leq : 50.13 dBA

Results segment # 2: BRT (night)

Source height = 0.50 m

ROAD (0.00 + 40.80 + 0.00) = 40.80 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	25	0.00	58.06	0.00	-8.69	-8.57	0.00	0.00	0.00	40.80

Segment Leq : 40.80 dBA

Results segment # 3: R Greenbank (night)

Source height = 1.50 m

ROAD (0.00 + 41.80 + 0.00) = 41.80 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
25	90	0.57	67.40	0.00	-13.65	-6.31	0.00	-5.64	0.00	41.80

Segment Leq : 41.80 dBA

Results segment # 4: BRT (night)

Source height = 0.50 m

ROAD (0.00 + 32.12 + 0.00) = 32.12 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
25	90	0.60	58.06	0.00	-13.91	-6.39	0.00	-5.64	0.00	32.12

Segment Leq : 32.12 dBA

Total Leq All Segments: 51.20 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 58.45
(NIGHT): 51.20



No.	Revision/Issue	Date


VALCOUSTICS
 Canada Ltd.

30 Wertheim Court, Unit 25
 Richmond Hill, Ontario
 Canada L4B 1B9
 solutions@valcoustics.com
 Phone: (905) 764-5223
 Fax: (905) 764-6813

Title
 Distances and Angles - Lot 32
 (Facades)

Project No.
 108-363-300

Date
 Jan. 29, 2019

Project Name
 Half Moon Bay South - Phase 5

Scale
 N.T.S.

Figure
C5

STAMSON 5.04 NORMAL REPORT Date: 29-01-2019 15:16:13
MINISTRY OF ENVIRONMENT, CONSERVATION AND PARKS NOISE ASSESSMENT

Filename: 132_wf.te Time Period: Day/Night 16/8 hours

Description: Lot 32 - West Facade

Road data, segment # 1: R Greenbank (day/night)

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

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

Data for Segment # 1: R Greenbank (day/night)

Angle1 Angle2 : -35.00 deg 0.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 70.00 / 70.00 m
Receiver height : 4.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 0/0 veh/TimePeriod *
Medium truck volume : 200/70 veh/TimePeriod *
Heavy truck volume : 0/0 veh/TimePeriod *
Posted speed limit : 80 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 270
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 100.00
Heavy Truck % of Total Volume : 0.00
Day (16 hrs) % of Total Volume : 74.00

Data for Segment # 2: BRT (day/night)

Angle1 Angle2 : -35.00 deg 0.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 70.00 / 70.00 m
Receiver height : 4.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: R Greenbank (day)

Source height = 1.50 m

ROAD (0.00 + 61.19 + 0.00) = 61.19 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-35	0	0.00	75.00	0.00	-6.69	-7.11	0.00	0.00	0.00	61.19

Segment Leq : 61.19 dBA

Results segment # 2: BRT (day)

Source height = 0.50 m

ROAD (0.00 + 45.81 + 0.00) = 45.81 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-35	0	0.00	59.61	0.00	-6.69	-7.11	0.00	0.00	0.00	45.81

Segment Leq : 45.81 dBA

Total Leq All Segments: 61.31 dBA

Results segment # 1: R Greenbank (night)

Source height = 1.50 m

ROAD (0.00 + 53.60 + 0.00) = 53.60 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-35	0	0.00	67.40	0.00	-6.69	-7.11	0.00	0.00	0.00	53.60

Segment Leq : 53.60 dBA

Results segment # 2: BRT (night)

Source height = 0.50 m

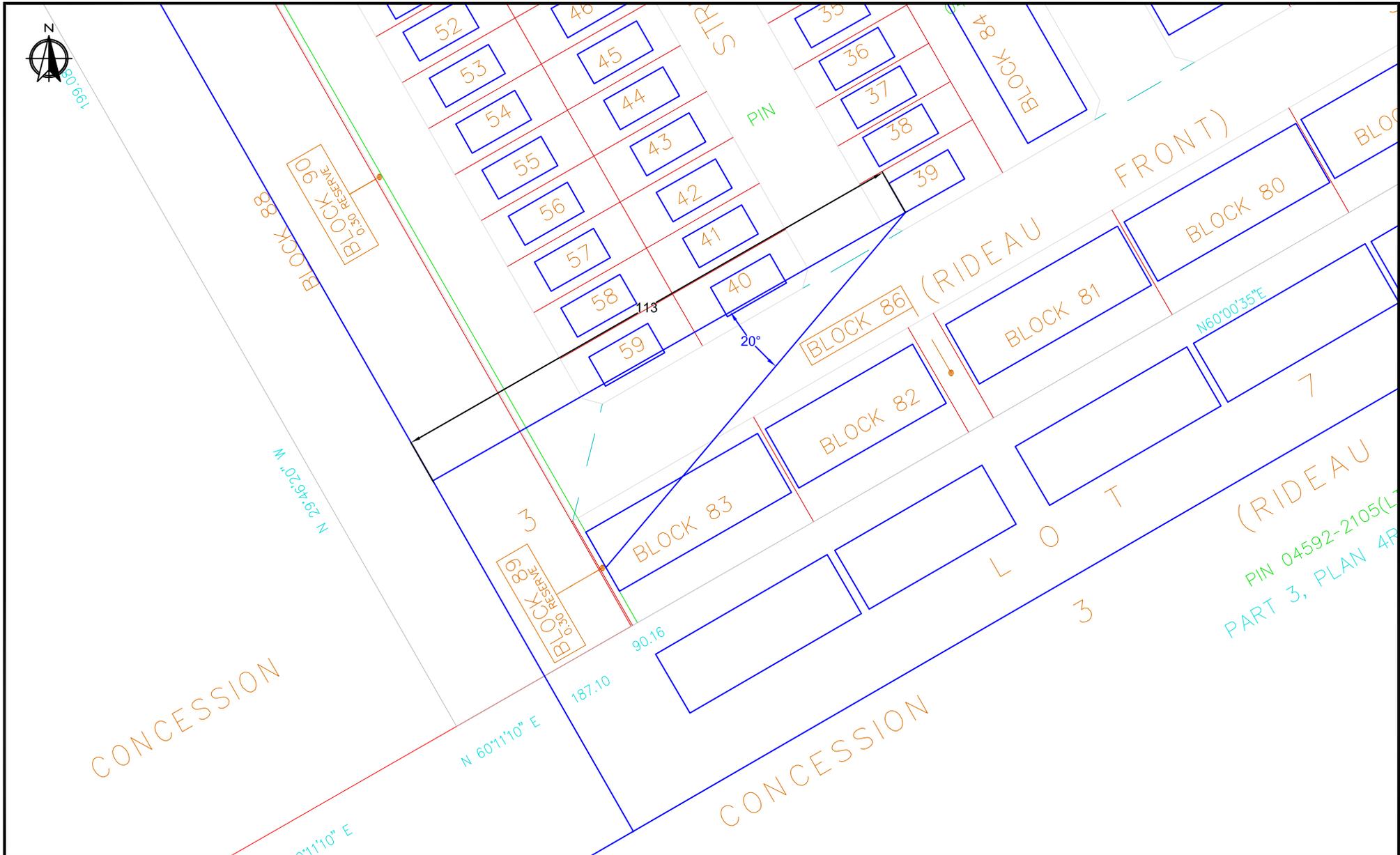
ROAD (0.00 + 44.26 + 0.00) = 44.26 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-35	0	0.00	58.06	0.00	-6.69	-7.11	0.00	0.00	0.00	44.26

Segment Leq : 44.26 dBA

Total Leq All Segments: 54.08 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 61.31
(NIGHT): 54.08



No.	Revision/Issue	Date

V. LCOUSTICS
Canada Ltd.

30 Wertheim Court, Unit 25
Richmond Hill, Ontario
Canada L4B 1B9
solutions@valcoustics.com
Phone: (905) 764-5223
Fax: (905) 764-6813

Title
Distances and Angles - Lot 39
(Facades)

Project Name
Half Moon Bay South - Phase 5

Project No.
108-363-300

Scale
N.T.S.

Date
Jan. 29, 2019

Figure
C6

STAMSON 5.04 NORMAL REPORT Date: 29-01-2019 15:16:33
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 139_sf.te Time Period: Day/Night 16/8 hours
Description: Lot 39 - South Facade

Road data, segment # 1: R Greenbank (day/night)

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

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

Data for Segment # 1: R Greenbank (day/night)

Angle1 Angle2 : -20.00 deg 0.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 113.00 / 113.00 m
Receiver height : 4.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 0/0 veh/TimePeriod *
Medium truck volume : 200/70 veh/TimePeriod *
Heavy truck volume : 0/0 veh/TimePeriod *
Posted speed limit : 80 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 270
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 100.00
Heavy Truck % of Total Volume : 0.00
Day (16 hrs) % of Total Volume : 74.00

Data for Segment # 2: BRT (day/night)

Angle1 Angle2 : -20.00 deg 0.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 113.00 / 113.00 m
Receiver height : 4.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: R Greenbank (day)

Source height = 1.50 m

ROAD (0.00 + 56.68 + 0.00) = 56.68 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-20	0	0.00	75.00	0.00	-8.77	-9.54	0.00	0.00	0.00	56.68

Segment Leq : 56.68 dBA

Results segment # 2: BRT (day)

Source height = 0.50 m

ROAD (0.00 + 41.30 + 0.00) = 41.30 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-20	0	0.00	59.61	0.00	-8.77	-9.54	0.00	0.00	0.00	41.30

Segment Leq : 41.30 dBA

Total Leq All Segments: 56.80 dBA

Results segment # 1: R Greenbank (night)

Source height = 1.50 m

ROAD (0.00 + 49.09 + 0.00) = 49.09 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-20	0	0.00	67.40	0.00	-8.77	-9.54	0.00	0.00	0.00	49.09

Segment Leq : 49.09 dBA

Results segment # 2: BRT (night)

Source height = 0.50 m

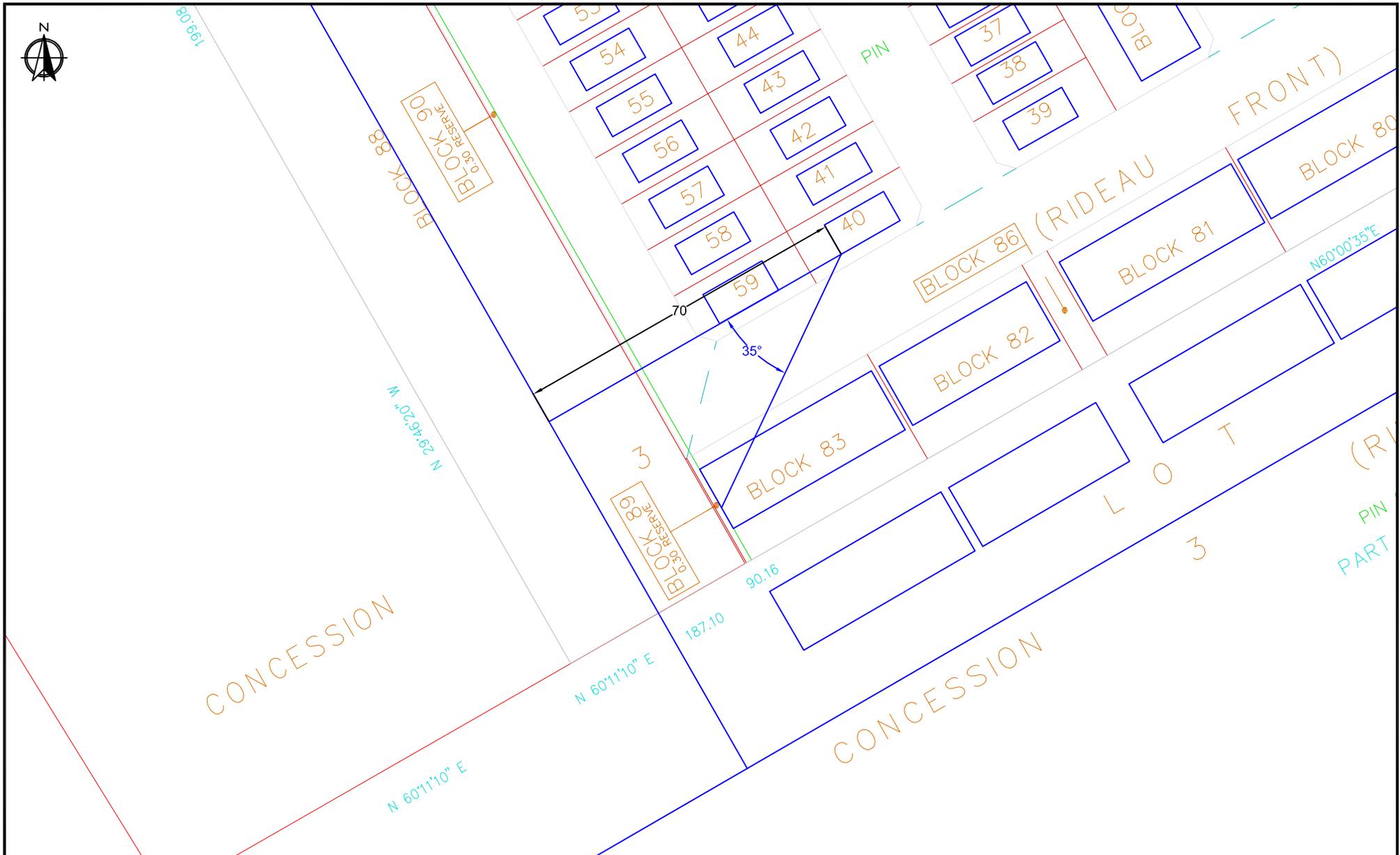
ROAD (0.00 + 39.75 + 0.00) = 39.75 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-20	0	0.00	58.06	0.00	-8.77	-9.54	0.00	0.00	0.00	39.75

Segment Leq : 39.75 dBA

Total Leq All Segments: 49.57 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 56.80
(NIGHT): 49.57



No.	Revision/Issue	Date


VALCOUSTICS
 Canada Ltd.

30 Wertheim Court, Unit 25
 Richmond Hill, Ontario
 Canada L4B 1B9
 solutions@valcoustics.com
 Phone: (905) 764-5223
 Fax: (905) 764-6813

Title
 Distances and Angles - Lot 40
 (Facades)

Project Name
 Half Moon Bay South - Phase 5

Project No.
 108-363-300

Scale
 N.T.S.

Date
 Jan. 29, 2019

Figure
C7

STAMSON 5.04 NORMAL REPORT Date: 29-01-2019 15:16:46
MINISTRY OF ENVIRONMENT, CONSERVATION AND PARKS / NOISE ASSESSMENT

Filename: 140_sf.te Time Period: Day/Night 16/8 hours

Description: Lot 40 - South Facade

Road data, segment # 1: R Greenbank (day/night)

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

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

Data for Segment # 1: R Greenbank (day/night)

Angle1 Angle2 : -35.00 deg 0.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 70.00 / 70.00 m
Receiver height : 4.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 0/0 veh/TimePeriod *
Medium truck volume : 200/70 veh/TimePeriod *
Heavy truck volume : 0/0 veh/TimePeriod *
Posted speed limit : 80 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 270
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 100.00
Heavy Truck % of Total Volume : 0.00
Day (16 hrs) % of Total Volume : 74.00

Data for Segment # 2: BRT (day/night)

```

-----
Angle1  Angle2      : -35.00 deg   0.00 deg
Wood depth      :      0      (No woods.)
No of house rows :      0 / 0
Surface         :      2      (Reflective ground surface)
Receiver source distance : 70.00 / 70.00 m
Receiver height  :   4.50 / 4.50 m
Topography      :      1      (Flat/gentle slope; no barrier)
Reference angle  :      0.00
  
```

Results segment # 1: R Greenbank (day)

Source height = 1.50 m

ROAD (0.00 + 61.19 + 0.00) = 61.19 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-35	0	0.00	75.00	0.00	-6.69	-7.11	0.00	0.00	0.00	61.19

Segment Leq : 61.19 dBA

Results segment # 2: BRT (day)

Source height = 0.50 m

ROAD (0.00 + 45.81 + 0.00) = 45.81 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-35	0	0.00	59.61	0.00	-6.69	-7.11	0.00	0.00	0.00	45.81

Segment Leq : 45.81 dBA

Total Leq All Segments: 61.31 dBA

Results segment # 1: R Greenbank (night)

Source height = 1.50 m

ROAD (0.00 + 53.60 + 0.00) = 53.60 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-35	0	0.00	67.40	0.00	-6.69	-7.11	0.00	0.00	0.00	53.60

Segment Leq : 53.60 dBA

Results segment # 2: BRT (night)

Source height = 0.50 m

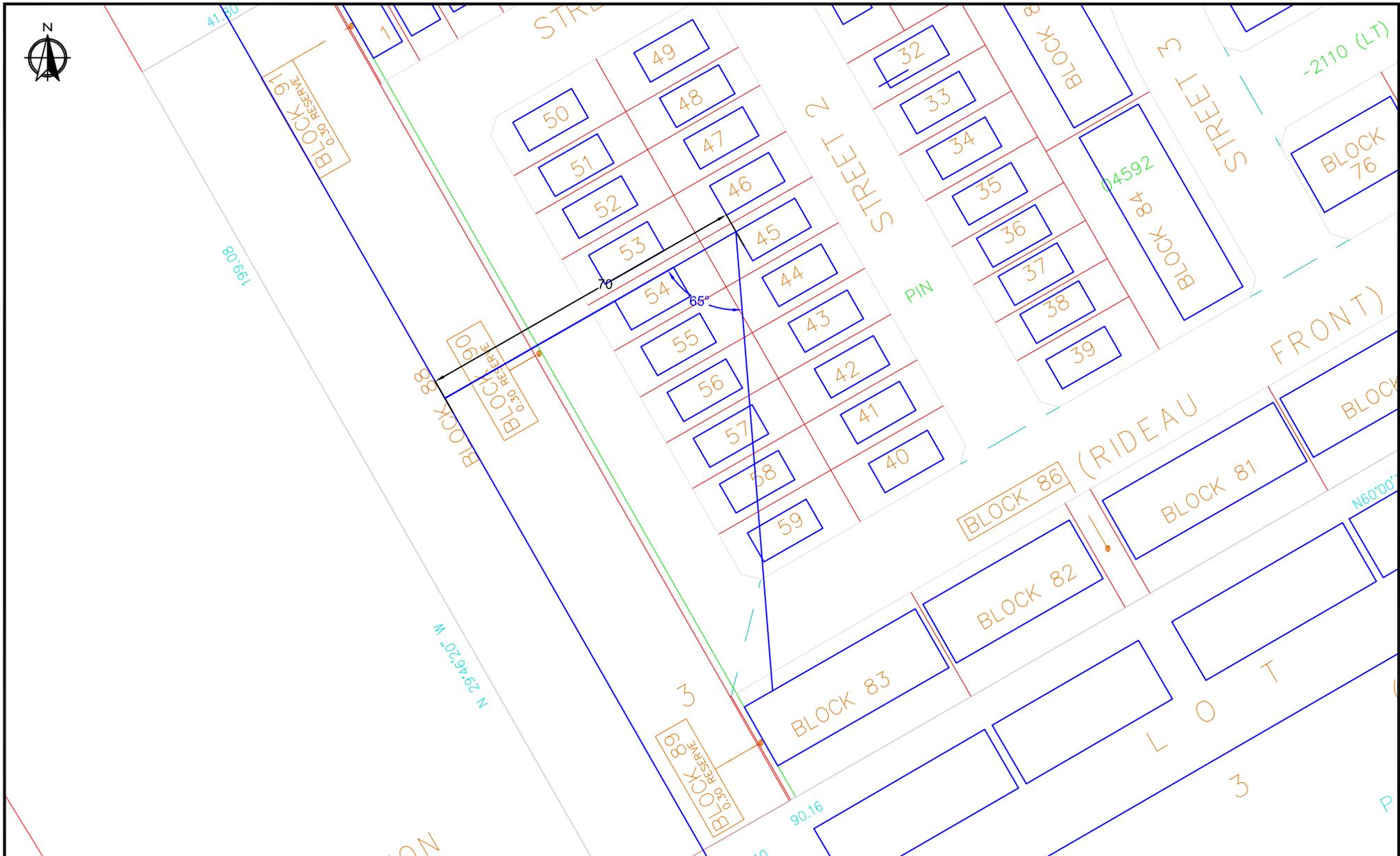
ROAD (0.00 + 44.26 + 0.00) = 44.26 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-35	0	0.00	58.06	0.00	-6.69	-7.11	0.00	0.00	0.00	44.26

Segment Leq : 44.26 dBA

Total Leq All Segments: 54.08 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 61.31
(NIGHT): 54.08



No.	Revision/Issue	Date


VALCOUSTICS
 Canada Ltd.

30 Wertheim Court, Unit 25
 Richmond Hill, Ontario
 Canada L4B 1B9
 solutions@valcoustics.com
 Phone: (905) 764-5223
 Fax: (905) 764-6813

Title
 Distances and Angles - Lot 45
 (Facades)

Project Name
 Half Moon Bay South - Phase 5

Project No.
 108-363-300

Scale
 N.T.S.

Date
 Jan. 29, 2019

Figure
C8

STAMSON 5.04 NORMAL REPORT Date: 29-01-2019 15:17:04
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 145_wf.te Time Period: Day/Night 16/8 hours
Description: Lot 45 - West Facade

Road data, segment # 1: R Greenbank (day/night)

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

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

Data for Segment # 1: R Greenbank (day/night)

Angle1 Angle2 : -65.00 deg 60.00 deg
Wood depth : 0 (No woods.)
No of house rows : 1 / 1
House density : 80 %
Surface : 1 (Absorptive ground surface)
Receiver source distance : 70.00 / 70.00 m
Receiver height : 4.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 0/0 veh/TimePeriod *
Medium truck volume : 200/70 veh/TimePeriod *
Heavy truck volume : 0/0 veh/TimePeriod *
Posted speed limit : 80 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 270
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 100.00
Heavy Truck % of Total Volume : 0.00
Day (16 hrs) % of Total Volume : 74.00

Data for Segment # 2: BRT (day/night)

```

-----
Angle1  Angle2      : -65.00 deg   60.00 deg
Wood depth      :      0      (No woods.)
No of house rows :      1 / 1
House density   :      80 %
Surface         :      1      (Absorptive ground surface)
Receiver source distance : 70.00 / 70.00 m
Receiver height  :      4.50 / 4.50 m
Topography      :      1      (Flat/gentle slope; no barrier)
Reference angle  :      0.00
  
```

Results segment # 1: R Greenbank (day)

Source height = 1.50 m

ROAD (0.00 + 56.52 + 0.00) = 56.52 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-65	60	0.57	75.00	0.00	-10.50	-2.12	0.00	-5.85	0.00	56.52

Segment Leq : 56.52 dBA

Results segment # 2: BRT (day)

Source height = 0.50 m

ROAD (0.00 + 40.91 + 0.00) = 40.91 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-65	60	0.60	59.61	0.00	-10.70	-2.15	0.00	-5.85	0.00	40.91

Segment Leq : 40.91 dBA

Total Leq All Segments: 56.64 dBA

Results segment # 1: R Greenbank (night)

Source height = 1.50 m

ROAD (0.00 + 48.92 + 0.00) = 48.92 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-65	60	0.57	67.40	0.00	-10.50	-2.12	0.00	-5.85	0.00	48.92

Segment Leq : 48.92 dBA

Results segment # 2: BRT (night)

Source height = 0.50 m

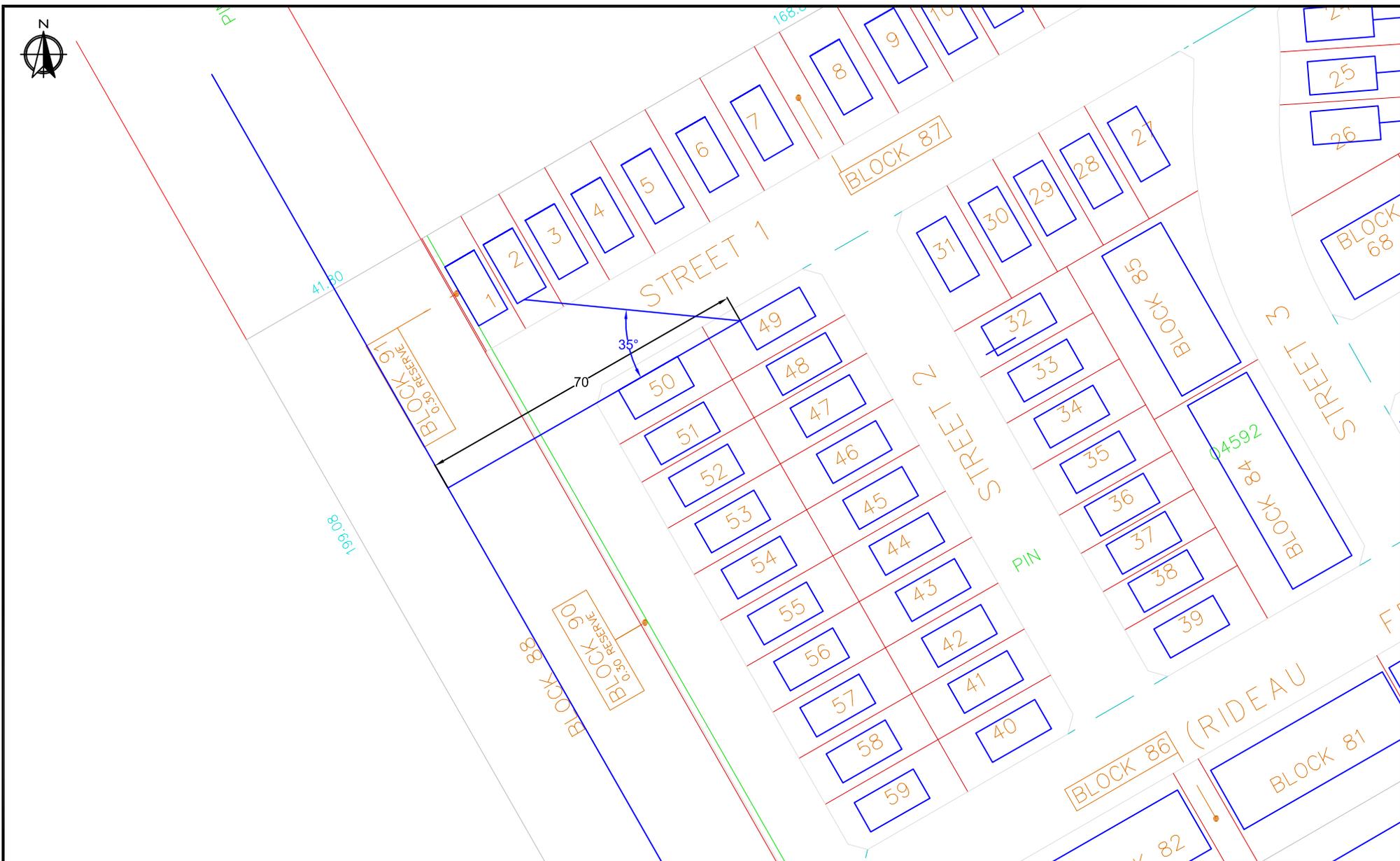
ROAD (0.00 + 39.36 + 0.00) = 39.36 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-65	60	0.60	58.06	0.00	-10.70	-2.15	0.00	-5.85	0.00	39.36

Segment Leq : 39.36 dBA

Total Leq All Segments: 49.38 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 56.64
(NIGHT): 49.38



		 <p>30 Wertheim Court, Unit 25 Richmond Hill, Ontario Canada L4B 1B9 solutions@valcoustics.com Phone: (905) 764-5223 Fax: (905) 764-6813</p>	<p>Title</p> <p>Distances and Angles - Lot 49 (Facades)</p>	<p>Project No.</p> <p>108-363-300</p>	<p>Date</p> <p>Jan. 29, 2019</p>
<p>No.</p>	<p>Revision/Issue</p>	<p>Date</p>	<p>Project Name</p> <p>Half Moon Bay South - Phase 5</p>	<p>Scale</p> <p>N.T.S.</p>	<p>Figure</p> <p>C9</p>

STAMSON 5.04 NORMAL REPORT Date: 29-01-2019 15:17:23
MINISTRY OF ENVIRONMENT, CONSERVATION AND PARKS / NOISE ASSESSMENT

Filename: 149_nf.te Time Period: Day/Night 16/8 hours
Description: Lot 49 - North Facade

Road data, segment # 1: R Greenbank (day/night)

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

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

Data for Segment # 1: R Greenbank (day/night)

Angle1 Angle2 : 0.00 deg 35.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 70.00 / 70.00 m
Receiver height : 4.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 0/0 veh/TimePeriod *
Medium truck volume : 200/70 veh/TimePeriod *
Heavy truck volume : 0/0 veh/TimePeriod *
Posted speed limit : 80 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 270
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 100.00
Heavy Truck % of Total Volume : 0.00
Day (16 hrs) % of Total Volume : 74.00

Data for Segment # 2: BRT (day/night)

Angle1 Angle2 : 0.00 deg 35.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 70.00 / 70.00 m
Receiver height : 4.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 3: R Greenbank (day/night)

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

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

Data for Segment # 3: R Greenbank (day/night)

Angle1 Angle2 : 35.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 1 / 1
House density : 80 %
Surface : 1 (Absorptive ground surface)
Receiver source distance : 70.00 / 70.00 m
Receiver height : 4.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 4: BRT (day/night)

Car traffic volume : 0/0 veh/TimePeriod *
Medium truck volume : 200/70 veh/TimePeriod *
Heavy truck volume : 0/0 veh/TimePeriod *
Posted speed limit : 80 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 270
Percentage of Annual Growth : 0.00

Number of Years of Growth : 0.00
 Medium Truck % of Total Volume : 100.00
 Heavy Truck % of Total Volume : 0.00
 Day (16 hrs) % of Total Volume : 74.00

Data for Segment # 4: BRT (day/night)

 Angle1 Angle2 : 35.00 deg 90.00 deg
 Wood depth : 0 (No woods.)
 No of house rows : 1 / 1
 House density : 80 %
 Surface : 1 (Absorptive ground surface)
 Receiver source distance : 70.00 / 70.00 m
 Receiver height : 4.50 / 4.50 m
 Topography : 1 (Flat/gentle slope; no barrier)
 Reference angle : 0.00

Results segment # 1: R Greenbank (day)

 Source height = 1.50 m

ROAD (0.00 + 61.19 + 0.00) = 61.19 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	35	0.00	75.00	0.00	-6.69	-7.11	0.00	0.00	0.00	61.19

Segment Leq : 61.19 dBA

Results segment # 2: BRT (day)

 Source height = 0.50 m

ROAD (0.00 + 45.81 + 0.00) = 45.81 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	35	0.00	59.61	0.00	-6.69	-7.11	0.00	0.00	0.00	45.81

Segment Leq : 45.81 dBA

Results segment # 3: R Greenbank (day)

 Source height = 1.50 m

ROAD (0.00 + 51.26 + 0.00) = 51.26 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
35	90	0.57	75.00	0.00	-10.50	-7.38	0.00	-5.85	0.00	51.26

Segment Leq : 51.26 dBA

Results segment # 4: BRT (day)

Source height = 0.50 m

ROAD (0.00 + 35.58 + 0.00) = 35.58 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
35	90	0.60	59.61	0.00	-10.70	-7.48	0.00	-5.85	0.00	35.58

Segment Leq : 35.58 dBA

Total Leq All Segments: 61.73 dBA

Results segment # 1: R Greenbank (night)

Source height = 1.50 m

ROAD (0.00 + 53.60 + 0.00) = 53.60 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	35	0.00	67.40	0.00	-6.69	-7.11	0.00	0.00	0.00	53.60

Segment Leq : 53.60 dBA

Results segment # 2: BRT (night)

Source height = 0.50 m

ROAD (0.00 + 44.26 + 0.00) = 44.26 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	35	0.00	58.06	0.00	-6.69	-7.11	0.00	0.00	0.00	44.26

Segment Leq : 44.26 dBA

Results segment # 3: R Greenbank (night)

Source height = 1.50 m

ROAD (0.00 + 43.67 + 0.00) = 43.67 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
35	90	0.57	67.40	0.00	-10.50	-7.38	0.00	-5.85	0.00	43.67

Segment Leq : 43.67 dBA

Results segment # 4: BRT (night)

Source height = 0.50 m

ROAD (0.00 + 34.03 + 0.00) = 34.03 dBA

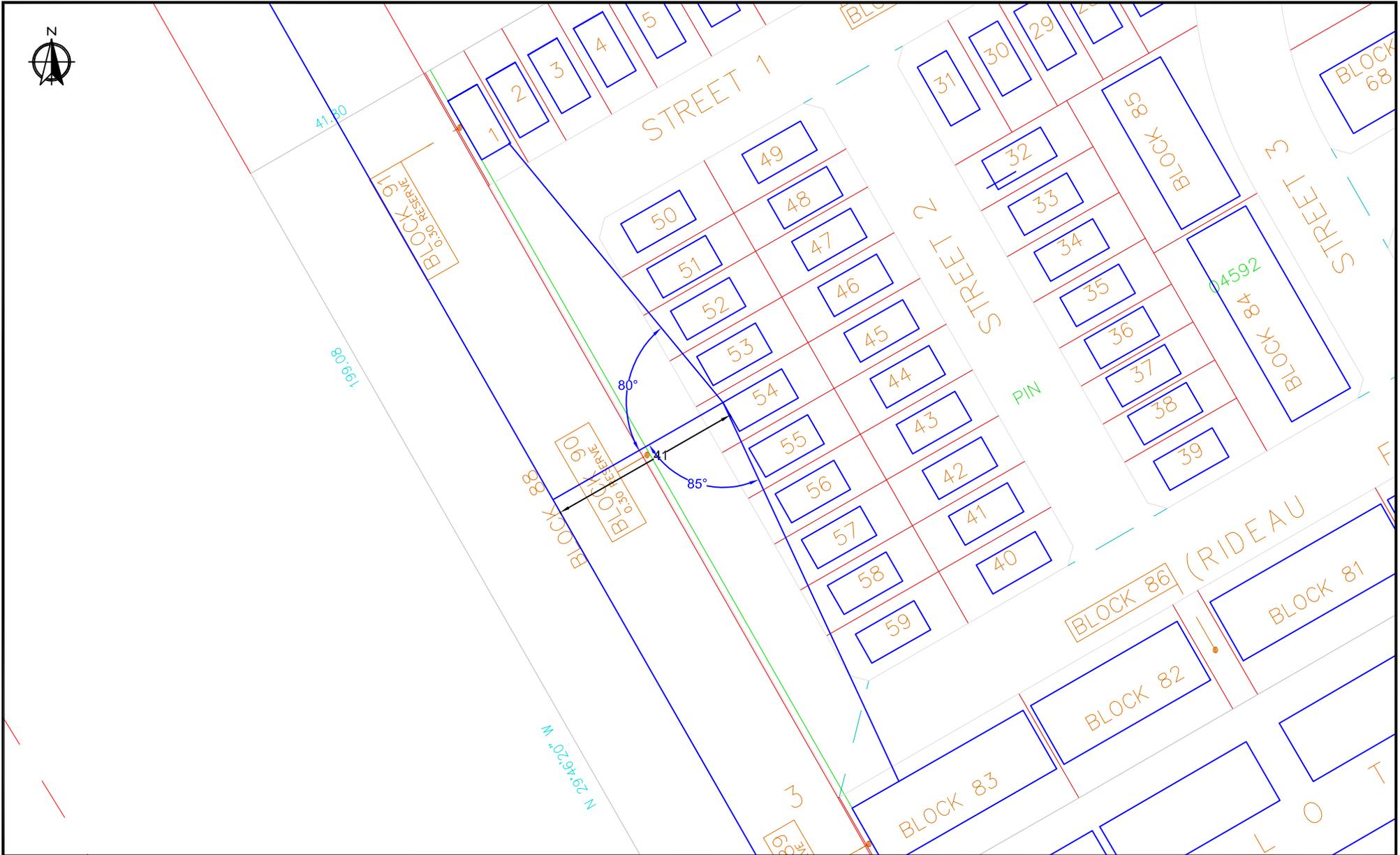
Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
--------	--------	-------	--------	-------	-------	-------	-------	-------	-------	--------

35	90	0.60	58.06	0.00	-10.70	-7.48	0.00	-5.85	0.00	34.03
----	----	------	-------	------	--------	-------	------	-------	------	-------

Segment Leq : 34.03 dBA

Total Leq All Segments: 54.50 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 61.73
(NIGHT): 54.50



No.	Revision/Issue	Date


VALCOUSTICS
 Canada Ltd.

30 Wertheim Court, Unit 25
 Richmond Hill, Ontario
 Canada L4B 1B9
 solutions@valcoustics.com
 Phone: (905) 764-5223
 Fax: (905) 764-6813

Title
 Distances and Angles - Lot 54
 (Facades)

Project Name
 Half Moon Bay South - Phase 5

Project No.
 108-363-300

Scale
 N.T.S.

Date
 Jan. 29, 2019

Figure
C10

STAMSON 5.04 NORMAL REPORT Date: 29-01-2019 15:17:43
MINISTRY OF ENVIRONMENT, CONSERVATION AND PARKS / NOISE ASSESSMENT

Filename: 154_wf.te Time Period: Day/Night 16/8 hours

Description: Lot 54 - West Facade

Road data, segment # 1: R Greenbank (day/night)

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

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

Data for Segment # 1: R Greenbank (day/night)

Angle1 Angle2 : -85.00 deg 80.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 41.00 / 41.00 m
Receiver height : 4.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 0/0 veh/TimePeriod *
Medium truck volume : 200/70 veh/TimePeriod *
Heavy truck volume : 0/0 veh/TimePeriod *
Posted speed limit : 80 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 270
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 100.00
Heavy Truck % of Total Volume : 0.00
Day (16 hrs) % of Total Volume : 74.00

Data for Segment # 2: BRT (day/night)

Angle1 Angle2 : -85.00 deg 80.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 41.00 / 41.00 m
Receiver height : 4.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: R Greenbank (day)

Source height = 1.50 m

ROAD (0.00 + 70.25 + 0.00) = 70.25 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-85	80	0.00	75.00	0.00	-4.37	-0.38	0.00	0.00	0.00	70.25

Segment Leq : 70.25 dBA

Results segment # 2: BRT (day)

Source height = 0.50 m

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
-85	80	0.00	59.61	0.00	-4.37	-0.38	0.00	0.00	0.00	54.87

Segment Leq : 54.87 dBA

Total Leq All Segments: 70.37 dBA

Results segment # 1: R Greenbank (night)

Source height = 1.50 m

ROAD (0.00 + 62.65 + 0.00) = 62.65 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-85	80	0.00	67.40	0.00	-4.37	-0.38	0.00	0.00	0.00	62.65

Segment Leq : 62.65 dBA

Results segment # 2: BRT (night)

Source height = 0.50 m

ROAD (0.00 + 53.32 + 0.00) = 53.32 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-85	80	0.00	58.06	0.00	-4.37	-0.38	0.00	0.00	0.00	53.32

Segment Leq : 53.32 dBA

Total Leq All Segments: 63.13 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 70.37
(NIGHT): 63.13

STAMSON 5.04 NORMAL REPORT Date: 29-01-2019 15:08:49
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: b81_nf.te Time Period: Day/Night 16/8 hours
Description: Block 81 - North Facade

Road data, segment # 1: R Greenbank (day/night)

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

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

Data for Segment # 1: R Greenbank (day/night)

Angle1 Angle2 : 0.00 deg 25.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 109.00 / 109.00 m
Receiver height : 4.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 0/0 veh/TimePeriod *
Medium truck volume : 200/70 veh/TimePeriod *
Heavy truck volume : 0/0 veh/TimePeriod *
Posted speed limit : 80 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 270
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 100.00
Heavy Truck % of Total Volume : 0.00
Day (16 hrs) % of Total Volume : 74.00

Data for Segment # 2: BRT (day/night)

Angle1 Angle2 : 0.00 deg 25.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 109.00 / 109.00 m
Receiver height : 4.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: R Greenbank (day)

Source height = 1.50 m

ROAD (0.00 + 57.81 + 0.00) = 57.81 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	25	0.00	75.00	0.00	-8.61	-8.57	0.00	0.00	0.00	57.81

Segment Leq : 57.81 dBA

Results segment # 2: BRT (day)

Source height = 0.50 m

ROAD (0.00 + 42.43 + 0.00) = 42.43 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	25	0.00	59.61	0.00	-8.61	-8.57	0.00	0.00	0.00	42.43

Segment Leq : 42.43 dBA

Total Leq All Segments: 57.93 dBA

Results segment # 1: R Greenbank (night)

Source height = 1.50 m

ROAD (0.00 + 50.21 + 0.00) = 50.21 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	25	0.00	67.40	0.00	-8.61	-8.57	0.00	0.00	0.00	50.21

Segment Leq : 50.21 dBA

Results segment # 2: BRT (night)

Source height = 0.50 m

ROAD (0.00 + 40.88 + 0.00) = 40.88 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	25	0.00	58.06	0.00	-8.61	-8.57	0.00	0.00	0.00	40.88

Segment Leq : 40.88 dBA

Total Leq All Segments: 50.69 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 57.93
(NIGHT): 50.69

STAMSON 5.04 NORMAL REPORT Date: 29-01-2019 15:09:24
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: b82_nf.te Time Period: Day/Night 16/8 hours
Description: Block 82 - North Facade

Road data, segment # 1: R Greenbank (day/night)

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

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

Data for Segment # 1: R Greenbank (day/night)

Angle1 Angle2 : 0.00 deg 50.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 65.00 / 65.00 m
Receiver height : 4.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 0/0 veh/TimePeriod *
Medium truck volume : 200/70 veh/TimePeriod *
Heavy truck volume : 0/0 veh/TimePeriod *
Posted speed limit : 80 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 270
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 100.00
Heavy Truck % of Total Volume : 0.00
Day (16 hrs) % of Total Volume : 74.00

Data for Segment # 2: BRT (day/night)

```

-----
Angle1  Angle2      :    0.00 deg   50.00 deg
Wood depth      :          0      (No woods.)
No of house rows :          0 / 0
Surface         :          2      (Reflective ground surface)
Receiver source distance : 65.00 / 65.00 m
Receiver height  :    4.50 / 4.50 m
Topography      :          1      (Flat/gentle slope; no barrier)
Reference angle  :    0.00
  
```

Results segment # 1: R Greenbank (day)

Source height = 1.50 m

ROAD (0.00 + 63.06 + 0.00) = 63.06 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	50	0.00	75.00	0.00	-6.37	-5.56	0.00	0.00	0.00	63.06

Segment Leq : 63.06 dBA

Results segment # 2: BRT (day)

Source height = 0.50 m

ROAD (0.00 + 47.68 + 0.00) = 47.68 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	50	0.00	59.61	0.00	-6.37	-5.56	0.00	0.00	0.00	47.68

Segment Leq : 47.68 dBA

Total Leq All Segments: 63.18 dBA

Results segment # 1: R Greenbank (night)

Source height = 1.50 m

ROAD (0.00 + 55.47 + 0.00) = 55.47 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	50	0.00	67.40	0.00	-6.37	-5.56	0.00	0.00	0.00	55.47

Segment Leq : 55.47 dBA

Results segment # 2: BRT (night)

Source height = 0.50 m

ROAD (0.00 + 46.13 + 0.00) = 46.13 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	50	0.00	58.06	0.00	-6.37	-5.56	0.00	0.00	0.00	46.13

Segment Leq : 46.13 dBA

Total Leq All Segments: 55.95 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 63.18
(NIGHT): 55.95

STAMSON 5.04 NORMAL REPORT Date: 29-01-2019 15:10:09
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: b83_sf.te Time Period: Day/Night 16/8 hours
Description: Block 83 - South Facade

Road data, segment # 1: R Greenbank (day/night)

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

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

Data for Segment # 1: R Greenbank (day/night)

Angle1 Angle2 : -90.00 deg 0.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 22.00 / 22.00 m
Receiver height : 4.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 0/0 veh/TimePeriod *
Medium truck volume : 200/70 veh/TimePeriod *
Heavy truck volume : 0/0 veh/TimePeriod *
Posted speed limit : 80 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 270
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 100.00
Heavy Truck % of Total Volume : 0.00
Day (16 hrs) % of Total Volume : 74.00

Data for Segment # 2: BRT (day/night)

Angle1 Angle2 : -90.00 deg 0.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 22.00 / 22.00 m
Receiver height : 4.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 6477/563 veh/TimePeriod *
Medium truck volume : 515/45 veh/TimePeriod *
Heavy truck volume : 368/32 veh/TimePeriod *
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 8000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

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

Angle1 Angle2 : -90.00 deg 0.00 deg
Wood depth : 0 (No woods.)
No of house rows : 1 / 1
House density : 90 %
Surface : 1 (Absorptive ground surface)
Receiver source distance : 45.00 / 45.00 m
Receiver height : 4.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 4: Kilbirnie (day/night)

Car traffic volume : 6477/563 veh/TimePeriod *
Medium truck volume : 515/45 veh/TimePeriod *
Heavy truck volume : 368/32 veh/TimePeriod *
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 8000

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

Data for Segment # 4: Kilbirnie (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 : 45.00 / 45.00 m
 Receiver height : 4.50 / 4.50 m
 Topography : 1 (Flat/gentle slope; no barrier)
 Reference angle : 0.00

Results segment # 1: R Greenbank (day)

 Source height = 1.50 m

ROAD (0.00 + 70.32 + 0.00) = 70.32 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	0	0.00	75.00	0.00	-1.66	-3.01	0.00	0.00	0.00	70.32

 Segment Leq : 70.32 dBA

Results segment # 2: BRT (day)

 Source height = 0.50 m

ROAD (0.00 + 54.94 + 0.00) = 54.94 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	0	0.00	59.61	0.00	-1.66	-3.01	0.00	0.00	0.00	54.94

 Segment Leq : 54.94 dBA

Results segment # 3: Kilbirnie (day)

 Source height = 1.50 m

ROAD (0.00 + 45.79 + 0.00) = 45.79 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	0	0.57	65.75	0.00	-7.49	-4.31	0.00	-8.15	0.00	45.79

Segment Leq : 45.79 dBA

Results segment # 4: Kilbirnie (day)

Source height = 1.50 m

ROAD (0.00 + 57.97 + 0.00) = 57.97 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	90	0.00	65.75	0.00	-4.77	-3.01	0.00	0.00	0.00	57.97

Segment Leq : 57.97 dBA

Total Leq All Segments: 70.70 dBA

Results segment # 1: R Greenbank (night)

Source height = 1.50 m

ROAD (0.00 + 62.72 + 0.00) = 62.72 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	0	0.00	67.40	0.00	-1.66	-3.01	0.00	0.00	0.00	62.72

Segment Leq : 62.72 dBA

Results segment # 2: BRT (night)

Source height = 0.50 m

ROAD (0.00 + 53.39 + 0.00) = 53.39 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	0	0.00	58.06	0.00	-1.66	-3.01	0.00	0.00	0.00	53.39

Segment Leq : 53.39 dBA

Results segment # 3: Kilbirnie (night)

Source height = 1.50 m

ROAD (0.00 + 38.20 + 0.00) = 38.20 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	0	0.57	58.16	0.00	-7.49	-4.31	0.00	-8.15	0.00	38.20

Segment Leq : 38.20 dBA

Results segment # 4: Kilbirnie (night)

Source height = 1.50 m

ROAD (0.00 + 50.38 + 0.00) = 50.38 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
--------	--------	-------	--------	-------	-------	-------	-------	-------	-------	--------

0	90	0.00	58.16	0.00	-4.77	-3.01	0.00	0.00	0.00	50.38
---	----	------	-------	------	-------	-------	------	------	------	-------

Segment Leq : 50.38 dBA

Total Leq All Segments: 63.43 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 70.70
(NIGHT): 63.43

STAMSON 5.04 NORMAL REPORT Date: 29-01-2019 15:11:14
MINISTRY OF ENVIRONMENT, CONSERVATION AND PARKS / NOISE ASSESSMENT

Filename: b83_wf.te Time Period: Day/Night 16/8 hours
Description: Block 83 - West Facade

Road data, segment # 1: R Greenbank (day/night)

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

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

Data for Segment # 1: R Greenbank (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 : 22.00 / 22.00 m
Receiver height : 4.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 0/0 veh/TimePeriod *
Medium truck volume : 200/70 veh/TimePeriod *
Heavy truck volume : 0/0 veh/TimePeriod *
Posted speed limit : 80 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 270
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 100.00
Heavy Truck % of Total Volume : 0.00
Day (16 hrs) % of Total Volume : 74.00

Data for Segment # 2: BRT (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 : 22.00 / 22.00 m
Receiver height : 4.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: R Greenbank (day)

Source height = 1.50 m

ROAD (0.00 + 73.33 + 0.00) = 73.33 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	75.00	0.00	-1.66	0.00	0.00	0.00	0.00	73.33

Segment Leq : 73.33 dBA

Results segment # 2: BRT (day)

Source height = 0.50 m

ROAD (0.00 + 57.95 + 0.00) = 57.95 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	59.61	0.00	-1.66	0.00	0.00	0.00	0.00	57.95

Segment Leq : 57.95 dBA

Total Leq All Segments: 73.45 dBA

Results segment # 1: R Greenbank (night)

Source height = 1.50 m

ROAD (0.00 + 65.74 + 0.00) = 65.74 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	67.40	0.00	-1.66	0.00	0.00	0.00	0.00	65.74

Segment Leq : 65.74 dBA

Results segment # 2: BRT (night)

Source height = 0.50 m

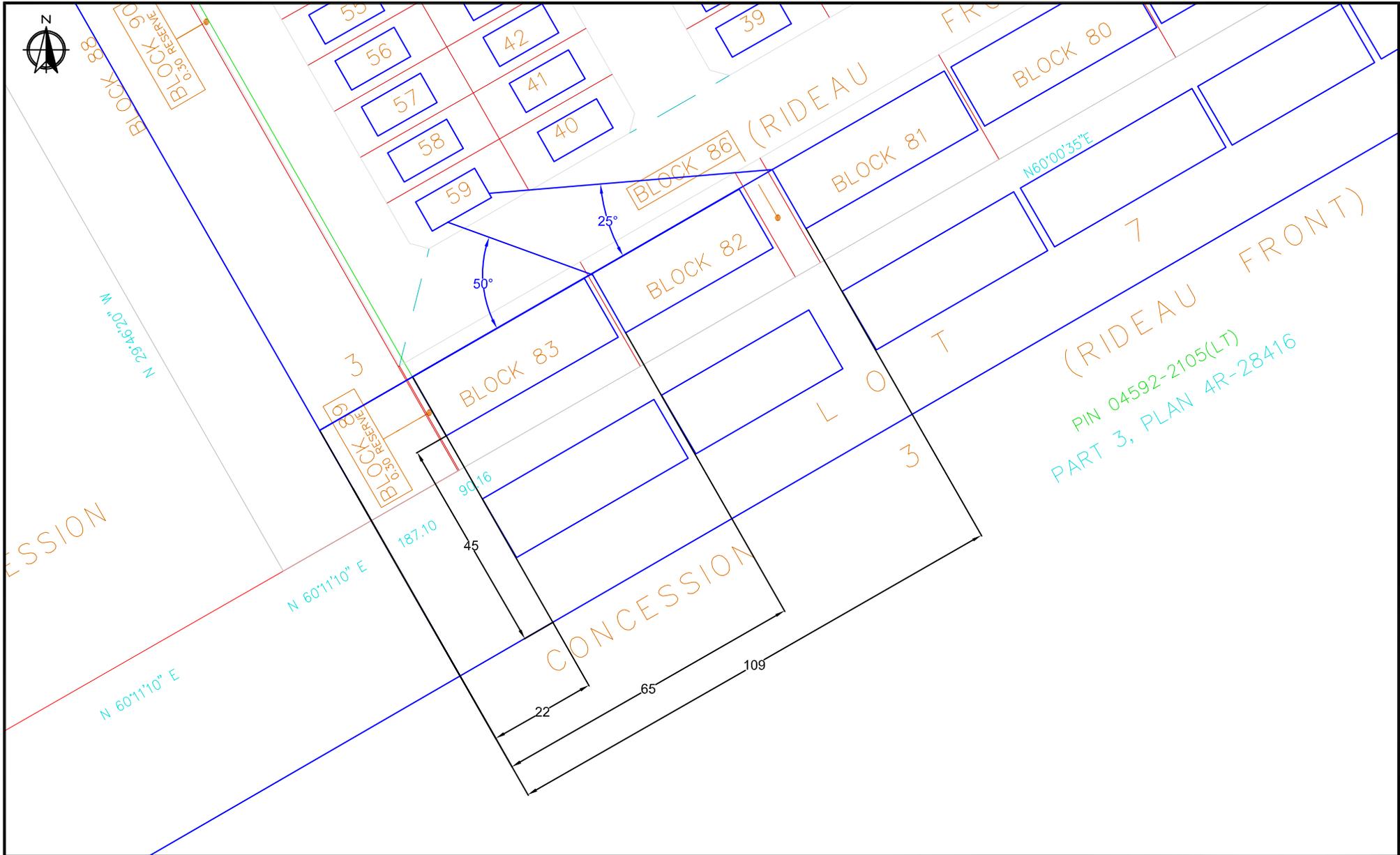
ROAD (0.00 + 56.40 + 0.00) = 56.40 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	58.06	0.00	-1.66	0.00	0.00	0.00	0.00	56.40

Segment Leq : 56.40 dBA

Total Leq All Segments: 66.22 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 73.45
(NIGHT): 66.22



No.	Revision/Issue	Date


VALCOUSTICS
 Canada Ltd.

30 Wertheim Court, Unit 25
 Richmond Hill, Ontario
 Canada L4B 1B9
 solutions@valcoustics.com
 Phone: (905) 764-5223
 Fax: (905) 764-6813

Title
 Distances and Angles - Blocks 81 to 83 (Facades)

Project Name
 Half Moon Bay South - Phase 5

Project No.
 108-363-300

Scale
 N.T.S.

Date
 Jan. 29, 2019

Figure
C11

STAMSON 5.04 NORMAL REPORT Date: 29-01-2019 15:11:35
MINISTRY OF ENVIRONMENT, CONSERVATION AND PARKS / NOISE ASSESSMENT

Filename: b84_sf.te Time Period: Day/Night 16/8 hours
Description: Block 84 - South Facade

Road data, segment # 1: R Greenbank (day/night)

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

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

Data for Segment # 1: R Greenbank (day/night)

Angle1 Angle2 : -15.00 deg 0.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 142.00 / 142.00 m
Receiver height : 4.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 0/0 veh/TimePeriod *
Medium truck volume : 200/70 veh/TimePeriod *
Heavy truck volume : 0/0 veh/TimePeriod *
Posted speed limit : 80 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 270
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 100.00
Heavy Truck % of Total Volume : 0.00
Day (16 hrs) % of Total Volume : 74.00

Data for Segment # 2: BRT (day/night)

Angle1 Angle2 : -15.00 deg 0.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 142.00 / 142.00 m
Receiver height : 4.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: R Greenbank (day)

Source height = 1.50 m

ROAD (0.00 + 54.44 + 0.00) = 54.44 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-15	0	0.00	75.00	0.00	-9.76	-10.79	0.00	0.00	0.00	54.44

Segment Leq : 54.44 dBA

Results segment # 2: BRT (day)

Source height = 0.50 m

ROAD (0.00 + 39.06 + 0.00) = 39.06 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-15	0	0.00	59.61	0.00	-9.76	-10.79	0.00	0.00	0.00	39.06

Segment Leq : 39.06 dBA

Total Leq All Segments: 54.56 dBA

Results segment # 1: R Greenbank (night)

Source height = 1.50 m

ROAD (0.00 + 46.84 + 0.00) = 46.84 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-15	0	0.00	67.40	0.00	-9.76	-10.79	0.00	0.00	0.00	46.84

Segment Leq : 46.84 dBA

Results segment # 2: BRT (night)

Source height = 0.50 m

ROAD (0.00 + 37.51 + 0.00) = 37.51 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-15	0	0.00	58.06	0.00	-9.76	-10.79	0.00	0.00	0.00	37.51

Segment Leq : 37.51 dBA

Total Leq All Segments: 47.32 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 54.56
(NIGHT): 47.32



No.	Revision/Issue	Date


VALCOUSTICS
 Canada Ltd.

30 Wertheim Court, Unit 25
 Richmond Hill, Ontario
 Canada L4B 1B9
 solutions@valcoustics.com
 Phone: (905) 764-5223
 Fax: (905) 764-6813

Title
 Distances and Angles - Block 84
 (Facades)

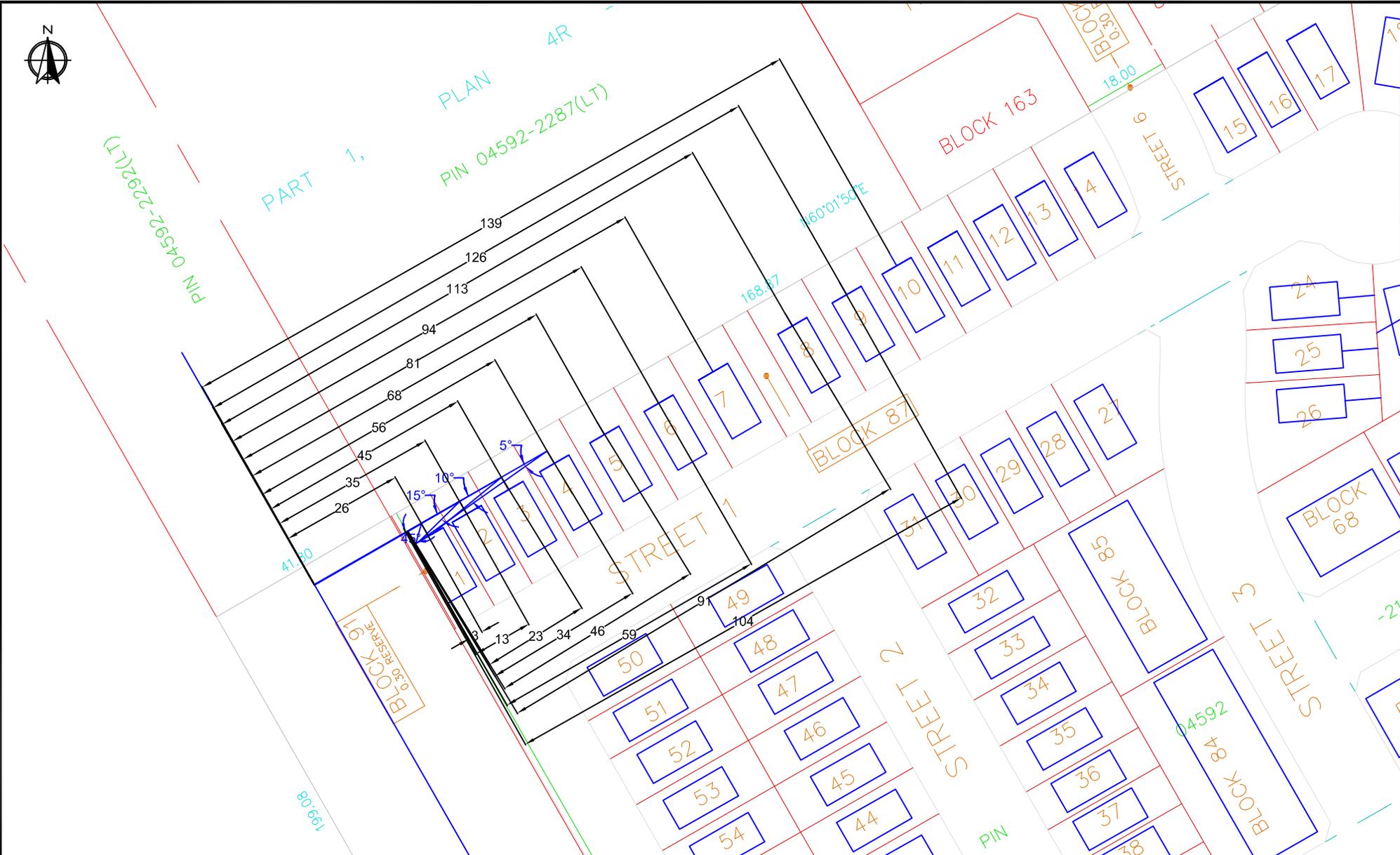
Project Name
 Half Moon Bay South - Phase 5

Project No.
 108-363-300

Scale
 N.T.S.

Date
 Jan. 29, 2019

Figure
C12



No.	Revision/Issue	Date


VALCOUSTICS
 Canada Ltd.
 30 Wertheim Court, Unit 25
 Richmond Hill, Ontario
 Canada L4B 1B9
 solutions@valcoustics.com
 Phone: (905) 764-5223
 Fax: (905) 764-6813

Title
 Distances and Angles - Lots 1 to 10 (OLA's)

Project Name
 Half Moon Bay South - Phase 5

Project No.
 108-363-300

Scale
 N.T.S.

Date
 Jan. 29, 2019

Figure
C13

STAMSON 5.04 NORMAL REPORT Date: 29-01-2019 15:22:26
MINISTRY OF ENVIRONMENT, CONSERVATION AND PARKS / NOISE ASSESSMENT

Filename: ll_ola.te Time Period: Day/Night 16/8 hours
Description: Lot 1 - OLA - Unmitigated

Road data, segment # 1: R Greenbank (day/night)

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

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

Data for Segment # 1: R Greenbank (day/night)

Angle1 Angle2 : -45.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 26.00 / 26.00 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 0/0 veh/TimePeriod *
Medium truck volume : 200/70 veh/TimePeriod *
Heavy truck volume : 0/0 veh/TimePeriod *
Posted speed limit : 80 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 270
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 100.00
Heavy Truck % of Total Volume : 0.00
Day (16 hrs) % of Total Volume : 74.00

Data for Segment # 2: BRT (day/night)

```

-----
Angle1  Angle2      : -45.00 deg   90.00 deg
Wood depth      :      0      (No woods.)
No of house rows :      0 / 0
Surface         :      1      (Absorptive ground surface)
Receiver source distance : 26.00 / 26.00 m
Receiver height :      1.50 / 1.50 m
Topography     :      1      (Flat/gentle slope; no barrier)
Reference angle :      0.00
  
```

Results segment # 1: R Greenbank (day)

Source height = 1.50 m

ROAD (0.00 + 68.74 + 0.00) = 68.74 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-45	90	0.66	75.00	0.00	-3.97	-2.29	0.00	0.00	0.00	68.74

Segment Leq : 68.74 dBA

Results segment # 2: BRT (day)

Source height = 0.50 m

ROAD (0.00 + 53.36 + 0.00) = 53.36 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-45	90	0.66	59.61	0.00	-3.97	-2.29	0.00	0.00	0.00	53.36

Segment Leq : 53.36 dBA

Total Leq All Segments: 68.86 dBA

Results segment # 1: R Greenbank (night)

Source height = 1.50 m

ROAD (0.00 + 61.15 + 0.00) = 61.15 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-45	90	0.66	67.40	0.00	-3.97	-2.29	0.00	0.00	0.00	61.15

Segment Leq : 61.15 dBA

Results segment # 2: BRT (night)

Source height = 0.50 m

ROAD (0.00 + 51.81 + 0.00) = 51.81 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-45	90	0.66	58.06	0.00	-3.97	-2.29	0.00	0.00	0.00	51.81

Segment Leq : 51.81 dBA

Total Leq All Segments: 61.63 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 68.86
(NIGHT): 61.63

STAMSON 5.04 NORMAL REPORT Date: 29-01-2019 15:22:13
MINISTRY OF ENVIRONMENT, CONSERVATION AND PARKS / NOISE ASSESSMENT

Filename: ll_ola.te Time Period: Day/Night 16/8 hours
Description: Lot 1 - OLA - Mitigated

Road data, segment # 1: R Greenbank (day/night)

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

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

Data for Segment # 1: R Greenbank (day/night)

Angle1 Angle2 : -45.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 26.00 / 26.00 m
Receiver height : 1.50 / 1.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -45.00 deg Angle2 : 90.00 deg
Barrier height : 3.00 m
Barrier receiver distance : 3.00 / 3.00 m
Source elevation : 0.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

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

Car traffic volume : 0/0 veh/TimePeriod *
Medium truck volume : 200/70 veh/TimePeriod *
Heavy truck volume : 0/0 veh/TimePeriod *
Posted speed limit : 80 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 270

Percentage of Annual Growth : 0.00
 Number of Years of Growth : 0.00
 Medium Truck % of Total Volume : 100.00
 Heavy Truck % of Total Volume : 0.00
 Day (16 hrs) % of Total Volume : 74.00

Data for Segment # 2: BRT (day/night)

Angle1 Angle2 : -45.00 deg 90.00 deg
 Wood depth : 0 (No woods.)
 No of house rows : 0 / 0
 Surface : 1 (Absorptive ground surface)
 Receiver source distance : 26.00 / 26.00 m
 Receiver height : 1.50 / 1.50 m
 Topography : 2 (Flat/gentle slope; with barrier)
 Barrier angle1 : -45.00 deg Angle2 : 90.00 deg
 Barrier height : 3.00 m
 Barrier receiver distance : 3.00 / 3.00 m
 Source elevation : 0.00 m
 Receiver elevation : 0.00 m
 Barrier elevation : 0.00 m
 Reference angle : 0.00

Results segment # 1: R Greenbank (day)

Source height = 1.50 m

Barrier height for grazing incidence

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

ROAD (0.00 + 57.95 + 0.00) = 57.95 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-45	90	0.48	75.00	0.00	-3.54	-2.06	0.00	0.00	-11.44	57.95

Segment Leq : 57.95 dBA

Results segment # 2: BRT (day)

Source height = 0.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
0.50	1.50	1.38	1.38

ROAD (0.00 + 41.97 + 0.00) = 41.97 dBA
 Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

 -45 90 0.51 59.61 0.00 -3.61 -2.10 0.00 0.00 -11.93 41.97

Segment Leq : 41.97 dBA

Total Leq All Segments: 58.06 dBA

Results segment # 1: R Greenbank (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	1.50	1.50	1.50

ROAD (0.00 + 50.36 + 0.00) = 50.36 dBA
 Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

 -45 90 0.48 67.40 0.00 -3.54 -2.06 0.00 0.00 -11.44 50.36

Segment Leq : 50.36 dBA

Results segment # 2: BRT (night)

Source height = 0.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
0.50	1.50	1.38	1.38

ROAD (0.00 + 40.42 + 0.00) = 40.42 dBA
 Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

 -45 90 0.51 58.06 0.00 -3.61 -2.10 0.00 0.00 -11.93 40.42

Segment Leq : 40.42 dBA

Total Leq All Segments: 50.78 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 58.06
 (NIGHT): 50.78

STAMSON 5.04 NORMAL REPORT Date: 29-01-2019 15:23:08
MINISTRY OF ENVIRONMENT, CONSERVATION AND PARKS / NOISE ASSESSMENT

Filename: l2_ola.te Time Period: Day/Night 16/8 hours
Description: Lot 2 - OLA - Unmitigated

Road data, segment # 1: R Greenbank (day/night)

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

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

Data for Segment # 1: R Greenbank (day/night)

Angle1 Angle2 : -15.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 35.00 / 35.00 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 0/0 veh/TimePeriod *
Medium truck volume : 200/70 veh/TimePeriod *
Heavy truck volume : 0/0 veh/TimePeriod *
Posted speed limit : 80 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 270
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 100.00
Heavy Truck % of Total Volume : 0.00
Day (16 hrs) % of Total Volume : 74.00

Data for Segment # 2: BRT (day/night)

Angle1 Angle2 : -15.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 35.00 / 35.00 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: R Greenbank (day)

Source height = 1.50 m

ROAD (0.00 + 65.32 + 0.00) = 65.32 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-15	90	0.66	75.00	0.00	-6.11	-3.56	0.00	0.00	0.00	65.32

Segment Leq : 65.32 dBA

Results segment # 2: BRT (day)

Source height = 0.50 m

ROAD (0.00 + 49.94 + 0.00) = 49.94 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-15	90	0.66	59.61	0.00	-6.11	-3.56	0.00	0.00	0.00	49.94

Segment Leq : 49.94 dBA

Total Leq All Segments: 65.44 dBA

Results segment # 1: R Greenbank (night)

Source height = 1.50 m

ROAD (0.00 + 57.73 + 0.00) = 57.73 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-15	90	0.66	67.40	0.00	-6.11	-3.56	0.00	0.00	0.00	57.73

Segment Leq : 57.73 dBA

Results segment # 2: BRT (night)

Source height = 0.50 m

ROAD (0.00 + 48.39 + 0.00) = 48.39 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-15	90	0.66	58.06	0.00	-6.11	-3.56	0.00	0.00	0.00	48.39

Segment Leq : 48.39 dBA

Total Leq All Segments: 58.21 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 65.44
(NIGHT): 58.21

STAMSON 5.04 NORMAL REPORT Date: 29-01-2019 15:22:53
MINISTRY OF ENVIRONMENT, CONSERVATION AND PARKS / NOISE ASSESSMENT

Filename: l2_ola.te Time Period: Day/Night 16/8 hours
Description: Lot 2 - OLA - Mitigated

Road data, segment # 1: R Greenbank (day/night)

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

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

Data for Segment # 1: R Greenbank (day/night)

Angle1 Angle2 : -15.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 35.00 / 35.00 m
Receiver height : 1.50 / 1.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -15.00 deg Angle2 : 90.00 deg
Barrier height : 3.00 m
Barrier receiver distance : 13.00 / 13.00 m
Source elevation : 0.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

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

Car traffic volume : 0/0 veh/TimePeriod *
Medium truck volume : 200/70 veh/TimePeriod *
Heavy truck volume : 0/0 veh/TimePeriod *
Posted speed limit : 80 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 270

Percentage of Annual Growth : 0.00
 Number of Years of Growth : 0.00
 Medium Truck % of Total Volume : 100.00
 Heavy Truck % of Total Volume : 0.00
 Day (16 hrs) % of Total Volume : 74.00

Data for Segment # 2: BRT (day/night)

Angle1 Angle2 : -15.00 deg 90.00 deg
 Wood depth : 0 (No woods.)
 No of house rows : 0 / 0
 Surface : 1 (Absorptive ground surface)
 Receiver source distance : 35.00 / 35.00 m
 Receiver height : 1.50 / 1.50 m
 Topography : 2 (Flat/gentle slope; with barrier)
 Barrier angle1 : -15.00 deg Angle2 : 90.00 deg
 Barrier height : 4.20 m
 Barrier receiver distance : 13.00 / 13.00 m
 Source elevation : 0.00 m
 Receiver elevation : 0.00 m
 Barrier elevation : 0.00 m
 Reference angle : 0.00

Results segment # 1: R Greenbank (day)

Source height = 1.50 m

Barrier height for grazing incidence

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

ROAD (0.00 + 58.00 + 0.00) = 58.00 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-15	90	0.48	75.00	0.00	-5.45	-3.30	0.00	0.00	-8.25	58.00

Segment Leq : 58.00 dBA

Results segment # 2: BRT (day)

Source height = 0.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
0.50	1.50	1.13	1.13

ROAD (0.00 + 38.95 + 0.00) = 38.95 dBA
 Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

 -15 90 0.44 59.61 0.00 -5.29 -3.23 0.00 0.00 -12.14 38.95

Segment Leq : 38.95 dBA

Total Leq All Segments: 58.05 dBA

Results segment # 1: R Greenbank (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	1.50	1.50	1.50

ROAD (0.00 + 50.40 + 0.00) = 50.40 dBA
 Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

 -15 90 0.48 67.40 0.00 -5.45 -3.30 0.00 0.00 -8.25 50.40

Segment Leq : 50.40 dBA

Results segment # 2: BRT (night)

Source height = 0.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
0.50	1.50	1.13	1.13

ROAD (0.00 + 37.40 + 0.00) = 37.40 dBA
 Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

 -15 90 0.44 58.06 0.00 -5.29 -3.23 0.00 0.00 -12.14 37.40

Segment Leq : 37.40 dBA

Total Leq All Segments: 50.61 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 58.05
 (NIGHT): 50.61

STAMSON 5.04 NORMAL REPORT Date: 29-01-2019 15:24:00
MINISTRY OF ENVIRONMENT, CONSERVATION AND PARKS / NOISE ASSESSMENT

Filename: l3_ola.te Time Period: Day/Night 16/8 hours
Description: Lot 3 - OLA - Unmitigated

Road data, segment # 1: R Greenbank (day/night)

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

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

Data for Segment # 1: R Greenbank (day/night)

Angle1 Angle2 : -10.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 45.00 / 45.00 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 0/0 veh/TimePeriod *
Medium truck volume : 200/70 veh/TimePeriod *
Heavy truck volume : 0/0 veh/TimePeriod *
Posted speed limit : 80 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 270
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 100.00
Heavy Truck % of Total Volume : 0.00
Day (16 hrs) % of Total Volume : 74.00

Data for Segment # 2: BRT (day/night)

Angle1 Angle2 : -10.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 45.00 / 45.00 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: R Greenbank (day)

Source height = 1.50 m

ROAD (0.00 + 63.23 + 0.00) = 63.23 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-10	90	0.66	75.00	0.00	-7.92	-3.84	0.00	0.00	0.00	63.23

Segment Leq : 63.23 dBA

Results segment # 2: BRT (day)

Source height = 0.50 m

ROAD (0.00 + 47.85 + 0.00) = 47.85 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-10	90	0.66	59.61	0.00	-7.92	-3.84	0.00	0.00	0.00	47.85

Segment Leq : 47.85 dBA

Total Leq All Segments: 63.35 dBA

Results segment # 1: R Greenbank (night)

Source height = 1.50 m

ROAD (0.00 + 55.64 + 0.00) = 55.64 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-10	90	0.66	67.40	0.00	-7.92	-3.84	0.00	0.00	0.00	55.64

Segment Leq : 55.64 dBA

Results segment # 2: BRT (night)

Source height = 0.50 m

ROAD (0.00 + 46.30 + 0.00) = 46.30 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-10	90	0.66	58.06	0.00	-7.92	-3.84	0.00	0.00	0.00	46.30

Segment Leq : 46.30 dBA

Total Leq All Segments: 56.12 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 63.35
(NIGHT): 56.12

STAMSON 5.04 NORMAL REPORT Date: 29-01-2019 15:23:38
MINISTRY OF ENVIRONMENT, CONSERVATION AND PARKS / NOISE ASSESSMENT

Filename: l3_ola.te Time Period: Day/Night 16/8 hours
Description: Lot 3 - OLA - Mitigated

Road data, segment # 1: R Greenbank (day/night)

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

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

Data for Segment # 1: R Greenbank (day/night)

Angle1 Angle2 : -10.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 45.00 / 45.00 m
Receiver height : 1.50 / 1.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -10.00 deg Angle2 : 90.00 deg
Barrier height : 3.70 m
Barrier receiver distance : 23.00 / 23.00 m
Source elevation : 0.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

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

Car traffic volume : 0/0 veh/TimePeriod *
Medium truck volume : 200/70 veh/TimePeriod *
Heavy truck volume : 0/0 veh/TimePeriod *
Posted speed limit : 80 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 270

Percentage of Annual Growth : 0.00
 Number of Years of Growth : 0.00
 Medium Truck % of Total Volume : 100.00
 Heavy Truck % of Total Volume : 0.00
 Day (16 hrs) % of Total Volume : 74.00

Data for Segment # 2: BRT (day/night)

Angle1 Angle2 : -10.00 deg 90.00 deg
 Wood depth : 0 (No woods.)
 No of house rows : 0 / 0
 Surface : 1 (Absorptive ground surface)
 Receiver source distance : 45.00 / 45.00 m
 Receiver height : 1.50 / 1.50 m
 Topography : 2 (Flat/gentle slope; with barrier)
 Barrier angle1 : -10.00 deg Angle2 : 90.00 deg
 Barrier height : 3.70 m
 Barrier receiver distance : 23.00 / 23.00 m
 Source elevation : 0.00 m
 Receiver elevation : 0.00 m
 Barrier elevation : 0.00 m
 Reference angle : 0.00

Results segment # 1: R Greenbank (day)

Source height = 1.50 m

Barrier height for grazing incidence

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

ROAD (0.00 + 55.40 + 0.00) = 55.40 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-10	90	0.44	75.00	0.00	-6.86	-3.49	0.00	0.00	-9.24	55.40

Segment Leq : 55.40 dBA

Results segment # 2: BRT (day)

Source height = 0.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
0.50	1.50	0.99	0.99

ROAD (0.00 + 38.71 + 0.00) = 38.71 dBA
 Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

 -10 90 0.47 59.61 0.00 -7.00 -3.54 0.00 0.00 -10.35 38.71

Segment Leq : 38.71 dBA

Total Leq All Segments: 55.49 dBA

Results segment # 1: R Greenbank (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	1.50	1.50	1.50

ROAD (0.00 + 47.80 + 0.00) = 47.80 dBA
 Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

 -10 90 0.44 67.40 0.00 -6.86 -3.49 0.00 0.00 -9.24 47.80

Segment Leq : 47.80 dBA

Results segment # 2: BRT (night)

Source height = 0.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
0.50	1.50	0.99	0.99

ROAD (0.00 + 37.17 + 0.00) = 37.17 dBA
 Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

 -10 90 0.47 58.06 0.00 -7.00 -3.54 0.00 0.00 -10.35 37.17

Segment Leq : 37.17 dBA

Total Leq All Segments: 48.16 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 55.49
 (NIGHT): 48.16

STAMSON 5.04 NORMAL REPORT Date: 29-01-2019 15:24:36
MINISTRY OF ENVIRONMENT, CONSERVATION AND PARKS / NOISE ASSESSMENT

Filename: l4_ola.te Time Period: Day/Night 16/8 hours
Description: Lot 4 - OLA - Unmitigated

Road data, segment # 1: R Greenbank (day/night)

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

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

Data for Segment # 1: R Greenbank (day/night)

Angle1 Angle2 : -5.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 56.00 / 56.00 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 0/0 veh/TimePeriod *
Medium truck volume : 200/70 veh/TimePeriod *
Heavy truck volume : 0/0 veh/TimePeriod *
Posted speed limit : 80 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 270
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 100.00
Heavy Truck % of Total Volume : 0.00
Day (16 hrs) % of Total Volume : 74.00

Data for Segment # 2: BRT (day/night)

Angle1 Angle2 : -5.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 56.00 / 56.00 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: R Greenbank (day)

Source height = 1.50 m

ROAD (0.00 + 61.36 + 0.00) = 61.36 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-5	90	0.66	75.00	0.00	-9.50	-4.14	0.00	0.00	0.00	61.36

Segment Leq : 61.36 dBA

Results segment # 2: BRT (day)

Source height = 0.50 m

ROAD (0.00 + 45.97 + 0.00) = 45.97 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-5	90	0.66	59.61	0.00	-9.50	-4.14	0.00	0.00	0.00	45.97

Segment Leq : 45.97 dBA

Total Leq All Segments: 61.48 dBA

Results segment # 1: R Greenbank (night)

Source height = 1.50 m

ROAD (0.00 + 53.76 + 0.00) = 53.76 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-5	90	0.66	67.40	0.00	-9.50	-4.14	0.00	0.00	0.00	53.76

Segment Leq : 53.76 dBA

Results segment # 2: BRT (night)

Source height = 0.50 m

ROAD (0.00 + 44.43 + 0.00) = 44.43 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-5	90	0.66	58.06	0.00	-9.50	-4.14	0.00	0.00	0.00	44.43

Segment Leq : 44.43 dBA

Total Leq All Segments: 54.24 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 61.48
(NIGHT): 54.24

STAMSON 5.04 NORMAL REPORT Date: 29-01-2019 15:24:23
MINISTRY OF ENVIRONMENT CONSERVATION AND PARKS / NOISE ASSESSMENT

Filename: l4_ola.te Time Period: Day/Night 16/8 hours
Description: Lot 4 - OLA - Mitigated

Road data, segment # 1: R Greenbank (day/night)

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

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

Data for Segment # 1: R Greenbank (day/night)

Angle1 Angle2 : -5.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 56.00 / 56.00 m
Receiver height : 1.50 / 1.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -5.00 deg Angle2 : 90.00 deg
Barrier height : 3.00 m
Barrier receiver distance : 34.00 / 34.00 m
Source elevation : 0.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

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

Car traffic volume : 0/0 veh/TimePeriod *
Medium truck volume : 200/70 veh/TimePeriod *
Heavy truck volume : 0/0 veh/TimePeriod *
Posted speed limit : 80 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 270

Percentage of Annual Growth : 0.00
 Number of Years of Growth : 0.00
 Medium Truck % of Total Volume : 100.00
 Heavy Truck % of Total Volume : 0.00
 Day (16 hrs) % of Total Volume : 74.00

Data for Segment # 2: BRT (day/night)

Angle1 Angle2 : -5.00 deg 90.00 deg
 Wood depth : 0 (No woods.)
 No of house rows : 0 / 0
 Surface : 1 (Absorptive ground surface)
 Receiver source distance : 56.00 / 56.00 m
 Receiver height : 1.50 / 1.50 m
 Topography : 2 (Flat/gentle slope; with barrier)
 Barrier angle1 : -5.00 deg Angle2 : 90.00 deg
 Barrier height : 3.00 m
 Barrier receiver distance : 34.00 / 34.00 m
 Source elevation : 0.00 m
 Receiver elevation : 0.00 m
 Barrier elevation : 0.00 m
 Reference angle : 0.00

Results segment # 1: R Greenbank (day)

Source height = 1.50 m

Barrier height for grazing incidence

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

ROAD (0.00 + 55.49 + 0.00) = 55.49 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-5	90	0.48	75.00	0.00	-8.47	-3.85	0.00	0.00	-7.19	55.49

Segment Leq : 55.49 dBA

Results segment # 2: BRT (day)

Source height = 0.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
0.50	1.50	0.89	0.89

ROAD (0.00 + 38.55 + 0.00) = 38.55 dBA
 Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

 -5 90 0.51 59.61 0.00 -8.64 -3.90 0.00 0.00 -8.53 38.55

Segment Leq : 38.55 dBA

Total Leq All Segments: 55.58 dBA

Results segment # 1: R Greenbank (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	1.50	1.50	1.50

ROAD (0.00 + 47.89 + 0.00) = 47.89 dBA
 Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

 -5 90 0.48 67.40 0.00 -8.47 -3.85 0.00 0.00 -7.19 47.89

Segment Leq : 47.89 dBA

Results segment # 2: BRT (night)

Source height = 0.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
0.50	1.50	0.89	0.89

ROAD (0.00 + 37.00 + 0.00) = 37.00 dBA
 Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

 -5 90 0.51 58.06 0.00 -8.64 -3.90 0.00 0.00 -8.53 37.00

Segment Leq : 37.00 dBA

Total Leq All Segments: 48.23 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 55.58
 (NIGHT): 48.23

STAMSON 5.04 NORMAL REPORT Date: 29-01-2019 15:25:07
MINISTRY OF ENVIRONMENT CONSERVATION AND PARKS / NOISE ASSESSMENT

Filename: 15_ola.te Time Period: Day/Night 16/8 hours
Description: Lot 5 - OLA - Unmitigated

Road data, segment # 1: R Greenbank (day/night)

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

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

Data for Segment # 1: R Greenbank (day/night)

Angle1 Angle2 : -5.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 68.00 / 68.00 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 0/0 veh/TimePeriod *
Medium truck volume : 200/70 veh/TimePeriod *
Heavy truck volume : 0/0 veh/TimePeriod *
Posted speed limit : 80 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 270
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 100.00
Heavy Truck % of Total Volume : 0.00
Day (16 hrs) % of Total Volume : 74.00

Data for Segment # 2: BRT (day/night)

```

-----
Angle1  Angle2      :  -5.00 deg   90.00 deg
Wood depth      :      0           (No woods.)
No of house rows :      0 / 0
Surface         :      1           (Absorptive ground surface)
Receiver source distance : 68.00 / 68.00 m
Receiver height  :      1.50 / 1.50 m
Topography      :      1           (Flat/gentle slope; no barrier)
Reference angle  :      0.00
  
```

Results segment # 1: R Greenbank (day)

Source height = 1.50 m

ROAD (0.00 + 59.96 + 0.00) = 59.96 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-5	90	0.66	75.00	0.00	-10.90	-4.14	0.00	0.00	0.00	59.96

Segment Leq : 59.96 dBA

Results segment # 2: BRT (day)

Source height = 0.50 m

ROAD (0.00 + 44.57 + 0.00) = 44.57 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-5	90	0.66	59.61	0.00	-10.90	-4.14	0.00	0.00	0.00	44.57

Segment Leq : 44.57 dBA

Total Leq All Segments: 60.08 dBA

Results segment # 1: R Greenbank (night)

Source height = 1.50 m

ROAD (0.00 + 52.36 + 0.00) = 52.36 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-5	90	0.66	67.40	0.00	-10.90	-4.14	0.00	0.00	0.00	52.36

Segment Leq : 52.36 dBA

Results segment # 2: BRT (night)

Source height = 0.50 m

ROAD (0.00 + 43.03 + 0.00) = 43.03 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-5	90	0.66	58.06	0.00	-10.90	-4.14	0.00	0.00	0.00	43.03

Segment Leq : 43.03 dBA

Total Leq All Segments: 52.84 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 60.08
(NIGHT): 52.84

STAMSON 5.04 NORMAL REPORT Date: 29-01-2019 15:24:53
MINISTRY OF ENVIRONMENT CONSERVATION AND PARKS / NOISE ASSESSMENT

Filename: 15_ola.te Time Period: Day/Night 16/8 hours
Description: Lot 5 - OLA - Mitigated

Road data, segment # 1: R Greenbank (day/night)

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

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

Data for Segment # 1: R Greenbank (day/night)

Angle1 Angle2 : -5.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 68.00 / 68.00 m
Receiver height : 1.50 / 1.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -5.00 deg Angle2 : 90.00 deg
Barrier height : 2.30 m
Barrier receiver distance : 46.00 / 46.00 m
Source elevation : 0.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

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

Car traffic volume : 0/0 veh/TimePeriod *
Medium truck volume : 200/70 veh/TimePeriod *
Heavy truck volume : 0/0 veh/TimePeriod *
Posted speed limit : 80 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 270

Percentage of Annual Growth : 0.00
 Number of Years of Growth : 0.00
 Medium Truck % of Total Volume : 100.00
 Heavy Truck % of Total Volume : 0.00
 Day (16 hrs) % of Total Volume : 74.00

Data for Segment # 2: BRT (day/night)

Angle1 Angle2 : -5.00 deg 90.00 deg
 Wood depth : 0 (No woods.)
 No of house rows : 0 / 0
 Surface : 1 (Absorptive ground surface)
 Receiver source distance : 68.00 / 68.00 m
 Receiver height : 1.50 / 1.50 m
 Topography : 2 (Flat/gentle slope; with barrier)
 Barrier angle1 : -5.00 deg Angle2 : 90.00 deg
 Barrier height : 2.30 m
 Barrier receiver distance : 46.00 / 46.00 m
 Source elevation : 0.00 m
 Receiver elevation : 0.00 m
 Barrier elevation : 0.00 m
 Reference angle : 0.00

Results segment # 1: R Greenbank (day)

Source height = 1.50 m

Barrier height for grazing incidence

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

ROAD (0.00 + 55.39 + 0.00) = 55.39 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-5	90	0.52	75.00	0.00	-9.99	-3.92	0.00	0.00	-5.69	55.39

Segment Leq : 55.39 dBA

Results segment # 2: BRT (day)

Source height = 0.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
0.50	1.50	0.82	0.82

ROAD (0.00 + 38.50 + 0.00) = 38.50 dBA
 Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

 -5 90 0.55 59.61 0.00 -10.19 -3.97 0.00 0.00 -6.96 38.50

Segment Leq : 38.50 dBA

Total Leq All Segments: 55.48 dBA

Results segment # 1: R Greenbank (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	1.50	1.50	1.50

ROAD (0.00 + 47.80 + 0.00) = 47.80 dBA
 Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

 -5 90 0.52 67.40 0.00 -9.99 -3.92 0.00 0.00 -5.69 47.80

Segment Leq : 47.80 dBA

Results segment # 2: BRT (night)

Source height = 0.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
0.50	1.50	0.82	0.82

ROAD (0.00 + 36.95 + 0.00) = 36.95 dBA
 Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

 -5 90 0.55 58.06 0.00 -10.19 -3.97 0.00 0.00 -6.96 36.95

Segment Leq : 36.95 dBA

Total Leq All Segments: 48.14 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 55.48
 (NIGHT): 48.14

STAMSON 5.04 NORMAL REPORT Date: 29-01-2019 15:25:38
MINISTRY OF ENVIRONMENT CONSERVATION AND PARKS / NOISE ASSESSMENT

Filename: 16_ola.te Time Period: Day/Night 16/8 hours
Description: Lot 6 - OLA - Unmitigated

Road data, segment # 1: R Greenbank (day/night)

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

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

Data for Segment # 1: R Greenbank (day/night)

Angle1 Angle2 : -5.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 81.00 / 81.00 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 0/0 veh/TimePeriod *
Medium truck volume : 200/70 veh/TimePeriod *
Heavy truck volume : 0/0 veh/TimePeriod *
Posted speed limit : 80 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 270
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 100.00
Heavy Truck % of Total Volume : 0.00
Day (16 hrs) % of Total Volume : 74.00

Data for Segment # 2: BRT (day/night)

Angle1 Angle2 : -5.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 81.00 / 81.00 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: R Greenbank (day)

Source height = 1.50 m

ROAD (0.00 + 58.69 + 0.00) = 58.69 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-5	90	0.66	75.00	0.00	-12.16	-4.14	0.00	0.00	0.00	58.69

Segment Leq : 58.69 dBA

Results segment # 2: BRT (day)

Source height = 0.50 m

ROAD (0.00 + 43.31 + 0.00) = 43.31 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-5	90	0.66	59.61	0.00	-12.16	-4.14	0.00	0.00	0.00	43.31

Segment Leq : 43.31 dBA

Total Leq All Segments: 58.81 dBA

Results segment # 1: R Greenbank (night)

Source height = 1.50 m

ROAD (0.00 + 51.10 + 0.00) = 51.10 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-5	90	0.66	67.40	0.00	-12.16	-4.14	0.00	0.00	0.00	51.10

Segment Leq : 51.10 dBA

Results segment # 2: BRT (night)

Source height = 0.50 m

ROAD (0.00 + 41.76 + 0.00) = 41.76 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-5	90	0.66	58.06	0.00	-12.16	-4.14	0.00	0.00	0.00	41.76

Segment Leq : 41.76 dBA

Total Leq All Segments: 51.58 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 58.81
(NIGHT): 51.58

STAMSON 5.04 NORMAL REPORT Date: 29-01-2019 15:25:26
MINISTRY OF ENVIRONMENT CONSERVATION AND PARKS / NOISE ASSESSMENT

Filename: l6_ola.te Time Period: Day/Night 16/8 hours
Description: Lot 6 - OLA - Mitigated

Road data, segment # 1: R Greenbank (day/night)

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

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

Data for Segment # 1: R Greenbank (day/night)

Angle1 Angle2 : -5.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 81.00 / 81.00 m
Receiver height : 1.50 / 1.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -5.00 deg Angle2 : 90.00 deg
Barrier height : 2.20 m
Barrier receiver distance : 59.00 / 59.00 m
Source elevation : 0.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

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

Car traffic volume : 0/0 veh/TimePeriod *
Medium truck volume : 200/70 veh/TimePeriod *
Heavy truck volume : 0/0 veh/TimePeriod *
Posted speed limit : 80 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 270

Percentage of Annual Growth : 0.00
 Number of Years of Growth : 0.00
 Medium Truck % of Total Volume : 100.00
 Heavy Truck % of Total Volume : 0.00
 Day (16 hrs) % of Total Volume : 74.00

Data for Segment # 2: BRT (day/night)

 Angle1 Angle2 : -5.00 deg 90.00 deg
 Wood depth : 0 (No woods.)
 No of house rows : 0 / 0
 Surface : 1 (Absorptive ground surface)
 Receiver source distance : 81.00 / 81.00 m
 Receiver height : 1.50 / 1.50 m
 Topography : 2 (Flat/gentle slope; with barrier)
 Barrier angle1 : -5.00 deg Angle2 : 90.00 deg
 Barrier height : 2.20 m
 Barrier receiver distance : 59.00 / 59.00 m
 Source elevation : 0.00 m
 Receiver elevation : 0.00 m
 Barrier elevation : 0.00 m
 Reference angle : 0.00

Results segment # 1: R Greenbank (day)

 Source height = 1.50 m

Barrier height for grazing incidence

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

ROAD (0.00 + 54.37 + 0.00) = 54.37 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-5	90	0.53	75.00	0.00	-11.19	-3.93	0.00	0.00	-5.50	54.37

 Segment Leq : 54.37 dBA

Results segment # 2: BRT (day)

 Source height = 0.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
0.50	1.50	0.77	0.77

ROAD (0.00 + 37.47 + 0.00) = 37.47 dBA
 Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

 -5 90 0.56 59.61 0.00 -11.41 -3.98 0.00 0.00 -6.75 37.47

Segment Leq : 37.47 dBA

Total Leq All Segments: 54.46 dBA

Results segment # 1: R Greenbank (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	1.50	1.50	1.50

ROAD (0.00 + 46.77 + 0.00) = 46.77 dBA
 Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

 -5 90 0.53 67.40 0.00 -11.19 -3.93 0.00 0.00 -5.50 46.77

Segment Leq : 46.77 dBA

Results segment # 2: BRT (night)

Source height = 0.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
0.50	1.50	0.77	0.77

ROAD (0.00 + 35.92 + 0.00) = 35.92 dBA
 Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

 -5 90 0.56 58.06 0.00 -11.41 -3.98 0.00 0.00 -6.75 35.92

Segment Leq : 35.92 dBA

Total Leq All Segments: 47.11 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 54.46
 (NIGHT): 47.11

STAMSON 5.04 NORMAL REPORT Date: 29-01-2019 15:26:12
MINISTRY OF ENVIRONMENT CONSERVATION AND PARKS / NOISE ASSESSMENT

Filename: 17_ola.te Time Period: Day/Night 16/8 hours
Description: Lot 7 - OLA - Unmitigated

Road data, segment # 1: R Greenbank (day/night)

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

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

Data for Segment # 1: R Greenbank (day/night)

Angle1 Angle2 : -5.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 94.00 / 94.00 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 0/0 veh/TimePeriod *
Medium truck volume : 200/70 veh/TimePeriod *
Heavy truck volume : 0/0 veh/TimePeriod *
Posted speed limit : 80 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 270
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 100.00
Heavy Truck % of Total Volume : 0.00
Day (16 hrs) % of Total Volume : 74.00

Data for Segment # 2: BRT (day/night)

Angle1 Angle2 : -5.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 94.00 / 94.00 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: R Greenbank (day)

Source height = 1.50 m

ROAD (0.00 + 57.62 + 0.00) = 57.62 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-5	90	0.66	75.00	0.00	-13.23	-4.14	0.00	0.00	0.00	57.62

Segment Leq : 57.62 dBA

Results segment # 2: BRT (day)

Source height = 0.50 m

ROAD (0.00 + 42.24 + 0.00) = 42.24 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-5	90	0.66	59.61	0.00	-13.23	-4.14	0.00	0.00	0.00	42.24

Segment Leq : 42.24 dBA

Total Leq All Segments: 57.74 dBA

Results segment # 1: R Greenbank (night)

Source height = 1.50 m

ROAD (0.00 + 50.03 + 0.00) = 50.03 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-5	90	0.66	67.40	0.00	-13.23	-4.14	0.00	0.00	0.00	50.03

Segment Leq : 50.03 dBA

Results segment # 2: BRT (night)

Source height = 0.50 m

ROAD (0.00 + 40.69 + 0.00) = 40.69 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-5	90	0.66	58.06	0.00	-13.23	-4.14	0.00	0.00	0.00	40.69

Segment Leq : 40.69 dBA

Total Leq All Segments: 50.51 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 57.74
(NIGHT): 50.51

STAMSON 5.04 NORMAL REPORT Date: 29-01-2019 15:26:01
MINISTRY OF ENVIRONMENT CONSERVATION AND PARKS / NOISE ASSESSMENT

Filename: 17_ola.te Time Period: Day/Night 16/8 hours
Description: Lot 7 - OLA - Mitigated

Road data, segment # 1: R Greenbank (day/night)

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

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

Data for Segment # 1: R Greenbank (day/night)

Angle1 Angle2 : -5.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 94.00 / 94.00 m
Receiver height : 1.50 / 1.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -5.00 deg Angle2 : 90.00 deg
Barrier height : 2.20 m
Barrier receiver distance : 72.00 / 72.00 m
Source elevation : 0.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

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

Car traffic volume : 0/0 veh/TimePeriod *
Medium truck volume : 200/70 veh/TimePeriod *
Heavy truck volume : 0/0 veh/TimePeriod *
Posted speed limit : 80 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 270

Percentage of Annual Growth : 0.00
 Number of Years of Growth : 0.00
 Medium Truck % of Total Volume : 100.00
 Heavy Truck % of Total Volume : 0.00
 Day (16 hrs) % of Total Volume : 74.00

Data for Segment # 2: BRT (day/night)

Angle1 Angle2 : -5.00 deg 90.00 deg
 Wood depth : 0 (No woods.)
 No of house rows : 0 / 0
 Surface : 1 (Absorptive ground surface)
 Receiver source distance : 94.00 / 94.00 m
 Receiver height : 1.50 / 1.50 m
 Topography : 2 (Flat/gentle slope; with barrier)
 Barrier angle1 : -5.00 deg Angle2 : 90.00 deg
 Barrier height : 2.20 m
 Barrier receiver distance : 72.00 / 72.00 m
 Source elevation : 0.00 m
 Receiver elevation : 0.00 m
 Barrier elevation : 0.00 m
 Reference angle : 0.00

Results segment # 1: R Greenbank (day)

Source height = 1.50 m

Barrier height for grazing incidence

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

ROAD (0.00 + 53.41 + 0.00) = 53.41 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-5	90	0.53	75.00	0.00	-12.18	-3.93	0.00	0.00	-5.48	53.41

Segment Leq : 53.41 dBA

Results segment # 2: BRT (day)

Source height = 0.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
0.50	1.50	0.73	0.73

ROAD (0.00 + 36.46 + 0.00) = 36.46 dBA
 Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

 -5 90 0.56 59.61 0.00 -12.42 -3.98 0.00 0.00 -6.76 36.46

Segment Leq : 36.46 dBA

Total Leq All Segments: 53.50 dBA

Results segment # 1: R Greenbank (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	1.50	1.50	1.50

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

 -5 90 0.53 67.40 0.00 -12.18 -3.93 0.00 0.00 -5.48 45.81

Segment Leq : 45.81 dBA

Results segment # 2: BRT (night)

Source height = 0.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
0.50	1.50	0.73	0.73

ROAD (0.00 + 34.91 + 0.00) = 34.91 dBA
 Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

 -5 90 0.56 58.06 0.00 -12.42 -3.98 0.00 0.00 -6.76 34.91

Segment Leq : 34.91 dBA

Total Leq All Segments: 46.15 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 53.50
 (NIGHT): 46.15

STAMSON 5.04 NORMAL REPORT Date: 29-01-2019 15:26:48
MINISTRY OF ENVIRONMENT CONSERVATION AND PARKS / NOISE ASSESSMENT

Filename: 18_ola.te Time Period: Day/Night 16/8 hours
Description: Lot 8 - OLA - Unmitigated

Road data, segment # 1: R Greenbank (day/night)

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

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

Data for Segment # 1: R Greenbank (day/night)

Angle1 Angle2 : -5.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 113.00 / 113.00 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 0/0 veh/TimePeriod *
Medium truck volume : 200/70 veh/TimePeriod *
Heavy truck volume : 0/0 veh/TimePeriod *
Posted speed limit : 80 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 270
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 100.00
Heavy Truck % of Total Volume : 0.00
Day (16 hrs) % of Total Volume : 74.00

Data for Segment # 2: BRT (day/night)

Angle1 Angle2 : -5.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 113.00 / 113.00 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: R Greenbank (day)

Source height = 1.50 m

ROAD (0.00 + 56.29 + 0.00) = 56.29 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-5	90	0.66	75.00	0.00	-14.56	-4.14	0.00	0.00	0.00	56.29

Segment Leq : 56.29 dBA

Results segment # 2: BRT (day)

Source height = 0.50 m

ROAD (0.00 + 40.91 + 0.00) = 40.91 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-5	90	0.66	59.61	0.00	-14.56	-4.14	0.00	0.00	0.00	40.91

Segment Leq : 40.91 dBA

Total Leq All Segments: 56.41 dBA

Results segment # 1: R Greenbank (night)

Source height = 1.50 m

ROAD (0.00 + 48.70 + 0.00) = 48.70 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-5	90	0.66	67.40	0.00	-14.56	-4.14	0.00	0.00	0.00	48.70

Segment Leq : 48.70 dBA

Results segment # 2: BRT (night)

Source height = 0.50 m

ROAD (0.00 + 39.36 + 0.00) = 39.36 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-5	90	0.66	58.06	0.00	-14.56	-4.14	0.00	0.00	0.00	39.36

Segment Leq : 39.36 dBA

Total Leq All Segments: 49.18 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 56.41
(NIGHT): 49.18

STAMSON 5.04 NORMAL REPORT Date: 29-01-2019 15:26:31
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: l8_ola.te Time Period: Day/Night 16/8 hours
Description: Lot 8 - OLA - Mitigated

Road data, segment # 1: R Greenbank (day/night)

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

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

Data for Segment # 1: R Greenbank (day/night)

Angle1 Angle2 : -5.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 113.00 / 113.00 m
Receiver height : 1.50 / 1.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -5.00 deg Angle2 : 20.00 deg
Barrier height : 2.20 m
Barrier receiver distance : 91.00 / 91.00 m
Source elevation : 0.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

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

Car traffic volume : 0/0 veh/TimePeriod *
Medium truck volume : 200/70 veh/TimePeriod *
Heavy truck volume : 0/0 veh/TimePeriod *
Posted speed limit : 80 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 270

Percentage of Annual Growth : 0.00
 Number of Years of Growth : 0.00
 Medium Truck % of Total Volume : 100.00
 Heavy Truck % of Total Volume : 0.00
 Day (16 hrs) % of Total Volume : 74.00

Data for Segment # 2: BRT (day/night)

 Angle1 Angle2 : -5.00 deg 90.00 deg
 Wood depth : 0 (No woods.)
 No of house rows : 0 / 0
 Surface : 1 (Absorptive ground surface)
 Receiver source distance : 113.00 / 113.00 m
 Receiver height : 1.50 / 1.50 m
 Topography : 2 (Flat/gentle slope; with barrier)
 Barrier angle1 : -5.00 deg Angle2 : 20.00 deg
 Barrier height : 2.20 m
 Barrier receiver distance : 91.00 / 91.00 m
 Source elevation : 0.00 m
 Receiver elevation : 0.00 m
 Barrier elevation : 0.00 m
 Reference angle : 0.00

Results segment # 1: R Greenbank (day)

 Source height = 1.50 m

Barrier height for grazing incidence

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

ROAD (0.00 + 47.29 + 54.38) = 55.16 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-5	20	0.53	75.00	0.00	-13.40	-8.61	0.00	0.00	-5.69	47.29
20	90	0.66	75.00	0.00	-14.56	-6.06	0.00	0.00	0.00	54.38

Segment Leq : 55.16 dBA

Results segment # 2: BRT (day)

 Source height = 0.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
0.50	0.50	0.50	0.50

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0.50 !	1.50 !				0.69 !		0.69			
ROAD (0.00 + 29.69 + 39.00) = 39.48 dBA										
-5	20	0.56	59.61	0.00	-13.66	-8.61	0.00	0.00	-7.65	29.69
20	90	0.66	59.61	0.00	-14.56	-6.06	0.00	0.00	0.00	39.00

Segment Leq : 39.48 dBA

Total Leq All Segments: 55.28 dBA

Results segment # 1: R Greenbank (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 !	1.50 !	1.50 !	1.50

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
ROAD (0.00 + 39.70 + 46.78) = 47.56 dBA										
-5	20	0.53	67.40	0.00	-13.40	-8.61	0.00	0.00	-5.69	39.70
20	90	0.66	67.40	0.00	-14.56	-6.06	0.00	0.00	0.00	46.78

Segment Leq : 47.56 dBA

Results segment # 2: BRT (night)

Source height = 0.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
0.50 !	1.50 !	0.69 !	0.69

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
ROAD (0.00 + 28.14 + 37.45) = 37.93 dBA										
-5	20	0.56	58.06	0.00	-13.66	-8.61	0.00	0.00	-7.65	28.14

20 90 0.66 58.06 0.00 -14.56 -6.06 0.00 0.00 0.00 37.45

Segment Leq : 37.93 dBA

Total Leq All Segments: 48.01 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 55.28
(NIGHT): 48.01

STAMSON 5.04 NORMAL REPORT Date: 29-01-2019 15:28:13
MINISTRY OF ENVIRONMENT CONSERVATION AND PARKS / NOISE ASSESSMENT

Filename: 19_ola.te Time Period: Day/Night 16/8 hours
Description: Lot 9 - OLA - Unmitigated

Road data, segment # 1: R Greenbank (day/night)

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

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

Data for Segment # 1: R Greenbank (day/night)

Angle1 Angle2 : -5.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 126.00 / 126.00 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 0/0 veh/TimePeriod *
Medium truck volume : 200/70 veh/TimePeriod *
Heavy truck volume : 0/0 veh/TimePeriod *
Posted speed limit : 80 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 270
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 100.00
Heavy Truck % of Total Volume : 0.00
Day (16 hrs) % of Total Volume : 74.00

Data for Segment # 2: BRT (day/night)

```

-----
Angle1  Angle2          :  -5.00 deg   90.00 deg
Wood depth          :           0   (No woods.)
No of house rows    :           0 / 0
Surface             :           1   (Absorptive ground surface)
Receiver source distance : 126.00 / 126.00 m
Receiver height     :    1.50 / 1.50 m
Topography          :           1   (Flat/gentle slope; no barrier)
Reference angle     :           0.00
  
```

Results segment # 1: R Greenbank (day)

Source height = 1.50 m

ROAD (0.00 + 55.51 + 0.00) = 55.51 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-5	90	0.66	75.00	0.00	-15.34	-4.14	0.00	0.00	0.00	55.51

Segment Leq : 55.51 dBA

Results segment # 2: BRT (day)

Source height = 0.50 m

ROAD (0.00 + 40.13 + 0.00) = 40.13 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-5	90	0.66	59.61	0.00	-15.34	-4.14	0.00	0.00	0.00	40.13

Segment Leq : 40.13 dBA

Total Leq All Segments: 55.63 dBA

Results segment # 1: R Greenbank (night)

Source height = 1.50 m

ROAD (0.00 + 47.91 + 0.00) = 47.91 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-5	90	0.66	67.40	0.00	-15.34	-4.14	0.00	0.00	0.00	47.91

Segment Leq : 47.91 dBA

Results segment # 2: BRT (night)

Source height = 0.50 m

ROAD (0.00 + 38.58 + 0.00) = 38.58 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-5	90	0.66	58.06	0.00	-15.34	-4.14	0.00	0.00	0.00	38.58

Segment Leq : 38.58 dBA

Total Leq All Segments: 48.39 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 55.63
(NIGHT): 48.39

STAMSON 5.04 NORMAL REPORT Date: 29-01-2019 15:28:01
MINISTRY OF ENVIRONMENT CONSERVATION AND PARKS / NOISE ASSESSMENT

Filename: 19_ola.te Time Period: Day/Night 16/8 hours
Description: Lot 9 - OLA - Mitigated

Road data, segment # 1: R Greenbank (day/night)

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

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

Data for Segment # 1: R Greenbank (day/night)

Angle1 Angle2 : -5.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 126.00 / 126.00 m
Receiver height : 1.50 / 1.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -5.00 deg Angle2 : 10.00 deg
Barrier height : 2.20 m
Barrier receiver distance : 104.00 / 104.00 m
Source elevation : 0.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

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

Car traffic volume : 0/0 veh/TimePeriod *
Medium truck volume : 200/70 veh/TimePeriod *
Heavy truck volume : 0/0 veh/TimePeriod *
Posted speed limit : 80 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 270

Percentage of Annual Growth : 0.00
 Number of Years of Growth : 0.00
 Medium Truck % of Total Volume : 100.00
 Heavy Truck % of Total Volume : 0.00
 Day (16 hrs) % of Total Volume : 74.00

Data for Segment # 2: BRT (day/night)

Angle1 Angle2 : -5.00 deg 90.00 deg
 Wood depth : 0 (No woods.)
 No of house rows : 0 / 0
 Surface : 1 (Absorptive ground surface)
 Receiver source distance : 126.00 / 126.00 m
 Receiver height : 1.50 / 1.50 m
 Topography : 2 (Flat/gentle slope; with barrier)
 Barrier angle1 : -5.00 deg Angle2 : 10.00 deg
 Barrier height : 2.20 m
 Barrier receiver distance : 104.00 / 104.00 m
 Source elevation : 0.00 m
 Receiver elevation : 0.00 m
 Barrier elevation : 0.00 m
 Reference angle : 0.00

Results segment # 1: R Greenbank (day)

Source height = 1.50 m

Barrier height for grazing incidence

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

ROAD (0.00 + 44.39 + 54.45) = 54.86 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-5	10	0.53	75.00	0.00	-14.12	-10.80	0.00	0.00	-5.68	44.39
10	90	0.66	75.00	0.00	-15.34	-5.20	0.00	0.00	0.00	54.45

Segment Leq : 54.86 dBA

Results segment # 2: BRT (day)

Source height = 0.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
0.50	1.50	0.67	0.67

ROAD (0.00 + 26.73 + 39.07) = 39.32 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-5	10	0.56	59.61	0.00	-14.40	-10.80	0.00	0.00	-7.68	26.73
10	90	0.66	59.61	0.00	-15.34	-5.20	0.00	0.00	0.00	39.07

Segment Leq : 39.32 dBA

Total Leq All Segments: 54.98 dBA

Results segment # 1: R Greenbank (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	1.50	1.50	1.50

ROAD (0.00 + 36.79 + 46.86) = 47.27 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-5	10	0.53	67.40	0.00	-14.12	-10.80	0.00	0.00	-5.68	36.79
10	90	0.66	67.40	0.00	-15.34	-5.20	0.00	0.00	0.00	46.86

Segment Leq : 47.27 dBA

Results segment # 2: BRT (night)

Source height = 0.50 m

Barrier height for grazing incidence

Source ! Receiver ! Barrier ! Elevation of
Height (m) ! Height (m) ! Height (m) ! Barrier Top (m)
-----+-----+-----+-----
0.50 ! 1.50 ! 0.67 ! 0.67

ROAD (0.00 + 25.18 + 37.52) = 37.77 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-5	10	0.56	58.06	0.00	-14.40	-10.80	0.00	0.00	-7.68	25.18
10	90	0.66	58.06	0.00	-15.34	-5.20	0.00	0.00	0.00	37.52

Segment Leq : 37.77 dBA

Total Leq All Segments: 47.73 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 54.98
(NIGHT): 47.73

STAMSON 5.04 NORMAL REPORT Date: 29-01-2019 15:28:27
MINISTRY OF ENVIRONMENT CONSERVATION AND PARKS / NOISE ASSESSMENT

Filename: 110_ola.te Time Period: Day/Night 16/8 hours
Description: Lot 10 - OLA - Unmitigated

Road data, segment # 1: R Greenbank (day/night)

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

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

Data for Segment # 1: R Greenbank (day/night)

Angle1 Angle2 : -5.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 139.00 / 139.00 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 0/0 veh/TimePeriod *
Medium truck volume : 200/70 veh/TimePeriod *
Heavy truck volume : 0/0 veh/TimePeriod *
Posted speed limit : 80 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 270
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 100.00
Heavy Truck % of Total Volume : 0.00
Day (16 hrs) % of Total Volume : 74.00

Data for Segment # 2: BRT (day/night)

Angle1 Angle2 : -5.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 139.00 / 139.00 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: R Greenbank (day)

Source height = 1.50 m

ROAD (0.00 + 54.80 + 0.00) = 54.80 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-5	90	0.66	75.00	0.00	-16.05	-4.14	0.00	0.00	0.00	54.80

Segment Leq : 54.80 dBA

Results segment # 2: BRT (day)

Source height = 0.50 m

ROAD (0.00 + 39.42 + 0.00) = 39.42 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-5	90	0.66	59.61	0.00	-16.05	-4.14	0.00	0.00	0.00	39.42

Segment Leq : 39.42 dBA

Total Leq All Segments: 54.92 dBA

Results segment # 1: R Greenbank (night)

Source height = 1.50 m

ROAD (0.00 + 47.21 + 0.00) = 47.21 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-5	90	0.66	67.40	0.00	-16.05	-4.14	0.00	0.00	0.00	47.21

Segment Leq : 47.21 dBA

Results segment # 2: BRT (night)

Source height = 0.50 m

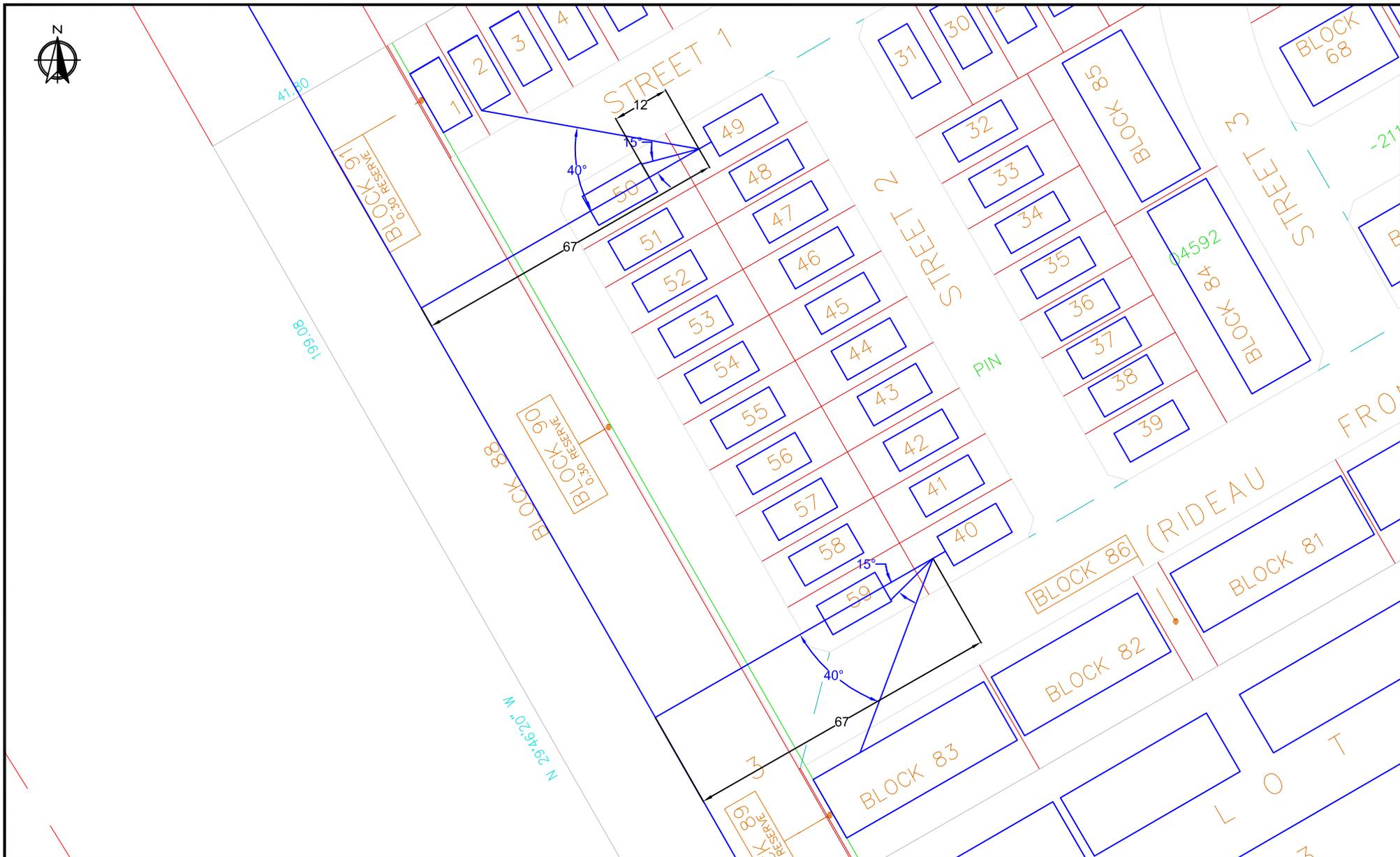
ROAD (0.00 + 37.87 + 0.00) = 37.87 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-5	90	0.66	58.06	0.00	-16.05	-4.14	0.00	0.00	0.00	37.87

Segment Leq : 37.87 dBA

Total Leq All Segments: 47.69 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 54.92
(NIGHT): 47.69



No.	Revision/Issue	Date


VALCOUSTICS
 Canada Ltd.

30 Wertheim Court, Unit 25
 Richmond Hill, Ontario
 Canada L4B 1B9
 solutions@valcoustics.com
 Phone: (905) 764-5223
 Fax: (905) 764-6813

Title
 Distances and Angles - Lots 40 and 49 (OLA's)

Project Name
 Half Moon Bay South - Phase 5

Project No.
 108-363-300

Scale
 N.T.S.

Date
 Jan. 29, 2019

Figure
C14

STAMSON 5.04 NORMAL REPORT Date: 29-01-2019 15:29:14
MINISTRY OF ENVIRONMENT CONSERVATION AND PARKS / NOISE ASSESSMENT

Filename: 140_ola.te Time Period: Day/Night 16/8 hours
Description: Lot 40 - OLA - Unmitigated

Road data, segment # 1: R Greenbank (day/night)

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

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

Data for Segment # 1: R Greenbank (day/night)

Angle1 Angle2 : -40.00 deg -15.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 67.00 / 67.00 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 0/0 veh/TimePeriod *
Medium truck volume : 200/70 veh/TimePeriod *
Heavy truck volume : 0/0 veh/TimePeriod *
Posted speed limit : 80 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 270
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 100.00
Heavy Truck % of Total Volume : 0.00
Day (16 hrs) % of Total Volume : 74.00

Data for Segment # 2: BRT (day/night)

```

-----
Angle1  Angle2          : -40.00 deg   -15.00 deg
Wood depth          :          0       (No woods.)
No of house rows    :          0 / 0
Surface             :          2       (Reflective ground surface)
Receiver source distance : 67.00 / 67.00 m
Receiver height     :    1.50 / 1.50 m
Topography          :          1       (Flat/gentle slope; no barrier)
Reference angle     :          0.00
  
```

Results segment # 1: R Greenbank (day)

Source height = 1.50 m

ROAD (0.00 + 59.92 + 0.00) = 59.92 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-40	-15	0.00	75.00	0.00	-6.50	-8.57	0.00	0.00	0.00	59.92

Segment Leq : 59.92 dBA

Results segment # 2: BRT (day)

Source height = 0.50 m

ROAD (0.00 + 44.54 + 0.00) = 44.54 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-40	-15	0.00	59.61	0.00	-6.50	-8.57	0.00	0.00	0.00	44.54

Segment Leq : 44.54 dBA

Total Leq All Segments: 60.04 dBA

Results segment # 1: R Greenbank (night)

Source height = 1.50 m

ROAD (0.00 + 52.33 + 0.00) = 52.33 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-40	-15	0.00	67.40	0.00	-6.50	-8.57	0.00	0.00	0.00	52.33

Segment Leq : 52.33 dBA

Results segment # 2: BRT (night)

Source height = 0.50 m

ROAD (0.00 + 42.99 + 0.00) = 42.99 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-40	-15	0.00	58.06	0.00	-6.50	-8.57	0.00	0.00	0.00	42.99

Segment Leq : 42.99 dBA

Total Leq All Segments: 52.81 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 60.04
(NIGHT): 52.81

STAMSON 5.04 NORMAL REPORT Date: 29-01-2019 15:29:00
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 140_ola.te Time Period: Day/Night 16/8 hours
Description: Lot 40 - OLA - Mitigated

Road data, segment # 1: R Greenbank (day/night)

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

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

Data for Segment # 1: R Greenbank (day/night)

Angle1 Angle2 : -40.00 deg -15.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 67.00 / 67.00 m
Receiver height : 1.50 / 1.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -40.00 deg Angle2 : -15.00 deg
Barrier height : 2.20 m
Barrier receiver distance : 12.00 / 12.00 m
Source elevation : 0.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

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

Car traffic volume : 0/0 veh/TimePeriod *
Medium truck volume : 200/70 veh/TimePeriod *
Heavy truck volume : 0/0 veh/TimePeriod *
Posted speed limit : 80 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 270
 Percentage of Annual Growth : 0.00
 Number of Years of Growth : 0.00
 Medium Truck % of Total Volume : 100.00
 Heavy Truck % of Total Volume : 0.00
 Day (16 hrs) % of Total Volume : 74.00

Data for Segment # 2: BRT (day/night)

 Angle1 Angle2 : -40.00 deg -15.00 deg
 Wood depth : 0 (No woods.)
 No of house rows : 0 / 0
 Surface : 2 (Reflective ground surface)
 Receiver source distance : 67.00 / 67.00 m
 Receiver height : 1.50 / 1.50 m
 Topography : 2 (Flat/gentle slope; with barrier)
 Barrier angle1 : -40.00 deg Angle2 : -15.00 deg
 Barrier height : 2.20 m
 Barrier receiver distance : 12.00 / 12.00 m
 Source elevation : 0.00 m
 Receiver elevation : 0.00 m
 Barrier elevation : 0.00 m
 Reference angle : 0.00

Results segment # 1: R Greenbank (day)

 Source height = 1.50 m

Barrier height for grazing incidence

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

ROAD (0.00 + 53.86 + 0.00) = 53.86 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-40	-15	0.00	75.00	0.00	-6.50	-8.57	0.00	0.00	-6.06	53.86

 Segment Leq : 53.86 dBA

Results segment # 2: BRT (day)

Source height = 0.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
0.50	1.50	1.32	1.32

ROAD (0.00 + 37.94 + 0.00) = 37.94 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-40	-15	0.00	59.61	0.00	-6.50	-8.57	0.00	0.00	-6.60	37.94

Segment Leq : 37.94 dBA

Total Leq All Segments: 53.97 dBA

Results segment # 1: R Greenbank (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	1.50	1.50	1.50

ROAD (0.00 + 46.26 + 0.00) = 46.26 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-40	-15	0.00	67.40	0.00	-6.50	-8.57	0.00	0.00	-6.06	46.26

Segment Leq : 46.26 dBA

Results segment # 2: BRT (night)

Source height = 0.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
0.50	1.50	1.32	1.32

ROAD (0.00 + 36.39 + 0.00) = 36.39 dBA										
Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-40	-15	0.00	58.06	0.00	-6.50	-8.57	0.00	0.00	-6.60	36.39

Segment Leq : 36.39 dBA
Total Leq All Segments: 46.69 dBA
TOTAL Leq FROM ALL SOURCES (DAY): 53.97
(NIGHT): 46.69

STAMSON 5.04 NORMAL REPORT Date: 29-01-2019 15:29:55
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: l49_ola.te Time Period: Day/Night 16/8 hours
Description: Lot 49 - OLA - Unmitigated

Road data, segment # 1: R Greenbank (day/night)

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

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

Data for Segment # 1: R Greenbank (day/night)

Angle1 Angle2 : 15.00 deg 40.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 67.00 / 67.00 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 0/0 veh/TimePeriod *
Medium truck volume : 200/70 veh/TimePeriod *
Heavy truck volume : 0/0 veh/TimePeriod *
Posted speed limit : 80 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 270
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 100.00
Heavy Truck % of Total Volume : 0.00
Day (16 hrs) % of Total Volume : 74.00

Data for Segment # 2: BRT (day/night)

Angle1 Angle2 : 15.00 deg 40.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 67.00 / 67.00 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: R Greenbank (day)

Source height = 1.50 m

ROAD (0.00 + 59.92 + 0.00) = 59.92 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

15 40 0.00 75.00 0.00 -6.50 -8.57 0.00 0.00 0.00 59.92

Segment Leq : 59.92 dBA

Results segment # 2: BRT (day)

Source height = 0.50 m

ROAD (0.00 + 44.54 + 0.00) = 44.54 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

15 40 0.00 59.61 0.00 -6.50 -8.57 0.00 0.00 0.00 44.54

Segment Leq : 44.54 dBA

Total Leq All Segments: 60.04 dBA

Results segment # 1: R Greenbank (night)

Source height = 1.50 m

ROAD (0.00 + 52.33 + 0.00) = 52.33 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
15	40	0.00	67.40	0.00	-6.50	-8.57	0.00	0.00	0.00	52.33

Segment Leq : 52.33 dBA

Results segment # 2: BRT (night)

Source height = 0.50 m

ROAD (0.00 + 42.99 + 0.00) = 42.99 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
15	40	0.00	58.06	0.00	-6.50	-8.57	0.00	0.00	0.00	42.99

Segment Leq : 42.99 dBA

Total Leq All Segments: 52.81 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 60.04
(NIGHT): 52.81

STAMSON 5.04 NORMAL REPORT Date: 29-01-2019 15:29:39
MINISTRY OF ENVIRONMENT CONSERVATION AND PARKS / NOISE ASSESSMENT

Filename: 149_ola.te Time Period: Day/Night 16/8 hours
Description: Lot 49 - OLA - Mitigated

Road data, segment # 1: R Greenbank (day/night)

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

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

Data for Segment # 1: R Greenbank (day/night)

Angle1 Angle2 : 15.00 deg 40.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 67.00 / 67.00 m
Receiver height : 1.50 / 1.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : 15.00 deg Angle2 : 40.00 deg
Barrier height : 2.20 m
Barrier receiver distance : 12.00 / 12.00 m
Source elevation : 0.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

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

Car traffic volume : 0/0 veh/TimePeriod *
Medium truck volume : 200/70 veh/TimePeriod *
Heavy truck volume : 0/0 veh/TimePeriod *
Posted speed limit : 80 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 270

Percentage of Annual Growth : 0.00
 Number of Years of Growth : 0.00
 Medium Truck % of Total Volume : 100.00
 Heavy Truck % of Total Volume : 0.00
 Day (16 hrs) % of Total Volume : 74.00

Data for Segment # 2: BRT (day/night)

Angle1 Angle2 : 15.00 deg 40.00 deg
 Wood depth : 0 (No woods.)
 No of house rows : 0 / 0
 Surface : 2 (Reflective ground surface)
 Receiver source distance : 67.00 / 67.00 m
 Receiver height : 1.50 / 1.50 m
 Topography : 2 (Flat/gentle slope; with barrier)
 Barrier angle1 : 15.00 deg Angle2 : 40.00 deg
 Barrier height : 2.20 m
 Barrier receiver distance : 12.00 / 12.00 m
 Source elevation : 0.00 m
 Receiver elevation : 0.00 m
 Barrier elevation : 0.00 m
 Reference angle : 0.00

Results segment # 1: R Greenbank (day)

Source height = 1.50 m

Barrier height for grazing incidence

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

ROAD (0.00 + 53.86 + 0.00) = 53.86 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
15	40	0.00	75.00	0.00	-6.50	-8.57	0.00	0.00	-6.06	53.86

Segment Leq : 53.86 dBA

Results segment # 2: BRT (day)

Source height = 0.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
0.50	1.50	1.32	1.32

ROAD (0.00 + 37.94 + 0.00) = 37.94 dBA
 Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

 15 40 0.00 59.61 0.00 -6.50 -8.57 0.00 0.00 -6.60 37.94

Segment Leq : 37.94 dBA

Total Leq All Segments: 53.97 dBA

Results segment # 1: R Greenbank (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	1.50	1.50	1.50

ROAD (0.00 + 46.26 + 0.00) = 46.26 dBA
 Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

 15 40 0.00 67.40 0.00 -6.50 -8.57 0.00 0.00 -6.06 46.26

Segment Leq : 46.26 dBA

Results segment # 2: BRT (night)

Source height = 0.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
0.50	1.50	1.32	1.32

ROAD (0.00 + 36.39 + 0.00) = 36.39 dBA
 Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

 15 40 0.00 58.06 0.00 -6.50 -8.57 0.00 0.00 -6.60 36.39

Segment Leq : 36.39 dBA

Total Leq All Segments: 46.69 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 53.97
 (NIGHT): 46.69

STAMSON 5.04 NORMAL REPORT Date: 29-01-2019 15:18:35
MINISTRY OF ENVIRONMENT CONSERVATION AND PARKS / NOISE ASSESSMENT

Filename: b81_1_o.te Time Period: Day/Night 16/8 hours
Description: Block 81 - Westerly Unit - OLA

Road data, segment # 1: R Greenbank (day/night)

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

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

Data for Segment # 1: R Greenbank (day/night)

Angle1 Angle2 : -15.00 deg 5.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 112.00 / 112.00 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 0/0 veh/TimePeriod *
Medium truck volume : 200/70 veh/TimePeriod *
Heavy truck volume : 0/0 veh/TimePeriod *
Posted speed limit : 80 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 270
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 100.00
Heavy Truck % of Total Volume : 0.00
Day (16 hrs) % of Total Volume : 74.00

Data for Segment # 2: BRT (day/night)

```

-----
Angle1   Angle2           : -15.00 deg   5.00 deg
Wood depth           :           0   (No woods.)
No of house rows     :           0 / 0
Surface              :           1   (Absorptive ground surface)
Receiver source distance : 112.00 / 112.00 m
Receiver height      :           1.50 / 1.50 m
Topography           :           1   (Flat/gentle slope; no barrier)
Reference angle      :           0.00
  
```

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

```

-----
Car traffic volume   : 6477/563   veh/TimePeriod *
Medium truck volume  : 515/45    veh/TimePeriod *
Heavy truck volume   : 368/32    veh/TimePeriod *
Posted speed limit   : 50 km/h
Road gradient        : 0 %
Road pavement        : 1 (Typical asphalt or concrete)
  
```

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

```

24 hr Traffic Volume (AADT or SADT): 8000
Percentage of Annual Growth         : 0.00
Number of Years of Growth           : 0.00
Medium Truck % of Total Volume      : 7.00
Heavy Truck % of Total Volume       : 5.00
Day (16 hrs) % of Total Volume      : 92.00
  
```

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

```

-----
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth           :           0   (No woods.)
No of house rows     :           1 / 0
Surface              :           1   (Absorptive ground surface)
Receiver source distance : 42.00 / 42.00 m
Receiver height      :           1.50 / 1.50 m
Topography           :           1   (Flat/gentle slope; no barrier)
Reference angle      :           0.00
  
```

Results segment # 1: R Greenbank (day)

Source height = 1.50 m

ROAD (0.00 + 50.93 + 0.00) = 50.93 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-15	5	0.66	75.00	0.00	-14.49	-9.57	0.00	0.00	0.00	50.93

Segment Leq : 50.93 dBA

Results segment # 2: BRT (day)

Source height = 0.50 m

ROAD (0.00 + 35.55 + 0.00) = 35.55 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-15	5	0.66	59.61	0.00	-14.49	-9.57	0.00	0.00	0.00	35.55

Segment Leq : 35.55 dBA

Results segment # 3: Kilbirnie (day)

Source height = 1.50 m

ROAD (0.00 + 49.89 + 0.00) = 49.89 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	65.75	0.00	-7.42	-1.46	0.00	-6.98	0.00	49.89

Segment Leq : 49.89 dBA

Total Leq All Segments: 53.52 dBA

Results segment # 1: R Greenbank (night)

Source height = 1.50 m

ROAD (0.00 + 43.34 + 0.00) = 43.34 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-15	5	0.66	67.40	0.00	-14.49	-9.57	0.00	0.00	0.00	43.34

Segment Leq : 43.34 dBA

Results segment # 2: BRT (night)

Source height = 0.50 m

ROAD (0.00 + 34.00 + 0.00) = 34.00 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-15	5	0.66	58.06	0.00	-14.49	-9.57	0.00	0.00	0.00	34.00

Segment Leq : 34.00 dBA

Results segment # 3: Kilbirnie (night)

Source height = 1.50 m

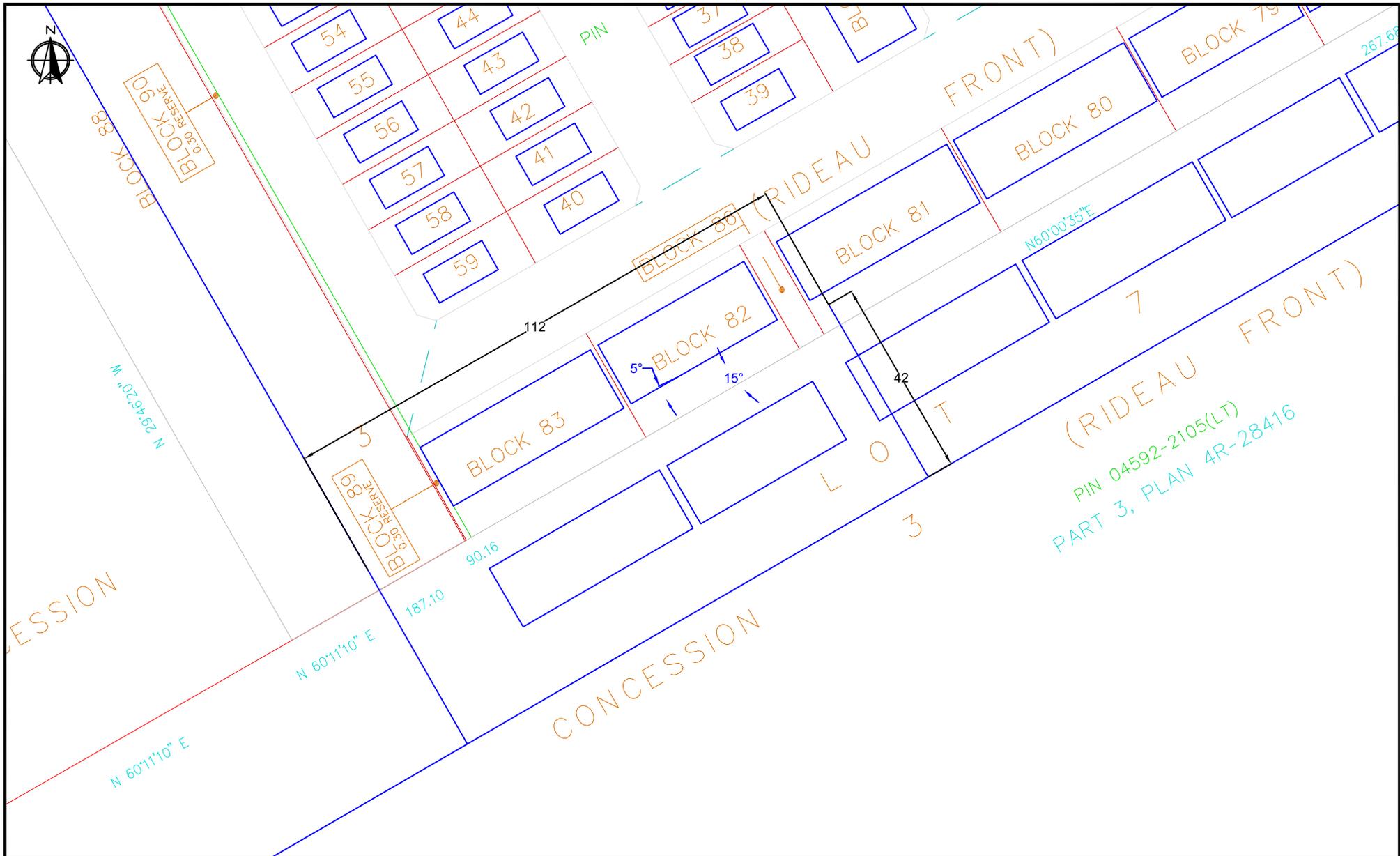
ROAD (0.00 + 49.28 + 0.00) = 49.28 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	58.16	0.00	-7.42	-1.46	0.00	0.00	0.00	49.28

Segment Leq : 49.28 dBA

Total Leq All Segments: 50.37 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 53.52
(NIGHT): 50.37



			 <p> 30 Wertheim Court, Unit 25 Richmond Hill, Ontario Canada L4B 1B9 solutions@valcoustics.com Phone: (905) 764-5223 Fax: (905) 764-6813 </p>	Title Distances and Angles - Block 81 Westerly Unit (OLA's)	Project No. 108-363-300	Date Jan. 29, 2019
				Project Name Half Moon Bay South - Phase 5	Scale N.T.S.	Figure <h1>C15</h1>
No.	Revision/Issue	Date				

STAMSON 5.04 NORMAL REPORT Date: 29-01-2019 15:19:12
MINISTRY OF ENVIRONMENT CONSERVATION AND PARKS / NOISE ASSESSMENT

Filename: b82_1_o.te Time Period: Day/Night 16/8 hours
Description: Block 82 - Westerly Unit - OLA - Unmitigated

Road data, segment # 1: R Greenbank (day/night)

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

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

Data for Segment # 1: R Greenbank (day/night)

Angle1 Angle2 : -20.00 deg 5.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 68.00 / 68.00 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 0/0 veh/TimePeriod *
Medium truck volume : 200/70 veh/TimePeriod *
Heavy truck volume : 0/0 veh/TimePeriod *
Posted speed limit : 80 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 270
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 100.00
Heavy Truck % of Total Volume : 0.00
Day (16 hrs) % of Total Volume : 74.00

Data for Segment # 2: BRT (day/night)

```
-----
Angle1  Angle2          : -20.00 deg   5.00 deg
Wood depth          :      0          (No woods.)
No of house rows    :      0 / 0
Surface             :      1          (Absorptive ground surface)
Receiver source distance : 68.00 / 68.00 m
Receiver height     :      1.50 / 1.50 m
Topography          :      1          (Flat/gentle slope; no barrier)
Reference angle     :      0.00
```

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

```
-----
Car traffic volume  : 6477/563   veh/TimePeriod *
Medium truck volume : 515/45    veh/TimePeriod *
Heavy truck volume  : 368/32    veh/TimePeriod *
Posted speed limit  : 50 km/h
Road gradient       : 0 %
Road pavement       : 1 (Typical asphalt or concrete)
```

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

```
24 hr Traffic Volume (AADT or SADT): 8000
Percentage of Annual Growth         : 0.00
Number of Years of Growth           : 0.00
Medium Truck % of Total Volume      : 7.00
Heavy Truck % of Total Volume       : 5.00
Day (16 hrs) % of Total Volume      : 92.00
```

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

```
-----
Angle1  Angle2          : -90.00 deg   90.00 deg
Wood depth          :      0          (No woods.)
No of house rows    :      1 / 0
Surface             :      1          (Absorptive ground surface)
Receiver source distance : 42.00 / 42.00 m
Receiver height     :      1.50 / 1.50 m
Topography          :      1          (Flat/gentle slope; no barrier)
Reference angle     :      0.00
```

Results segment # 1: R Greenbank (day)

Source height = 1.50 m

```
ROAD (0.00 + 55.48 + 0.00) = 55.48 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj  SubLeq
-----
-20     5    0.66  75.00   0.00 -10.90  -8.62   0.00   0.00   0.00  55.48
-----
```

Segment Leq : 55.48 dBA

Results segment # 2: BRT (day)

Source height = 0.50 m

ROAD (0.00 + 40.10 + 0.00) = 40.10 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-20	5	0.66	59.61	0.00	-10.90	-8.62	0.00	0.00	0.00	40.10

Segment Leq : 40.10 dBA

Results segment # 3: Kilbirnie (day)

Source height = 1.50 m

ROAD (0.00 + 49.89 + 0.00) = 49.89 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	65.75	0.00	-7.42	-1.46	0.00	-6.98	0.00	49.89

Segment Leq : 49.89 dBA

Total Leq All Segments: 56.64 dBA

Results segment # 1: R Greenbank (night)

Source height = 1.50 m

ROAD (0.00 + 47.88 + 0.00) = 47.88 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-20	5	0.66	67.40	0.00	-10.90	-8.62	0.00	0.00	0.00	47.88

Segment Leq : 47.88 dBA

Results segment # 2: BRT (night)

Source height = 0.50 m

ROAD (0.00 + 38.55 + 0.00) = 38.55 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-20	5	0.66	58.06	0.00	-10.90	-8.62	0.00	0.00	0.00	38.55

Segment Leq : 38.55 dBA

Results segment # 3: Kilbirnie (night)

Source height = 1.50 m

ROAD (0.00 + 49.28 + 0.00) = 49.28 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	58.16	0.00	-7.42	-1.46	0.00	0.00	0.00	49.28

Segment Leq : 49.28 dBA

Total Leq All Segments: 51.85 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 56.64
(NIGHT): 51.85

STAMSON 5.04 NORMAL REPORT Date: 29-01-2019 15:19:33
MINISTRY OF ENVIRONMENT CONSERVATION AND PARKS / NOISE ASSESSMENT

Filename: b82_1_o.te Time Period: Day/Night 16/8 hours
Description: Block 82 - Westerly Unit - OLA - Mitigated

Road data, segment # 1: R Greenbank (day/night)

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

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

Data for Segment # 1: R Greenbank (day/night)

Angle1 Angle2 : -20.00 deg 5.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 68.00 / 68.00 m
Receiver height : 1.50 / 1.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -20.00 deg Angle2 : 5.00 deg
Barrier height : 3.00 m
Barrier receiver distance : 46.00 / 46.00 m
Source elevation : 0.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

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

Car traffic volume : 0/0 veh/TimePeriod *
Medium truck volume : 200/70 veh/TimePeriod *
Heavy truck volume : 0/0 veh/TimePeriod *
Posted speed limit : 80 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 270

Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 100.00
Heavy Truck % of Total Volume : 0.00
Day (16 hrs) % of Total Volume : 74.00

Data for Segment # 2: BRT (day/night)

Angle1 Angle2 : -20.00 deg 5.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 68.00 / 68.00 m
Receiver height : 1.50 / 1.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -20.00 deg Angle2 : 5.00 deg
Barrier height : 3.00 m
Barrier receiver distance : 46.00 / 46.00 m
Source elevation : 0.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

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

Car traffic volume : 6477/563 veh/TimePeriod *
Medium truck volume : 515/45 veh/TimePeriod *
Heavy truck volume : 368/32 veh/TimePeriod *
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 8000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

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

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 1 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 42.00 / 42.00 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: R Greenbank (day)

Source height = 1.50 m

Barrier height for grazing incidence

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

ROAD (0.00 + 48.63 + 0.00) = 48.63 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-20	5	0.48	75.00	0.00	-9.72	-8.61	0.00	0.00	-8.04	48.63

Segment Leq : 48.63 dBA

Results segment # 2: BRT (day)

Source height = 0.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
0.50	1.50	0.82	0.82

ROAD (0.00 + 30.94 + 0.00) = 30.94 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-20	5	0.51	59.61	0.00	-9.91	-8.61	0.00	0.00	-10.15	30.94

Segment Leq : 30.94 dBA

Results segment # 3: Kilbirnie (day)

Source height = 1.50 m

ROAD (0.00 + 49.89 + 0.00) = 49.89 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	65.75	0.00	-7.42	-1.46	0.00	-6.98	0.00	49.89

Segment Leq : 49.89 dBA

Total Leq All Segments: 52.35 dBA

Results segment # 1: R Greenbank (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	1.50	1.50	1.50

ROAD (0.00 + 41.04 + 0.00) = 41.04 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-20	5	0.48	67.40	0.00	-9.72	-8.61	0.00	0.00	-8.04	41.04

Segment Leq : 41.04 dBA

Results segment # 2: BRT (night)

Source height = 0.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
0.50	1.50	0.82	0.82

ROAD (0.00 + 29.39 + 0.00) = 29.39 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-20	5	0.51	58.06	0.00	-9.91	-8.61	0.00	0.00	-10.15	29.39

Segment Leq : 29.39 dBA

Results segment # 3: Kilbirnie (night)

Source height = 1.50 m

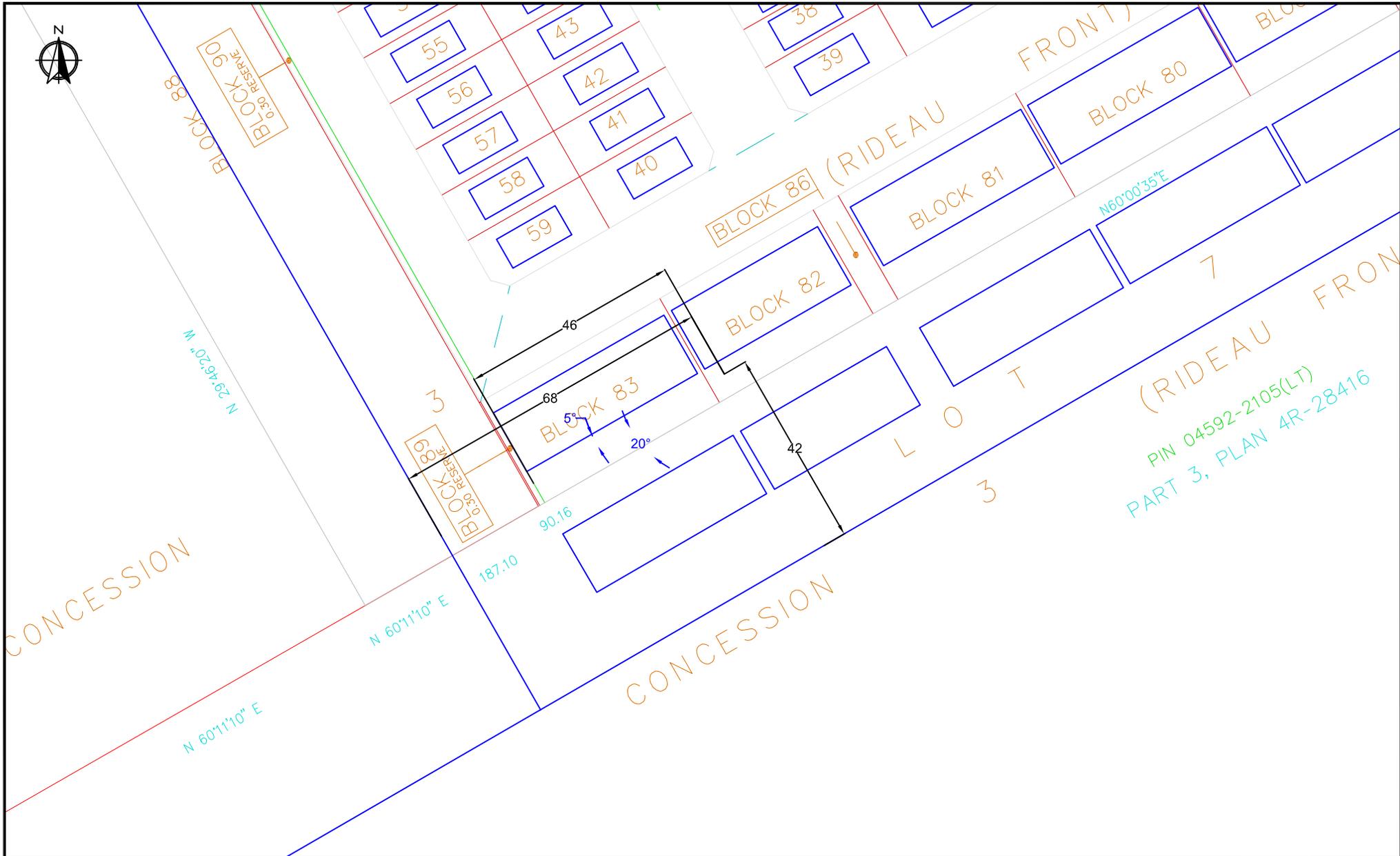
ROAD (0.00 + 49.28 + 0.00) = 49.28 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	58.16	0.00	-7.42	-1.46	0.00	0.00	0.00	49.28

Segment Leq : 49.28 dBA

Total Leq All Segments: 49.93 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 52.35
(NIGHT): 49.93



		 <p>30 Wertheim Court, Unit 25 Richmond Hill, Ontario Canada L4B 1B9 solutions@valcoustics.com Phone: (905) 764-5223 Fax: (905) 764-6813</p>	Title Distances and Angles - Block 82 Westerly Unit (OLA's)		Project No. 108-363-300		Date Jan. 29, 2019	
			Project Name Half Moon Bay South - Phase 5		Scale N.T.S.		Figure <h1>C16</h1>	
No.	Revision/Issue	Date						

STAMSON 5.04 NORMAL REPORT Date: 29-01-2019 15:20:29
MINISTRY OF ENVIRONMENT CONSERVATION AND PARKS / NOISE ASSESSMENT

Filename: b83_1_o.te Time Period: Day/Night 16/8 hours
Description: Block 83 - Westerly Unit - OLA - Unmitigated

Road data, segment # 1: R Greenbank (day/night)

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

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

Data for Segment # 1: R Greenbank (day/night)

Angle1 Angle2 : -90.00 deg 45.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 25.00 / 25.00 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 0/0 veh/TimePeriod *
Medium truck volume : 200/70 veh/TimePeriod *
Heavy truck volume : 0/0 veh/TimePeriod *
Posted speed limit : 80 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 270
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 100.00
Heavy Truck % of Total Volume : 0.00
Day (16 hrs) % of Total Volume : 74.00

Data for Segment # 2: BRT (day/night)

```
-----
Angle1  Angle2      : -90.00 deg   45.00 deg
Wood depth      :      0      (No woods.)
No of house rows :      0 / 0
Surface         :      1      (Absorptive ground surface)
Receiver source distance : 25.00 / 25.00 m
Receiver height  :   1.50 / 1.50 m
Topography      :      1      (Flat/gentle slope; no barrier)
Reference angle  :      0.00
```

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

```
-----
Car traffic volume : 6477/563   veh/TimePeriod *
Medium truck volume : 515/45    veh/TimePeriod *
Heavy truck volume  : 368/32    veh/TimePeriod *
Posted speed limit  : 50 km/h
Road gradient       : 0 %
Road pavement      : 1 (Typical asphalt or concrete)
```

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

```
24 hr Traffic Volume (AADT or SADT): 8000
Percentage of Annual Growth       : 0.00
Number of Years of Growth         : 0.00
Medium Truck % of Total Volume    : 7.00
Heavy Truck % of Total Volume     : 5.00
Day (16 hrs) % of Total Volume    : 92.00
```

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

```
-----
Angle1  Angle2      : 10.00 deg   90.00 deg
Wood depth      :      0      (No woods.)
No of house rows :      0 / 0
Surface         :      2      (Reflective ground surface)
Receiver source distance : 42.00 / 42.00 m
Receiver height  :   1.50 / 1.50 m
Topography      :      1      (Flat/gentle slope; no barrier)
Reference angle  :      0.00
```

Results segment # 1: R Greenbank (day)

Source height = 1.50 m

ROAD (0.00 + 69.02 + 0.00) = 69.02 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	45	0.66	75.00	0.00	-3.68	-2.29	0.00	0.00	0.00	69.02

Segment Leq : 69.02 dBA

Results segment # 2: BRT (day)

Source height = 0.50 m

ROAD (0.00 + 53.64 + 0.00) = 53.64 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	45	0.66	59.61	0.00	-3.68	-2.29	0.00	0.00	0.00	53.64

Segment Leq : 53.64 dBA

Results segment # 3: Kilbirnie (day)

Source height = 1.50 m

ROAD (0.00 + 57.76 + 0.00) = 57.76 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
10	90	0.00	65.75	0.00	-4.47	-3.52	0.00	0.00	0.00	57.76

Segment Leq : 57.76 dBA

Total Leq All Segments: 69.45 dBA

Results segment # 1: R Greenbank (night)

Source height = 1.50 m

ROAD (0.00 + 61.43 + 0.00) = 61.43 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	45	0.66	67.40	0.00	-3.68	-2.29	0.00	0.00	0.00	61.43

Segment Leq : 61.43 dBA

Results segment # 2: BRT (night)

Source height = 0.50 m

ROAD (0.00 + 52.09 + 0.00) = 52.09 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	45	0.66	58.06	0.00	-3.68	-2.29	0.00	0.00	0.00	52.09

Segment Leq : 52.09 dBA

Results segment # 3: Kilbirnie (night)

Source height = 1.50 m

ROAD (0.00 + 50.16 + 0.00) = 50.16 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
10	90	0.00	58.16	0.00	-4.47	-3.52	0.00	0.00	0.00	50.16

Segment Leq : 50.16 dBA

Total Leq All Segments: 62.19 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 69.45
(NIGHT): 62.19

STAMSON 5.04 NORMAL REPORT Date: 29-01-2019 15:20:43
MINISTRY OF ENVIRONMENT CONSERVATION AND PARKS / NOISE ASSESSMENT

Filename: b83_1_o.te Time Period: Day/Night 16/8 hours
Description: Block 83 - Westerly Unit - OLA - Mitigated

Road data, segment # 1: R Greenbank (day/night)

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

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

Data for Segment # 1: R Greenbank (day/night)

Angle1 Angle2 : -90.00 deg 45.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 25.00 / 25.00 m
Receiver height : 1.50 / 1.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg Angle2 : 45.00 deg
Barrier height : 3.00 m
Barrier receiver distance : 3.00 / 3.00 m
Source elevation : 0.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

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

Car traffic volume : 0/0 veh/TimePeriod *
Medium truck volume : 200/70 veh/TimePeriod *
Heavy truck volume : 0/0 veh/TimePeriod *
Posted speed limit : 80 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 270

Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 100.00
Heavy Truck % of Total Volume : 0.00
Day (16 hrs) % of Total Volume : 74.00

Data for Segment # 2: BRT (day/night)

Angle1 Angle2 : -90.00 deg 45.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 25.00 / 25.00 m
Receiver height : 1.50 / 1.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg Angle2 : 45.00 deg
Barrier height : 3.00 m
Barrier receiver distance : 3.00 / 3.00 m
Source elevation : 0.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

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

Car traffic volume : 6477/563 veh/TimePeriod *
Medium truck volume : 515/45 veh/TimePeriod *
Heavy truck volume : 368/32 veh/TimePeriod *
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 8000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

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

Angle1 Angle2 : 10.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 42.00 / 42.00 m
Receiver height : 1.50 / 1.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : 10.00 deg Angle2 : 90.00 deg
Barrier height : 3.00 m
Barrier receiver distance : 3.00 / 3.00 m
Source elevation : 0.00 m

Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Results segment # 1: R Greenbank (day)

Source height = 1.50 m

Barrier height for grazing incidence

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

ROAD (0.00 + 58.19 + 0.00) = 58.19 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	45	0.48	75.00	0.00	-3.28	-2.06	0.00	0.00	-11.46	58.19

Segment Leq : 58.19 dBA

Results segment # 2: BRT (day)

Source height = 0.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
0.50	1.50	1.38	1.38

ROAD (0.00 + 42.19 + 0.00) = 42.19 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	45	0.51	59.61	0.00	-3.35	-2.10	0.00	0.00	-11.97	42.19

Segment Leq : 42.19 dBA

Results segment # 3: Kilbirnie (day)

Source height = 1.50 m

Barrier height for grazing incidence

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

1.50 ! 1.50 ! 1.50 ! 1.50

ROAD (0.00 + 47.41 + 0.00) = 47.41 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
10	90	0.00	65.75	0.00	-4.47	-3.52	0.00	0.00	-10.34	47.41

Segment Leq : 47.41 dBA

Total Leq All Segments: 58.64 dBA

Results segment # 1: R Greenbank (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 !	1.50 !	1.50 !	1.50

ROAD (0.00 + 50.59 + 0.00) = 50.59 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	45	0.48	67.40	0.00	-3.28	-2.06	0.00	0.00	-11.46	50.59

Segment Leq : 50.59 dBA

Results segment # 2: BRT (night)

Source height = 0.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
0.50 !	1.50 !	1.38 !	1.38

ROAD (0.00 + 40.64 + 0.00) = 40.64 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	45	0.51	58.06	0.00	-3.35	-2.10	0.00	0.00	-11.97	40.64

Segment Leq : 40.64 dBA

Results segment # 3: Kilbirnie (night)

Source height = 1.50 m

Barrier height for grazing incidence

Source ! Receiver ! Barrier ! Elevation of
Height (m) ! Height (m) ! Height (m) ! Barrier Top (m)
-----+-----+-----+-----
 1.50 ! 1.50 ! 1.50 ! 1.50

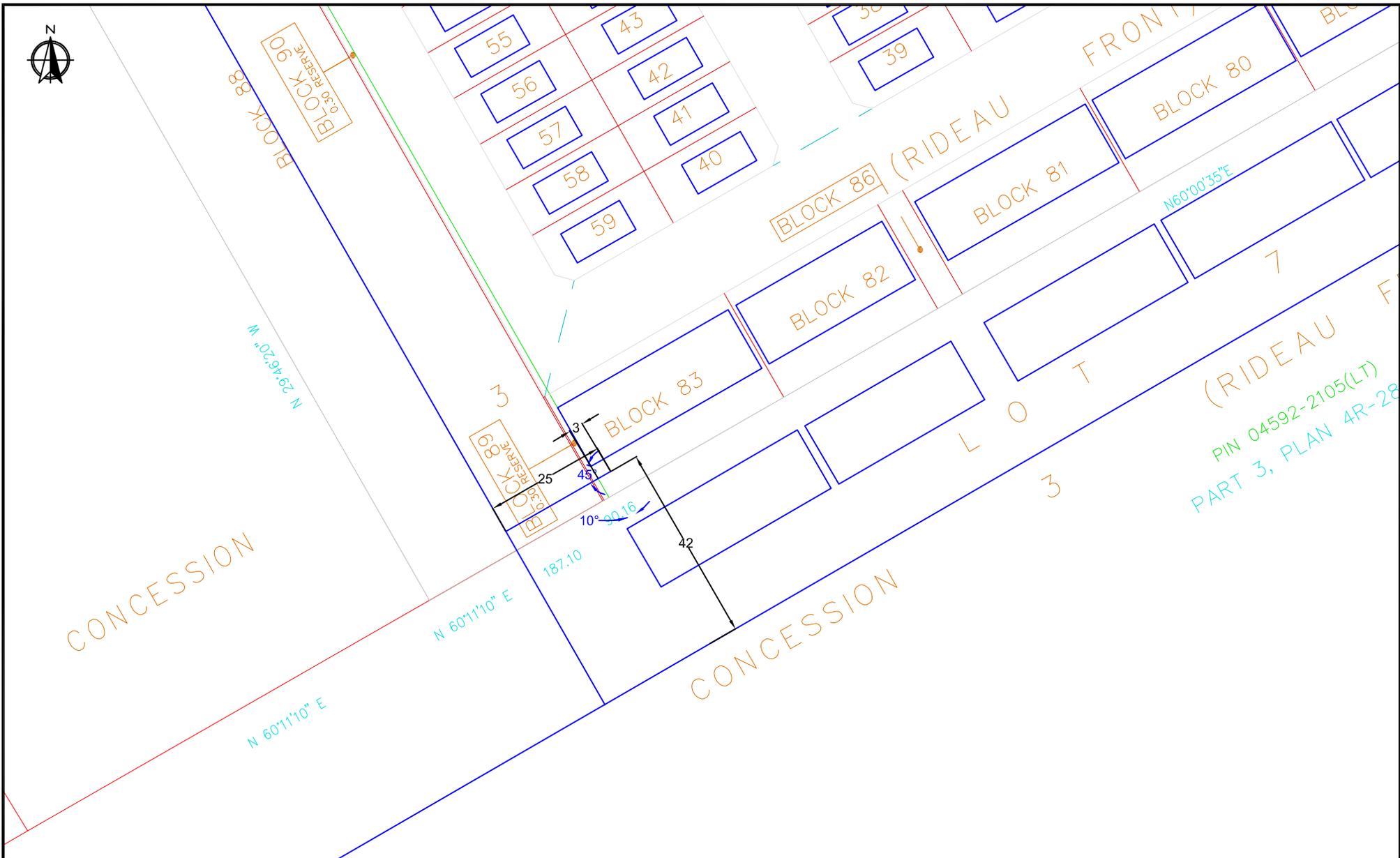
ROAD (0.00 + 39.82 + 0.00) = 39.82 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

 10 90 0.00 58.16 0.00 -4.47 -3.52 0.00 0.00 -10.34 39.82

Segment Leq : 39.82 dBA

Total Leq All Segments: 51.33 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 58.64
 (NIGHT): 51.33



No.	Revision/Issue	Date


VALCOUSTICS
Canada Ltd.

30 Wertheim Court, Unit 25
 Richmond Hill, Ontario
 Canada L4B 1B9
 solutions@valcoustics.com
 Phone: (905) 764-5223
 Fax: (905) 764-6813

Title

Distances and Angles - Block 83
 Westerly Unit (OLA's)

Project Name

Half Moon Bay South - Phase 5

Project No.

108-363-300

Scale

N.T.S.

Date

Jan. 29, 2019

Figure

C17

STAMSON 5.04 NORMAL REPORT Date: 29-01-2019 15:21:35
MINISTRY OF ENVIRONMENT CONSERVATION AND PARKS / NOISE ASSESSMENT

Filename: b83_2_o.te Time Period: Day/Night 16/8 hours
Description: Block 83 - 2nd Westerly Unit - OLA - Unmitigated

Road data, segment # 1: R Greenbank (day/night)

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

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

Data for Segment # 1: R Greenbank (day/night)

Angle1 Angle2 : -60.00 deg 20.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 31.00 / 31.00 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 0/0 veh/TimePeriod *
Medium truck volume : 200/70 veh/TimePeriod *
Heavy truck volume : 0/0 veh/TimePeriod *
Posted speed limit : 80 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 270
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 100.00
Heavy Truck % of Total Volume : 0.00
Day (16 hrs) % of Total Volume : 74.00

Data for Segment # 2: BRT (day/night)

```
-----
Angle1  Angle2          : -60.00 deg   20.00 deg
Wood depth          :           0   (No woods.)
No of house rows    :           0 / 0
Surface             :           1   (Absorptive ground surface)
Receiver source distance : 31.00 / 31.00 m
Receiver height     :    1.50 / 1.50 m
Topography          :           1   (Flat/gentle slope; no barrier)
Reference angle     :           0.00
```

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

```
-----
Car traffic volume  : 6477/563   veh/TimePeriod *
Medium truck volume : 515/45    veh/TimePeriod *
Heavy truck volume  : 368/32    veh/TimePeriod *
Posted speed limit  : 50 km/h
Road gradient       : 0 %
Road pavement       : 1 (Typical asphalt or concrete)
```

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

```
24 hr Traffic Volume (AADT or SADT): 8000
Percentage of Annual Growth         : 0.00
Number of Years of Growth           : 0.00
Medium Truck % of Total Volume      : 7.00
Heavy Truck % of Total Volume       : 5.00
Day (16 hrs) % of Total Volume      : 92.00
```

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

```
-----
Angle1  Angle2          : 30.00 deg   90.00 deg
Wood depth          :           0   (No woods.)
No of house rows    :           0 / 0
Surface             :           2   (Reflective ground surface)
Receiver source distance : 42.00 / 42.00 m
Receiver height     :    1.50 / 1.50 m
Topography          :           1   (Flat/gentle slope; no barrier)
Reference angle     :           0.00
```

Results segment # 1: R Greenbank (day)

Source height = 1.50 m

```
ROAD (0.00 + 65.81 + 0.00) = 65.81 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj  SubLeq
-----
  -60    20    0.66  75.00   0.00  -5.23  -3.95   0.00   0.00   0.00  65.81
-----
```

Segment Leq : 65.81 dBA

Results segment # 2: BRT (day)

Source height = 0.50 m

ROAD (0.00 + 50.43 + 0.00) = 50.43 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-60	20	0.66	59.61	0.00	-5.23	-3.95	0.00	0.00	0.00	50.43

Segment Leq : 50.43 dBA

Results segment # 3: Kilbirnie (day)

Source height = 1.50 m

ROAD (0.00 + 56.51 + 0.00) = 56.51 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
30	90	0.00	65.75	0.00	-4.47	-4.77	0.00	0.00	0.00	56.51

Segment Leq : 56.51 dBA

Total Leq All Segments: 66.40 dBA

Results segment # 1: R Greenbank (night)

Source height = 1.50 m

ROAD (0.00 + 58.21 + 0.00) = 58.21 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-60	20	0.66	67.40	0.00	-5.23	-3.95	0.00	0.00	0.00	58.21

Segment Leq : 58.21 dBA

Results segment # 2: BRT (night)

Source height = 0.50 m

ROAD (0.00 + 48.88 + 0.00) = 48.88 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-60	20	0.66	58.06	0.00	-5.23	-3.95	0.00	0.00	0.00	48.88

Segment Leq : 48.88 dBA

Results segment # 3: Kilbirnie (night)

Source height = 1.50 m

ROAD (0.00 + 48.91 + 0.00) = 48.91 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
30	90	0.00	58.16	0.00	-4.47	-4.77	0.00	0.00	0.00	48.91

Segment Leq : 48.91 dBA

Total Leq All Segments: 59.12 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 66.40
(NIGHT): 59.12

STAMSON 5.04 NORMAL REPORT Date: 29-01-2019 15:21:19
MINISTRY OF ENVIRONMENT CONSERVATION AND PARKS / NOISE ASSESSMENT

Filename: b83_2_o.te Time Period: Day/Night 16/8 hours
Description: Block 83 - 2nd Westerly Unit - OLA - Mitigated

Road data, segment # 1: R Greenbank (day/night)

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *
Posted speed limit : 70 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

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

Data for Segment # 1: R Greenbank (day/night)

Angle1 Angle2 : -60.00 deg 20.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 31.00 / 31.00 m
Receiver height : 1.50 / 1.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -60.00 deg Angle2 : 20.00 deg
Barrier height : 3.00 m
Barrier receiver distance : 9.00 / 9.00 m
Source elevation : 0.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

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

Car traffic volume : 0/0 veh/TimePeriod *
Medium truck volume : 200/70 veh/TimePeriod *
Heavy truck volume : 0/0 veh/TimePeriod *
Posted speed limit : 80 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 270

Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 100.00
Heavy Truck % of Total Volume : 0.00
Day (16 hrs) % of Total Volume : 74.00

Data for Segment # 2: BRT (day/night)

Angle1 Angle2 : -60.00 deg 20.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 31.00 / 31.00 m
Receiver height : 1.50 / 1.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -60.00 deg Angle2 : 20.00 deg
Barrier height : 3.00 m
Barrier receiver distance : 9.00 / 9.00 m
Source elevation : 0.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

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

Car traffic volume : 6477/563 veh/TimePeriod *
Medium truck volume : 515/45 veh/TimePeriod *
Heavy truck volume : 368/32 veh/TimePeriod *
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 8000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

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

Angle1 Angle2 : 30.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 42.00 / 42.00 m
Receiver height : 1.50 / 1.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : 30.00 deg Angle2 : 90.00 deg
Barrier height : 3.00 m
Barrier receiver distance : 9.00 / 9.00 m
Source elevation : 0.00 m

Receiver elevation : 0.00 m
 Barrier elevation : 0.00 m
 Reference angle : 0.00

Results segment # 1: R Greenbank (day)

Source height = 1.50 m

Barrier height for grazing incidence

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

ROAD (0.00 + 56.50 + 0.00) = 56.50 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-60	20	0.48	75.00	0.00	-4.67	-3.84	0.00	0.00	-9.99	56.50

Segment Leq : 56.50 dBA

Results segment # 2: BRT (day)

Source height = 0.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
0.50	1.50	1.21	1.21

ROAD (0.00 + 39.79 + 0.00) = 39.79 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-60	20	0.51	59.61	0.00	-4.76	-3.86	0.00	0.00	-11.20	39.79

Segment Leq : 39.79 dBA

Results segment # 3: Kilbirnie (day)

Source height = 1.50 m

Barrier height for grazing incidence

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

ROAD (0.00 + 48.81 + 0.00) = 48.81 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
30	90	0.00	65.75	0.00	-4.47	-4.77	0.00	0.00	-7.70	48.81

Segment Leq : 48.81 dBA

Total Leq All Segments: 57.26 dBA

Results segment # 1: R Greenbank (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	!	1.50	!	1.50	!	1.50

ROAD (0.00 + 48.91 + 0.00) = 48.91 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-60	20	0.48	67.40	0.00	-4.67	-3.84	0.00	0.00	-9.99	48.91

Segment Leq : 48.91 dBA

Results segment # 2: BRT (night)

Source height = 0.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
0.50	1.50	1.21	1.21

ROAD (0.00 + 38.25 + 0.00) = 38.25 dBA	Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
	-60	20	0.51	58.06	0.00	-4.76	-3.86	0.00	0.00	-11.20	38.25

Segment Leq : 38.25 dBA

Results segment # 3: Kilbirnie (night)

Source height = 1.50 m

Barrier height for grazing incidence

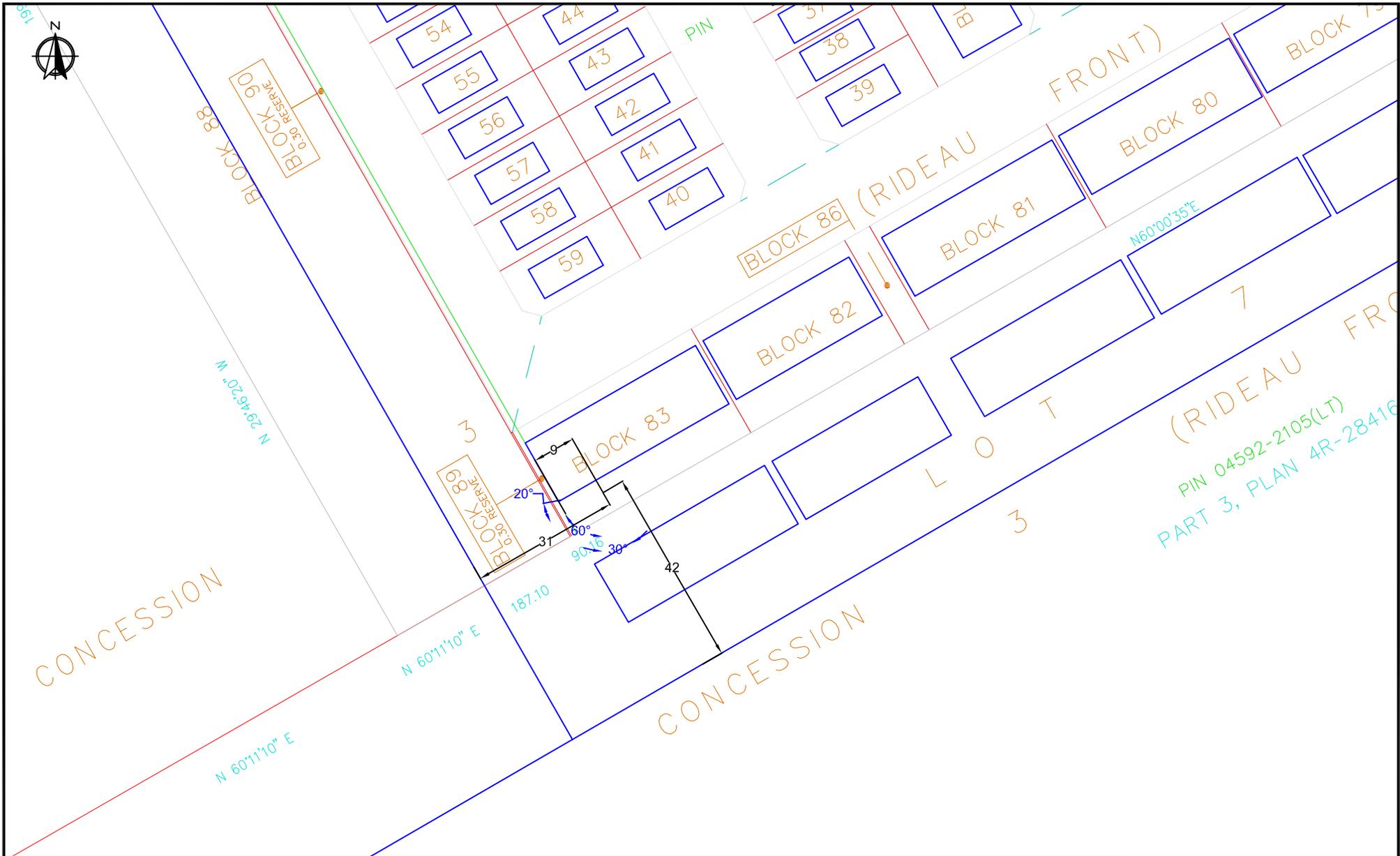
Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50	1.50	1.50	1.50

ROAD (0.00 + 41.22 + 0.00) = 41.22 dBA	Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
	30	90	0.00	58.16	0.00	-4.47	-4.77	0.00	0.00	-7.70	41.22

Segment Leq : 41.22 dBA

Total Leq All Segments: 49.90 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 57.26
(NIGHT): 49.90



			 30 Wertheim Court, Unit 25 Richmond Hill, Ontario Canada L4B 1B9 solutions@valcoustics.com Phone: (905) 764-5223 Fax: (905) 764-6813	Title Distances and Angles - Block 83 2nd Westerly Unit (OLA's)	Project No. 108-363-300	Date Jan. 29, 2019
No.	Revision/Issue	Date		Project Name Half Moon Bay South - Phase 5	Scale N.T.S.	Figure <h1>C18</h1>

APPENDIX D

SAMPLE STC CALCULATIONS

APPENDIX D

TYPICAL STC RATINGS OF SOME WINDOW CONFIGURATIONS

STC Rating	Single Glazing	Double Glazing					Triple Glazing	
	Thickness (mm)	Glass Thickness					Glass Thickness	
		2 mm & 2 mm	3 mm & 3 mm	4 mm & 4 mm	3 mm & 6 mm	6 mm & 6 mm	3 mm, 3 mm & 3 mm	3 mm, 3 mm & 6 mm
Interpane Spacing (mm)						Interpane Spacing (mm)		
27	2	6						
28		13						
29	3	15	6					
30	4 to 6	18	13	6				
31		22	16	13	6	6	6, 6	
32	9	28	20	16	13	13	6, 10	6, 6
33		35	25	20	16	16	6, 15	6, 10
34	12	42	32	25	20	20	6, 20	6, 15
35		50	40	32	25	24	6, 30	6, 20
36		63	50	40	32	30	6, 40	6, 30
37		80	63	50	40	37	6, 50	6, 40
38		100	80	63	55	50	6, 65	6, 50
39		125	100	80	75	70	6, 80	6, 65
40		150	125	100	95	90	6, 100	6, 80
41			150	125	110	100		6, 100
42				150	125			

For Explanatory Notes to this table, see following page.

Example:

STC 34 can be met by using:

- a) a 12 mm thick, laminated single glazed openable window
- or b) a 2 mm glass, 42 mm air space, 2 mm glass openable window
- or c) a 3 mm glass, 6 mm air space, 3 mm glass, 20 mm air space, 3 mm glass openable window
- or d) a 4 mm glass, 13 mm air space, 4 mm glass window fixed and sealed to the frame.

SOURCE: National Research Council, Division of Building Research.

EXPLANATORY NOTES:

1. STC data listed in the table are for well-fitted weatherstripped units that can be opened. The STC values apply only when the windows are closed. For windows fixed and sealed to the frame, add three to the STC given in the table.
2. If the interpane spacing or glass thickness for a specific double-glazed window is not listed in the table, the nearest listed values should be used.
3. The STC ratings for 9 mm and 12 mm glass are for laminated glass only; for solid glass, subtract two from the STC values listed in the table.
4. If the interpane spacings for a specific triple-glazed window are not listed in the table, use the listed case whose combined spacings are nearest the actual combined spacing.
5. The STC data listed in the table are for typical windows, but details of glass mounting, window seals, etc., may result in slightly different performance for some manufacturers' products. If laboratory sound transmission loss data (conforming to ASTM test method E-90) are available, these should be used.

STC - Sound Transmission Calculator

Valcoustics Canada Limited

Find/Change Required STC for Components

31-Jan-19

File # 108-363-300

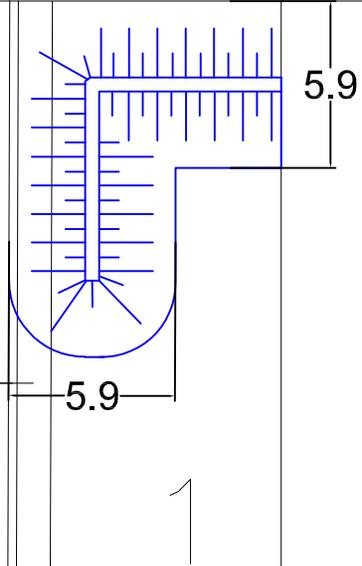
Indoor Sound Level 45 dB(A)
 Room Absorption Category Intermediate
 Outdoor Sound Level 73 dB(A) +3dB = 76 dB(A) (plus 0 dB from Table 2 to for 0 to 90 Degrees) for surface 1 (West)
 70 dB(A) +3dB = 73 dB(A) (plus 0 dB from Table 2 to for 0 to 90 Degrees) for surface 2 (South)

Spectrum D (Mixed Road Traffic, or Distant Aircraft)
 Calc Location Lot 1

Components:	Surf.	After Step 2	From Table 3 (% Energy)	From Table 4 (% floor area)	From Table 5 (spectrum)	STC	Calc
1 West (8 , Exterior wall)	1	31	16.0 (3 %)	0.0 (80 %)	7.0	54	By STC
2 South (8 , Exterior wall)	2	28	19.0 (1 %)	0.0 (80 %)	7.0	54	By STC
3 West (4 , Window, openable thin, dou)	1	31	1.8 (66 %)	-4.3 (30 %)	2.0	31	By Energy
4 South (4 , Window, openable thin, dou)	2	28	5.3 (30 %)	-4.3 (30 %)	2.0	31	By Energy

APPENDIX E

BERM REQUIEMENTS



LOCK 91
0.30 RESERVE

2

3

4

5

No.	Revision/Issue	Date


VALCOUSTICS
Canada Ltd.

30 Wertheim Court, Unit 25
 Richmond Hill, Ontario
 Canada L4B 1B9
 solutions@valcoustics.com
 Phone: (905) 764-5223
 Fax: (905) 764-6813

Title
Lot 1 - Berm Requirements

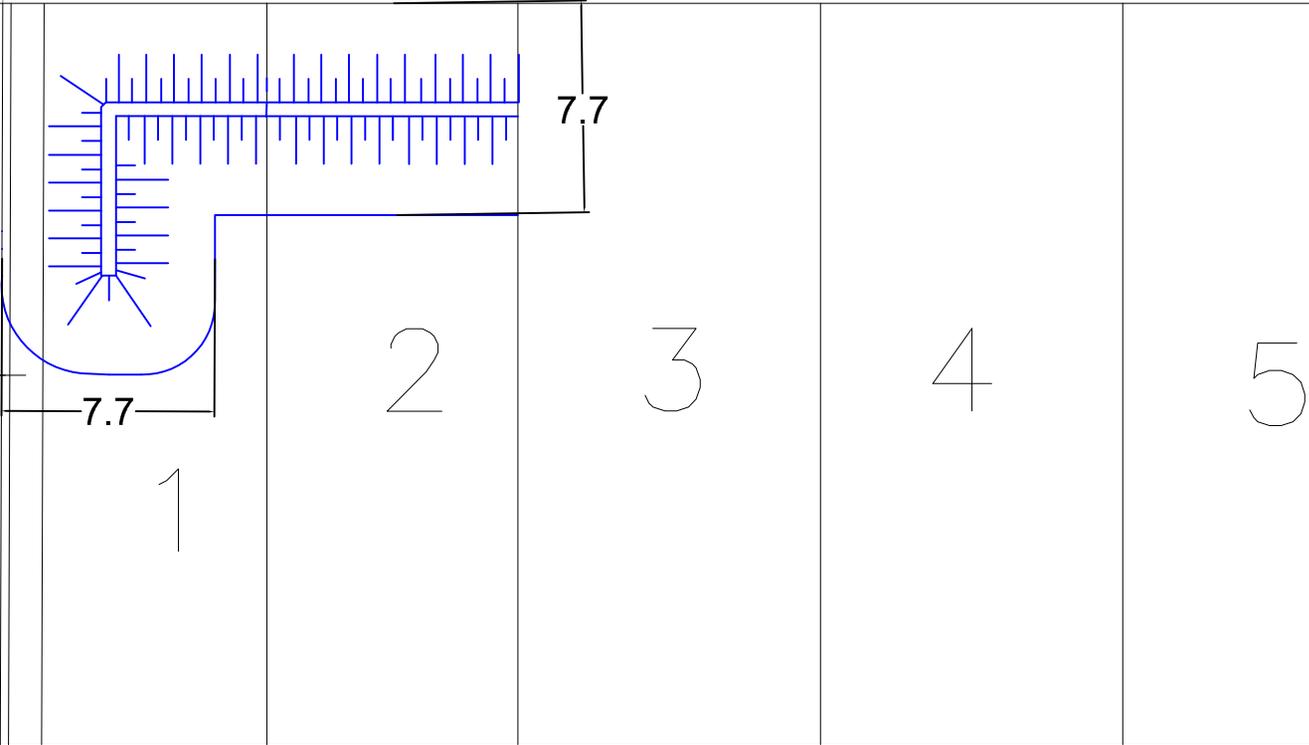
Project No.
108-363-300

Date
Jan. 31, 2019

Project Name
Half Moon Bay South - Phase 5

Scale
N.T.S.

Figure
E1



LOCK 91
0.30 RESERVE

CITD

No.	Revision/Issue	Date

VALCOUTIC
Canada Ltd.

30 Wertheim Court, Unit 25
Richmond Hill, Ontario
Canada L4B 1B9
solutions@valcoustics.com
Phone: (905) 764-5223
Fax: (905) 764-6813

Title
Lot 2 - Berm Requirements

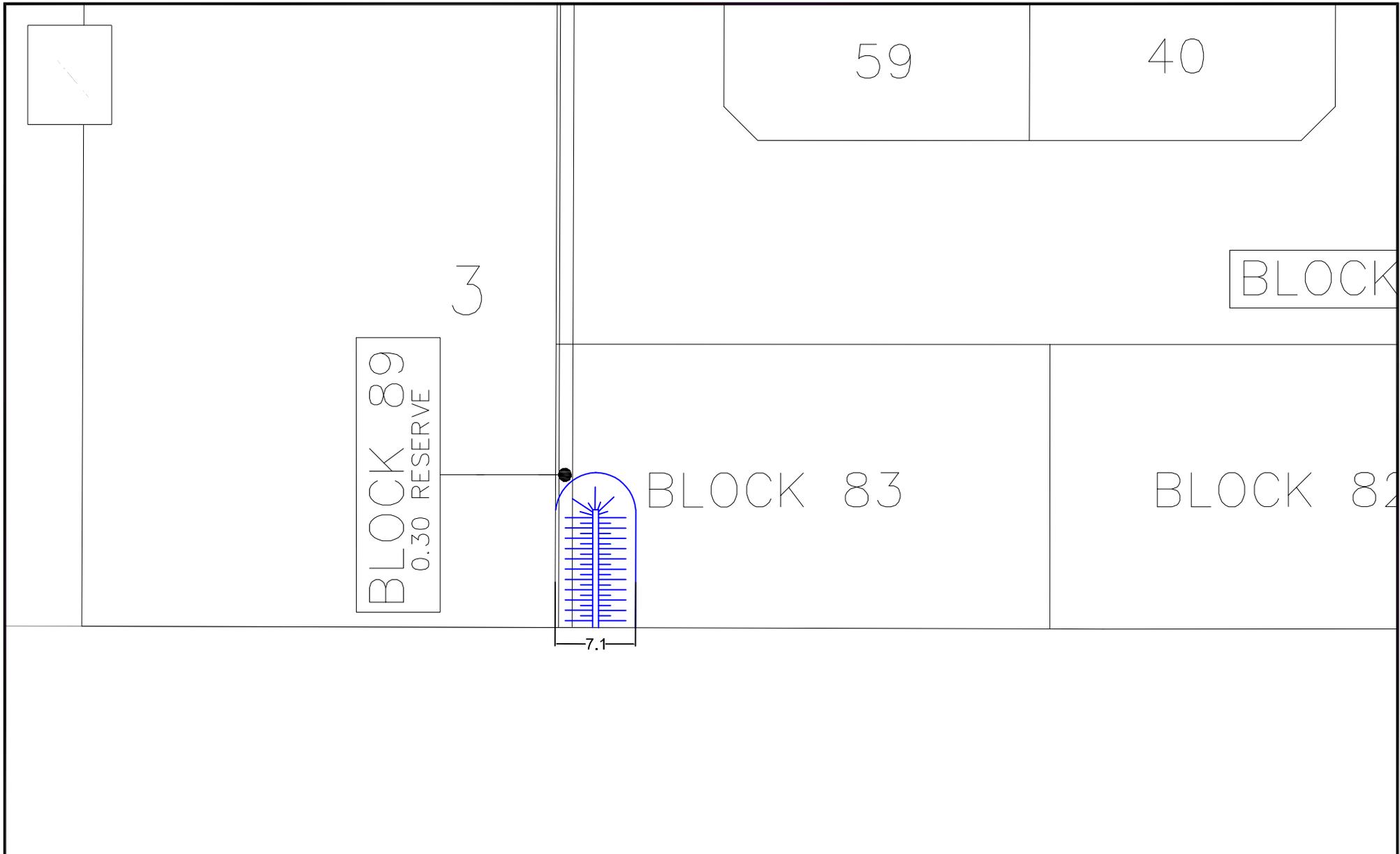
Project No.
108-363-300

Date
Jan. 31, 2019

Project Name
Half Moon Bay South - Phase 5

Scale
N.T.S.

Figure
E2



		 <p>30 Wertheim Court, Unit 25 Richmond Hill, Ontario Canada L4B 1B9 solutions@valcoustics.com Phone: (905) 764-5223 Fax: (905) 764-6813</p>	Title Block 83 - Berm Requirements	Project No. 108-363-300	Date Jan. 31, 2019
			Project Name Half Moon Bay South - Phase 5	Scale N.T.S.	Figure E4
No.	Revision/Issue	Date			