

September 14, 2018

Mattamy Homes
50 Hines Road, Suite 100
Ottawa, Ontario
K2K 2M5

Attention: Melissa Pettem
Melissa.Pettem@mattamycorp.com

VIA E-MAIL

**Re: Addendum #2 to the Environmental Noise Assessment
Mattamy on Half Moon Bay North – Apartment Blocks 1 and 4
Ottawa, Ontario
VCL File: 113-107-400**

Dear Ms. Pettem:

1.0 INTRODUCTION

Valcoustics Canada Ltd. (VCL) previously prepared an Environmental Noise Assessment report, dated March 2, 2018 (herein referred to as the “Noise Report”), as well an Addendum, dated July 12, 2018, for the Apartment Block in the Mattamy on Half Moon Bay North development. At the time the Noise Report was prepared, detailed floor plan and elevation drawings showing the specific locations of the dwelling units within each townhouse block were not available. The noise control requirements for each block were therefore based on the worst-case locations, i.e. the units with the greatest exposure to road traffic noise.

This addendum has been prepared to refine the noise control requirements (specifically the ventilation requirements) for Blocks 1 and 4 (the blocks closest to Realigned Greenbank Road) based on the detailed floor plans and elevations drawings.

The updated analysis is based on the Block Elevations and Block Plans for Blocks 1 and 4, prepared by Q4 Architects, dated July 27, 2018.

2.0 ENVIRONMENTAL NOISE GUIDELINES

As outlined in the MECP noise guideline NPC-300, when the sound level on the outside of a window is greater than 60 dBA during the nighttime or 65 dBA during the daytime, ventilation provisions must be made to allow the windows to remain closed for noise control purposes. A commonly used technique is to provide central air conditioning.

When the nighttime sound levels are between 51 dBA and 60 dBA, or the daytime sound levels are between 56 dBA and 65 dBA, the provision for adding air conditioning at the occupant's discretion is required.

There are no specific ventilation requirements for noise control purposes in the City of Ottawa "Environmental Noise Control Guideline" (ENCG). Thus, the ventilation requirements outlined in the Noise Report were based on the MECP criteria.

3.0 ASSESSMENT

Blocks 1 and 4 are made up of stacked townhouse units. The ground floor of each block has four single-storey units that extend the full width of the building, i.e. from the east facade to the west facade. The upper floors of each block have 8 two-storey back-to-back units, with four on the east facade and four on the west facade. The block plans are shown on Figures 1 and 2.

All ground floor units, as well as the stacked units with exterior facades on the north, south and west building facades, have direct exposure to Realigned Greenbank Road. The two central stacked units on the east facade of each block are screened from Realigned Greenbank Road by the buildings themselves; these units are partially exposed to road traffic on Cambrian Road only.

As outlined in the Noise Report, daytime and nighttime sound levels of 73 dBA and 66 dBA, respectively, are predicted to occur at the west facade of Block 4. Daytime and nighttime sound levels on the north and south facades are predicted to be 3 to 4 dB lower. Thus, air conditioning is mandatory for units with exterior facades on the north, south and west facades.

Daytime and nighttime sound levels of 57 dBA and 49 dBA, respectively, are predicted to occur at the east facade of Block 4. Thus, the provision for adding air conditioning is required for the stacked central units on the east facade.

Similar sound levels are predicted to occur at Block 1. Therefore, the same ventilation requirements apply.

The predicted sound levels are summarized in Table 1. Calculation details for each assessment location are included as Appendix A.

The noise control measures are summarized in Table 2 and shown on Figures 1 and 2.

4.0 CONCLUSIONS

The ventilation requirements for Blocks 1 and 4 have been refined based on the detailed floor plan and elevation drawings. At both blocks, the analysis shows that air condition is mandatory for units with exterior facades along the north, south and west facades. The provision for adding

air conditioning is required for units with exterior facades along the east building facades only.

Yours truly,

VALCOUSTICS CANADA LTD.

Per:


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



Per:


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



SN\ILMtk
J:\2013\113107\400 Apartment Block-Noise\Letters\L#2 - HMB Apartment Block.docx

Enclosures

TABLE 1: PREDICTED UNMITIGATED SOUND LEVELS OUTDOORS

Location ⁽¹⁾	Source	L _{eq} Day (dBA) ⁽²⁾	L _{eq} Night (dBA) ⁽²⁾
Block 1 – West Facade	Realigned Greenbank Road Cambrian Road	73	65
Block 1 – North Facade	Realigned Greenbank Road	69	62
Block 1 – South Facade	Realigned Greenbank Road Cambrian Road	70	63
Block 1 – East Facade	Cambrian Road	54	47
Block 4 – West Facade	Realigned Greenbank Road Cambrian Road	73	66
Block 4 – North Facade	Realigned Greenbank Road	69	62
Block 4 – South Facade	Realigned Greenbank Road Cambrian Road	70	63
Block 4 – East Facade	Cambrian Road	57	49

Notes:

- (1) See Figures 1 and 2.
 (2) Daytime and nighttime sound levels were assessed at a top floor (worst case) height of 7.5 m above grade.

TABLE 2: NOISE ABATEMENT MEASURES

Location		Air Conditioning ⁽¹⁾	Exterior Wall and Window ⁽²⁾	Sound Barrier ⁽³⁾	Warning Clauses ⁽⁴⁾
Block 1	All ground floor units and stacked units with north, south and west exterior building facades	Mandatory	Upgraded construction expected	None	A + C
	Stacked units along east exterior building facade only	Provision for adding	Upgraded construction may be required	None	A + B
Block 4	All ground floor units and stacked units with north, south and west exterior building facades	Mandatory	Upgraded construction expected	None	A + C
	Stacked units along east exterior building facade only	Provision for adding	Upgraded construction may be required	None	A + B

Notes to Table 2 on following page

Notes to Table 2

- (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.
- (2) STC - Sound Transmission Class Rating (Reference ASTM-E413). Requirements should be checked once building plans become available.
- (3) Sound barriers must be of solid construction having a minimum face density of 20 kg/m² with no gaps or cracks. The acoustic fence height shown is taken relative to grade.
- (4) 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."

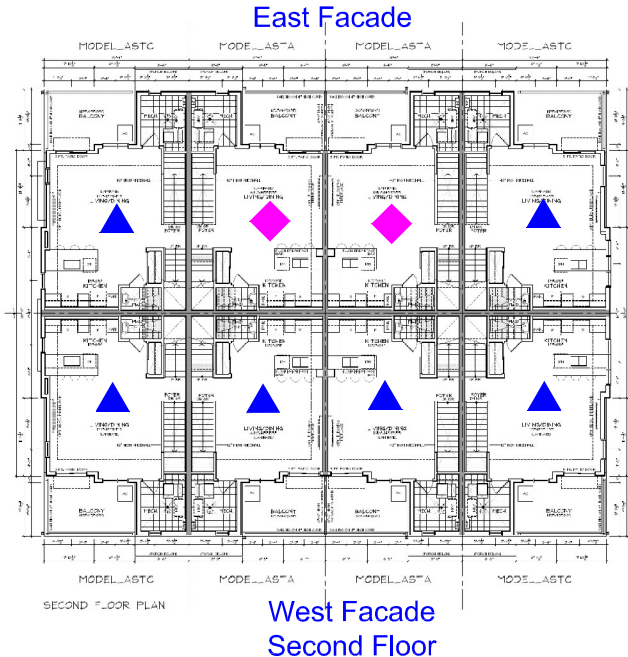
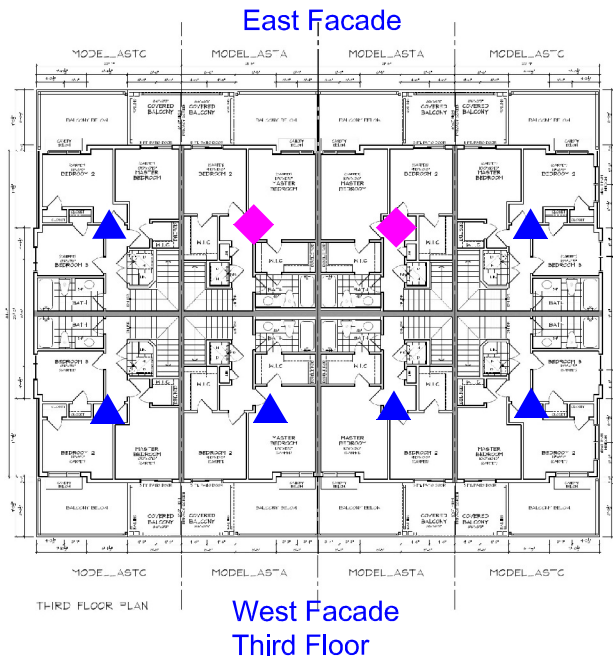
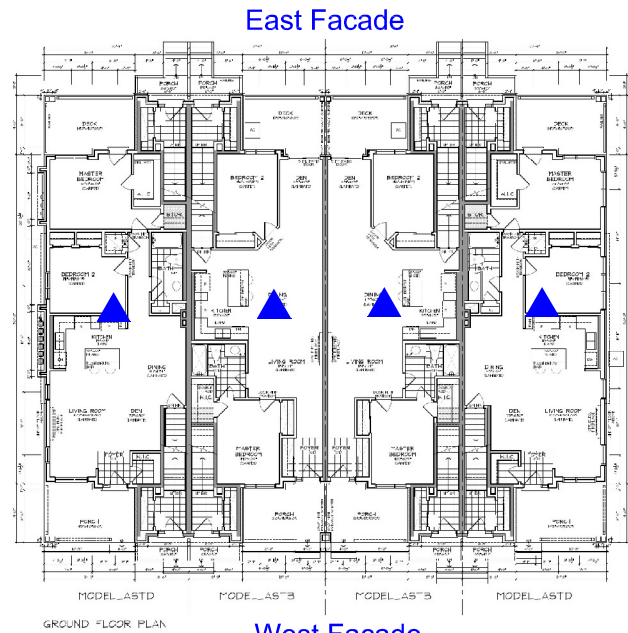
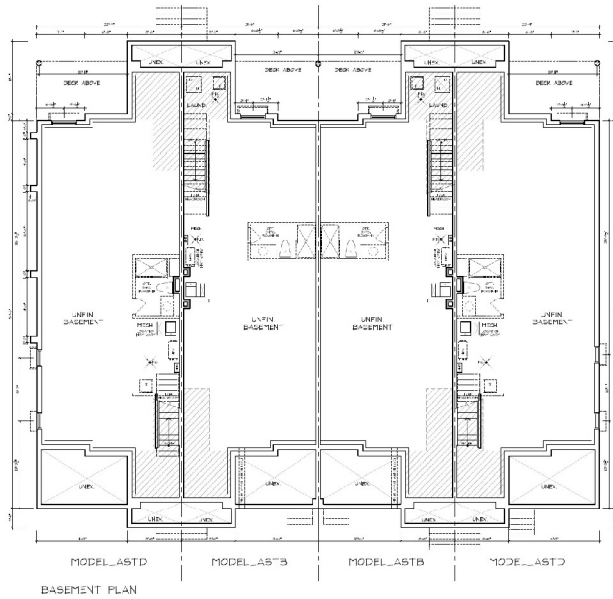
""This development includes building and street orientation to help increase setback distances to major noise sources and shield some rear yards from excessive noise levels."
 - B. "This dwelling unit has been designed with the provision for adding central air conditioning at the occupant's discretion. 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, 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."
 - C. "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."
- (5) Conventional ventilated attic roof construction meeting OBC requirements is satisfactory.
- (6) All exterior doors shall be fully weatherstripped

LEGEND

- ▲ Mandatory Air Conditioning
Upgraded Exterior Wall and/or Window Construction Expected
- ◆ Provision for Air Conditioning
Upgraded Exterior Wall and/or Window Construction May be Required

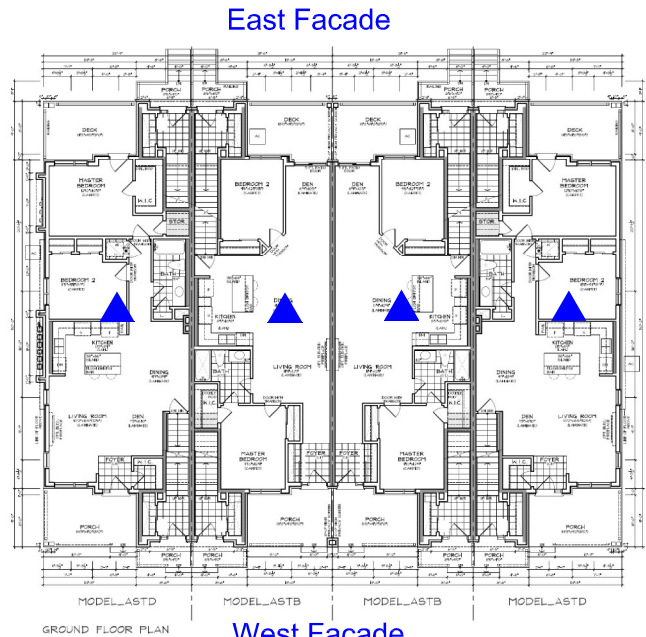
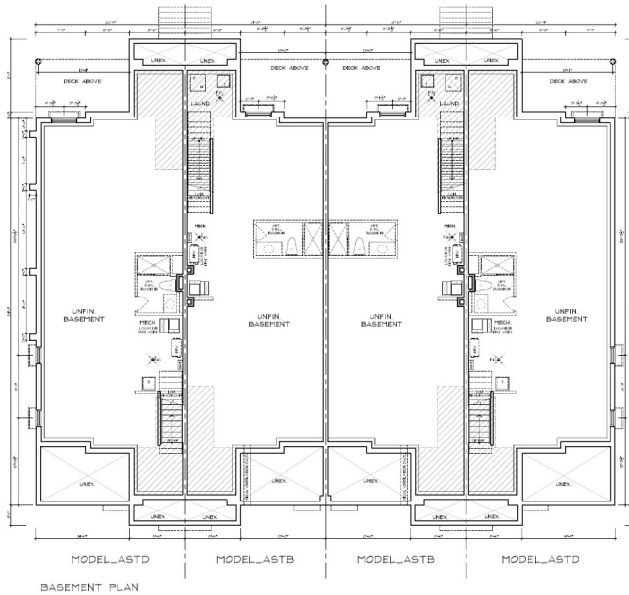


BASE DRAWINGS BY Q4 ARCHITECTS

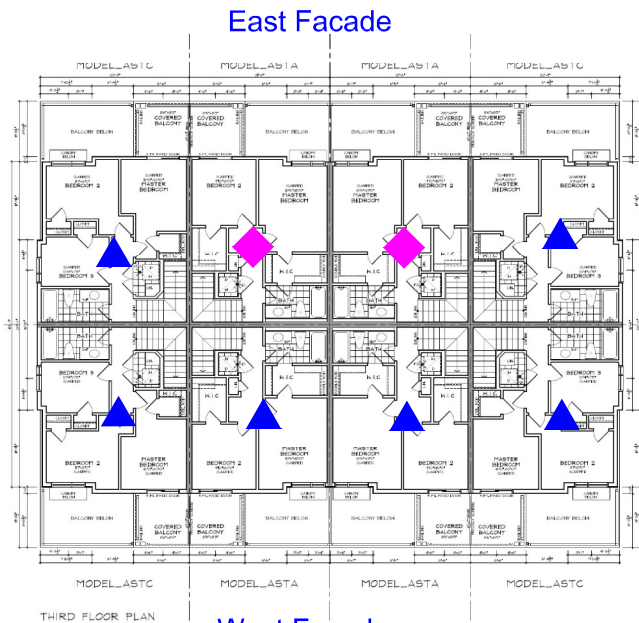
 <p>30 Wertheim Court, Unit 25 Richmond Hill, Ontario Canada L4B 1B9 Tel: 905-764-5223 Fax: 905-764-6813 solutions@valcoustics.com</p>			Title		Project No.	Date
			Block 1 Floor Plans		113-107-400	Aug. 17, 2018
			Project Name		Scale	Figure
			Half Moon Bay - Apartment Block		N.T.S.	1
No.	Revision/Issue	Date				

LEGEND

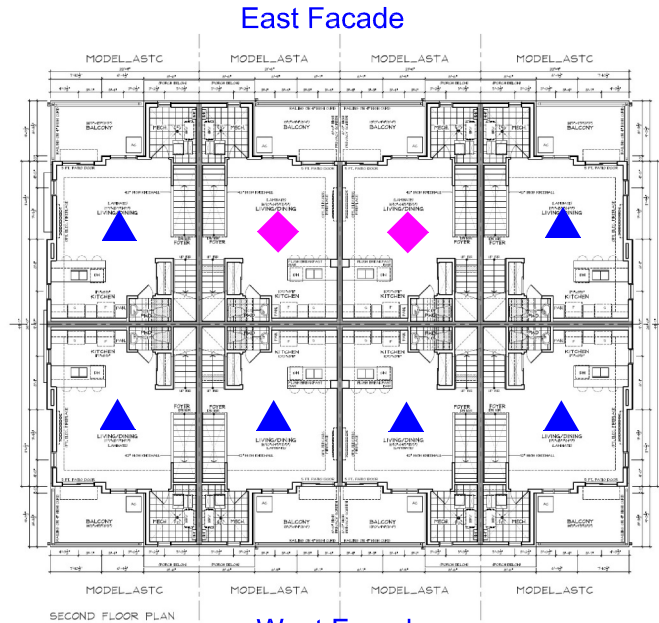
- ▲ Mandatory Air Conditioning
Upgraded Exterior Wall and/or Window Construction Expected
- ◆ Provision for Air Conditioning
Upgraded Exterior Wall and/or Window Construction May be Required



West Facade
Ground Floor




West Facade
Third Floor



West Facade
Second Floor

BASE DRAWINGS BY Q4 ARCHITECTS

 <p>30 Wertheim Court, Unit 25 Richmond Hill, Ontario Canada L4B 1B9 Tel: 905-764-5223 Fax: 905-764-6813 solutions@valcoustics.com</p>			Title	Project No.	Date
			Block 4 Floor Plans	113-107-400	Aug. 17, 2018
			Project Name	Scale	Figure
			Half Moon Bay - Apartment Block	N.T.S.	2
No.	Revision/Issue	Date			

APPENDIX A

STAMSON CALCULATION DETAILS

STAMSON 5.04 NORMAL REPORT Date: 17-08-2018 10:18:29
 MINISTRY OF ENVIRONMENT, CONSERVATION AND PARKS/ NOISE ASSESSMENT

Filename: b1_wf.te Time Period: Day/Night 16/8 hours
Description: Block 1 - West Facade

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

 Car traffic volume : 28336/2464 veh/TimePeriod
 Medium truck volume : 2542/320 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)

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 : 29.00 / 29.00 m
 Receiver height : 7.50 / 7.50 m
 Topography : 1 (Flat/gentle slope; no barrier)
 Reference angle : 0.00

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

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

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

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

Data for Segment # 2: Cambrian (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 : 185.00 / 185.00 m
 Receiver height : 7.50 / 7.50 m
 Topography : 1 (Flat/gentle slope; no barrier)
 Reference angle : 0.00

Results segment # 1: R Greenbank (day)

 Source height = 1.49 m

ROAD (0.00 + 72.26 + 0.00) = 72.26 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	75.12	0.00	-2.86	0.00	0.00	0.00	0.00	72.26

Segment Leq : 72.26 dBA

Results segment # 2: Cambrian (day)

Source height = 1.50 m

ROAD (0.00 + 59.75 + 0.00) = 59.75 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	90	0.00	73.68	0.00	-10.91	-3.01	0.00	0.00	0.00	59.75

Segment Leq : 59.75 dBA

Total Leq All Segments: 72.50 dBA

Results segment # 1: R Greenbank (night)

Source height = 1.48 m

ROAD (0.00 + 65.14 + 0.00) = 65.14 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	68.01	0.00	-2.86	0.00	0.00	0.00	0.00	65.14

Segment Leq : 65.14 dBA

Results segment # 2: Cambrian (night)

Source height = 1.50 m

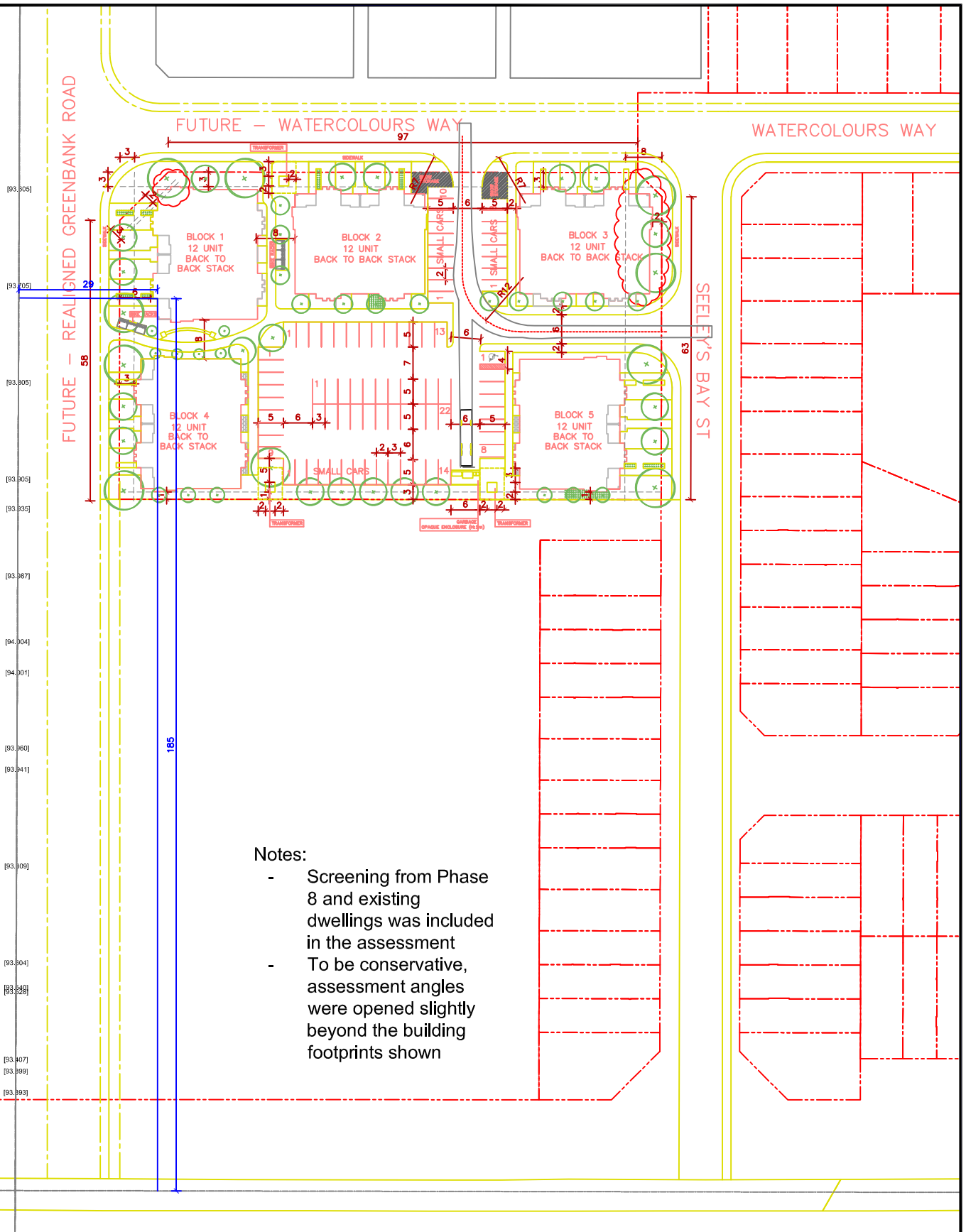
ROAD (0.00 + 52.16 + 0.00) = 52.16 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	90	0.00	66.08	0.00	-10.91	-3.01	0.00	0.00	0.00	52.16


Segment Leq : 52.16 dBA

Total Leq All Segments: 65.35 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 72.50
 (NIGHT): 65.35



- Notes:
- Screening from Phase 8 and existing dwellings was included in the assessment
 - To be conservative, assessment angles were opened slightly beyond the building footprints shown

			 30 Wertheim Court, Unit 25 Richmond Hill, Ontario Canada L4B 1B9 Tel: 905-764-5223 Fax: 905-764-6813 solutions@valcoustics.com	Title Block 1 - West Facade	Project No. 113-107-400	Date Aug. 17, 2018
No.	Revision/Issue	Date		Project Name Half Moon Bay - Apartment Block	Scale N.T.S.	Figure A1

STAMSON 5.04 NORMAL REPORT Date: 17-08-2018 10:18:01
 MINISTRY OF ENVIRONMENT, CONSERVATION AND PARKS/ NOISE ASSESSMENT

Filename: b1_nf.te Time Period: Day/Night 16/8 hours
Description: Block 1 - North Facade

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

 Car traffic volume : 28336/2464 veh/TimePeriod
 Medium truck volume : 2542/320 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)

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 : 2 (Reflective ground surface)
 Receiver source distance : 31.00 / 31.00 m
 Receiver height : 7.50 / 7.50 m
 Topography : 1 (Flat/gentle slope; no barrier)
 Reference angle : 0.00

Results segment # 1: R Greenbank (day)

 Source height = 1.49 m

ROAD (0.00 + 68.96 + 0.00) = 68.96 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	90	0.00	75.12	0.00	-3.15	-3.01	0.00	0.00	0.00	68.96

Segment Leq : 68.96 dBA

Total Leq All Segments: 68.96 dBA

Results segment # 1: R Greenbank (night)

 Source height = 1.48 m

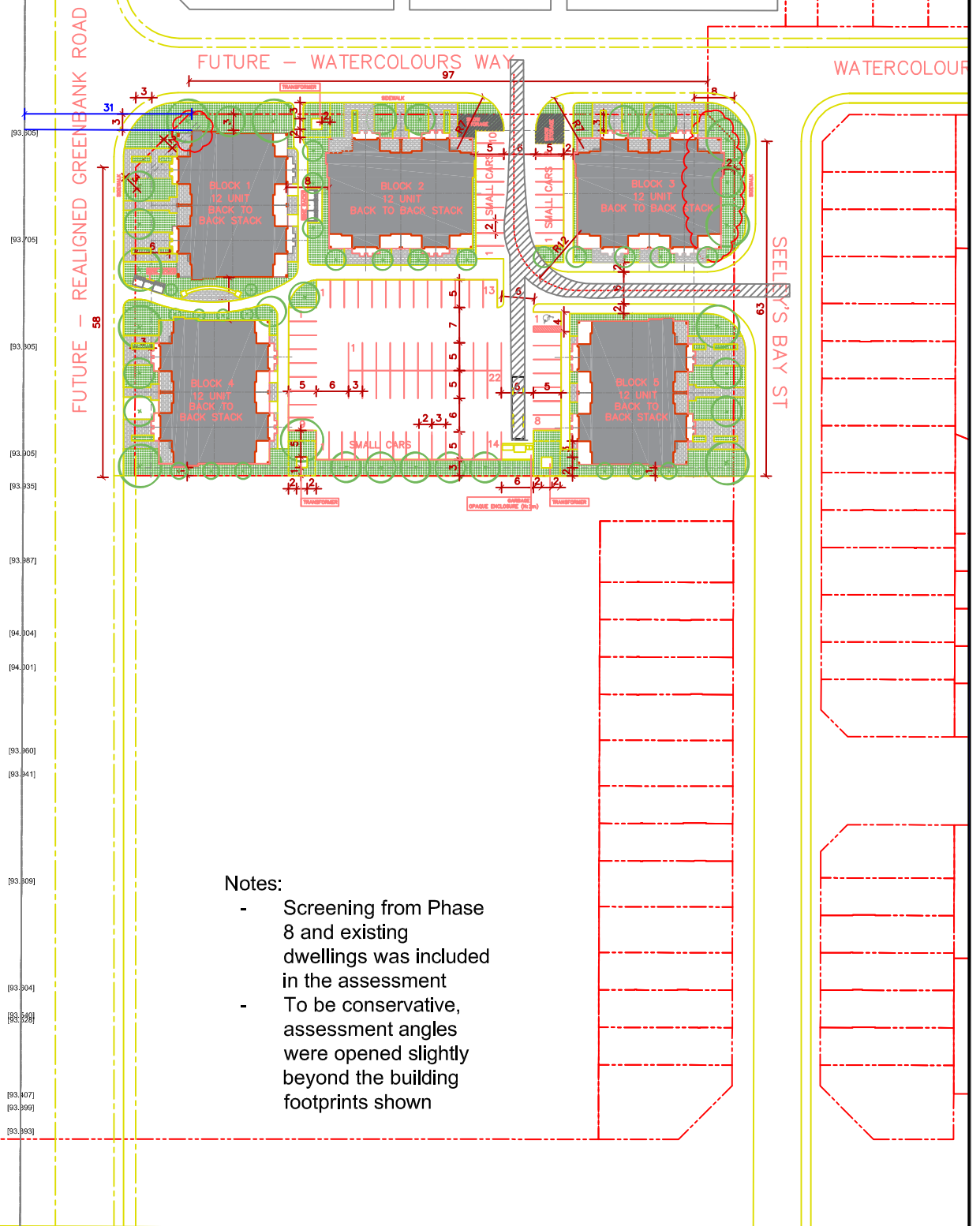
ROAD (0.00 + 61.84 + 0.00) = 61.84 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	90	0.00	68.01	0.00	-3.15	-3.01	0.00	0.00	0.00	61.84

Segment Leq : 61.84 dBA


Total Leq All Segments: 61.84 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 68.96
 (NIGHT): 61.84



Notes:

- Screening from Phase 8 and existing dwellings was included in the assessment
- To be conservative, assessment angles were opened slightly beyond the building footprints shown

			 30 Wertheim Court, Unit 25 Richmond Hill, Ontario Canada L4B 1B9 Tel: 905-764-5223 Fax: 905-764-6813 solutions@valcoustics.com	Title Block 1 - North Facade	Project No. 113-107-400	Date Aug. 18, 2018
No.	Revision/Issue	Date		Project Name Half Moon Bay - Apartment Block	Scale N.T.S.	Figure A2

STAMSON 5.04 NORMAL REPORT Date: 17-08-2018 10:18:15
 MINISTRY OF ENVIRONMENT, CONSERVATION AND PARKS / NOISE ASSESSMENT

Filename: b1_sf.te Time Period: Day/Night 16/8 hours
Description: Block 1 - South Facade

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

```
-----
Car traffic volume   : 28336/2464   veh/TimePeriod
Medium truck volume : 2542/320    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)
```

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 : 29.00 / 29.00 m
Receiver height  : 7.50 / 7.50 m
Topography      : 1 (Flat/gentle slope; no barrier)
Reference angle  : 0.00
```

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

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

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

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

Data for Segment # 2: Cambrian (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 : 185.00 / 185.00 m
Receiver height  : 7.50 / 7.50 m
Topography      : 1 (Flat/gentle slope; no barrier)
Reference angle  : 0.00
```

Results segment # 1: R Greenbank (day)

Source height = 1.49 m

ROAD (0.00 + 69.25 + 0.00) = 69.25 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	0	0.00	75.12	0.00	-2.86	-3.01	0.00	0.00	0.00	69.25

Segment Leq : 69.25 dBA

Results segment # 2: Cambrian (day)

Source height = 1.50 m

ROAD (0.00 + 59.75 + 0.00) = 59.75 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	90	0.00	73.68	0.00	-10.91	-3.01	0.00	0.00	0.00	59.75

Segment Leq : 59.75 dBA

Total Leq All Segments: 69.71 dBA

Results segment # 1: R Greenbank (night)

Source height = 1.48 m

ROAD (0.00 + 62.13 + 0.00) = 62.13 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	0	0.00	68.01	0.00	-2.86	-3.01	0.00	0.00	0.00	62.13

Segment Leq : 62.13 dBA

Results segment # 2: Cambrian (night)

Source height = 1.50 m

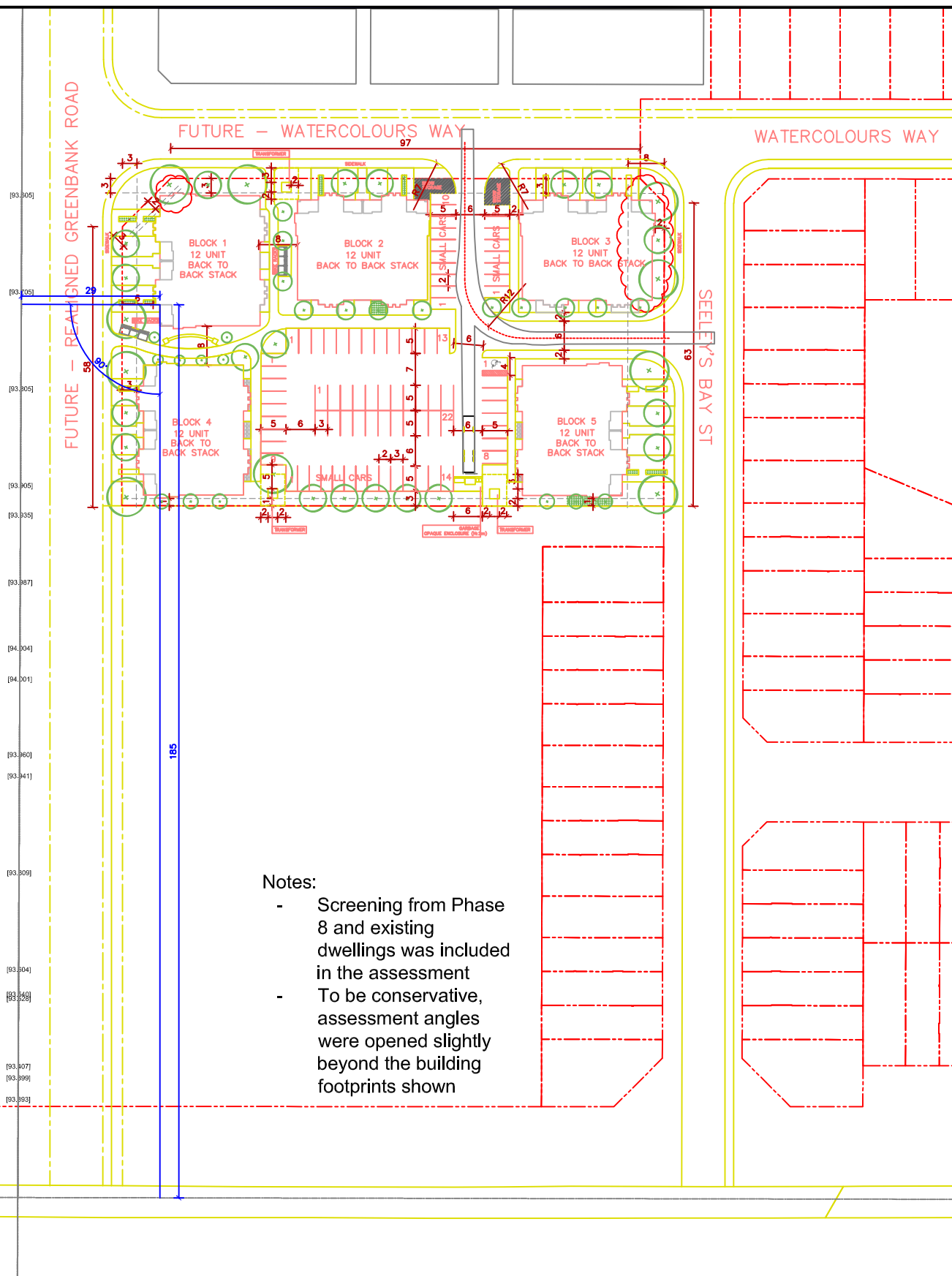
ROAD (0.00 + 52.16 + 0.00) = 52.16 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	90	0.00	66.08	0.00	-10.91	-3.01	0.00	0.00	0.00	52.16


Segment Leq : 52.16 dBA

Total Leq All Segments: 62.55 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 69.71
 (NIGHT): 62.55



- Screening from Phase 8 and existing dwellings was included in the assessment
- To be conservative, assessment angles were opened slightly beyond the building footprints shown

			 <p>30 Wertheim Court, Unit 25 Richmond Hill, Ontario Canada L4B 1B9 Tel: 905-764-5223 Fax: 905-764-6813 solutions@valcoustics.com</p>	Title	Block 1 - South Facade	Project No.	113-107-400	Date	Aug. 18, 2018
				Project Name	Half Moon Bay - Apartment Block	Scale	N.T.S.	Figure	A3
No.	Revision/Issue	Date							

STAMSON 5.04 NORMAL REPORT Date: 17-08-2018 10:17:27
 MINISTRY OF ENVIRONMENT, CONSERVATION AND PARKS / NOISE ASSESSMENT

Filename: b1_ef.te Time Period: Day/Night 16/8 hours
Description: Block 1 - East Facade

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

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

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

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

Data for Segment # 1: Cambrian (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 : 180.00 / 180.00 m
Receiver height  : 7.50 / 7.50 m
Topography      : 1 (Flat/gentle slope; no barrier)
Reference angle  : 0.00
```

Results segment # 1: Cambrian (day)

Source height = 1.50 m

ROAD (0.00 + 54.31 + 0.00) = 54.31 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-25	0	0.00	73.68	0.00	-10.79	-8.57	0.00	0.00	0.00	54.31

Segment Leq : 54.31 dBA

Total Leq All Segments: 54.31 dBA

Results segment # 1: Cambrian (night)

Source height = 1.50 m

ROAD (0.00 + 46.71 + 0.00) = 46.71 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-25	0	0.00	66.08	0.00	-10.79	-8.57	0.00	0.00	0.00	46.71

Segment Leq : 46.71 dBA

Total Leq All Segments: 46.71 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 54.31
 (NIGHT): 46.71



[93.305]
[93.705]
[93.905]
[93.905]
[93.935]
[93.987]
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[93.999]
[93.993]

FUTURE - REALIGNED GREENBANK ROAD

FUTURE - WATERCOLOURS WAY

WATERCOLOURS WAY

SEELEY'S BAY ST

BLOCK 1
12 UNIT
BACK TO BACK STACK

BLOCK 2
12 UNIT
BACK TO BACK STACK

BLOCK 3
12 UNIT
BACK TO BACK STACK

BLOCK 4
12 UNIT
BACK TO BACK STACK

BLOCK 5
12 UNIT
BACK TO BACK STACK

Notes:

- Screening from Phase 8 and existing dwellings was included in the assessment
- To be conservative, assessment angles were opened slightly beyond the building footprints shown

VALCOUSTICS
Canada Ltd.

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

Title

Block 1 - East
Facade

Project No.

113-107-400

Date

Aug. 18, 2018

Project Name

Half Moon Bay -
Apartment Block

Scale

N.T.S.

Figure

A4

No.	Revision/Issue	Date

STAMSON 5.04 NORMAL REPORT Date: 17-08-2018 10:20:23
 MINISTRY OF ENVIRONMENT, CONSERVATION AND PARKS / NOISE ASSESSMENT

Filename: b4_wf.te Time Period: Day/Night 16/8 hours
Description: Block 4 - West Facade

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

 Car traffic volume : 28336/2464 veh/TimePeriod
 Medium truck volume : 2542/320 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)

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 : 25.00 / 25.00 m
 Receiver height : 7.50 / 7.50 m
 Topography : 1 (Flat/gentle slope; no barrier)
 Reference angle : 0.00

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

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

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

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

Data for Segment # 2: Cambrian (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 : 150.00 / 150.00 m
 Receiver height : 7.50 / 7.50 m
 Topography : 1 (Flat/gentle slope; no barrier)
 Reference angle : 0.00

Results segment # 1: R Greenbank (day)

 Source height = 1.49 m

ROAD (0.00 + 72.91 + 0.00) = 72.91 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	75.12	0.00	-2.22	0.00	0.00	0.00	0.00	72.91

Segment Leq : 72.91 dBA

Results segment # 2: Cambrian (day)

Source height = 1.50 m

ROAD (0.00 + 60.67 + 0.00) = 60.67 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	90	0.00	73.68	0.00	-10.00	-3.01	0.00	0.00	0.00	60.67

Segment Leq : 60.67 dBA

Total Leq All Segments: 73.16 dBA

Results segment # 1: R Greenbank (night)

Source height = 1.48 m

ROAD (0.00 + 65.79 + 0.00) = 65.79 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	68.01	0.00	-2.22	0.00	0.00	0.00	0.00	65.79

Segment Leq : 65.79 dBA

Results segment # 2: Cambrian (night)

Source height = 1.50 m

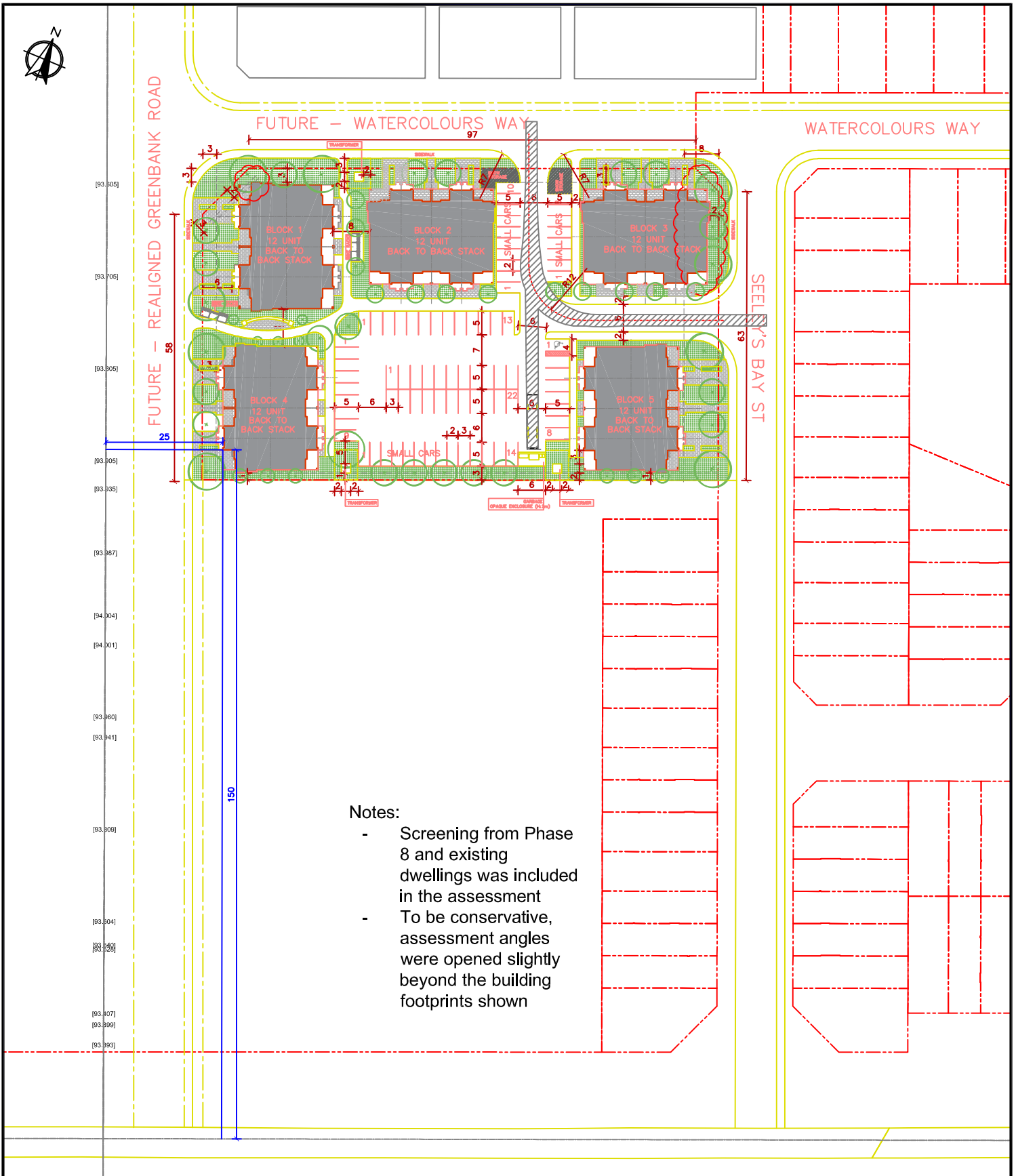
ROAD (0.00 + 53.07 + 0.00) = 53.07 dBA


Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	90	0.00	66.08	0.00	-10.00	-3.01	0.00	0.00	0.00	53.07

Segment Leq : 53.07 dBA

Total Leq All Segments: 66.02 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 73.16
 (NIGHT): 66.02



			<div><p>30 Wertheim Court, Unit 25 Richmond Hill, Ontario Canada L4B 1B9 Tel: 905-764-5223 Fax: 905-764-6813 solutions@valcoustics.com</p></div>	Title Block 4 - West Facade	Project No. 113-107-400	Date Aug. 17, 2018
				Project Name Half Moon Bay - Apartment Block	Scale N.T.S.	Figure A5
No.	Revision/Issue	Date				

STAMSON 5.04 NORMAL REPORT Date: 17-08-2018 10:19:13
 MINISTRY OF ENVIRONMENT, CONSERVATION AND PARKS / NOISE ASSESSMENT

Filename: b4_nf.te Time Period: Day/Night 16/8 hours
Description: Block 4 - North Facade

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

 Car traffic volume : 28336/2464 veh/TimePeriod
 Medium truck volume : 2542/320 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)

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 : 2 (Reflective ground surface)
 Receiver source distance : 28.00 / 28.00 m
 Receiver height : 7.50 / 7.50 m
 Topography : 1 (Flat/gentle slope; no barrier)
 Reference angle : 0.00

Results segment # 1: R Greenbank (day)

 Source height = 1.49 m

ROAD (0.00 + 69.40 + 0.00) = 69.40 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	90	0.00	75.12	0.00	-2.71	-3.01	0.00	0.00	0.00	69.40

 Segment Leq : 69.40 dBA

Total Leq All Segments: 69.40 dBA

Results segment # 1: R Greenbank (night)

 Source height = 1.48 m

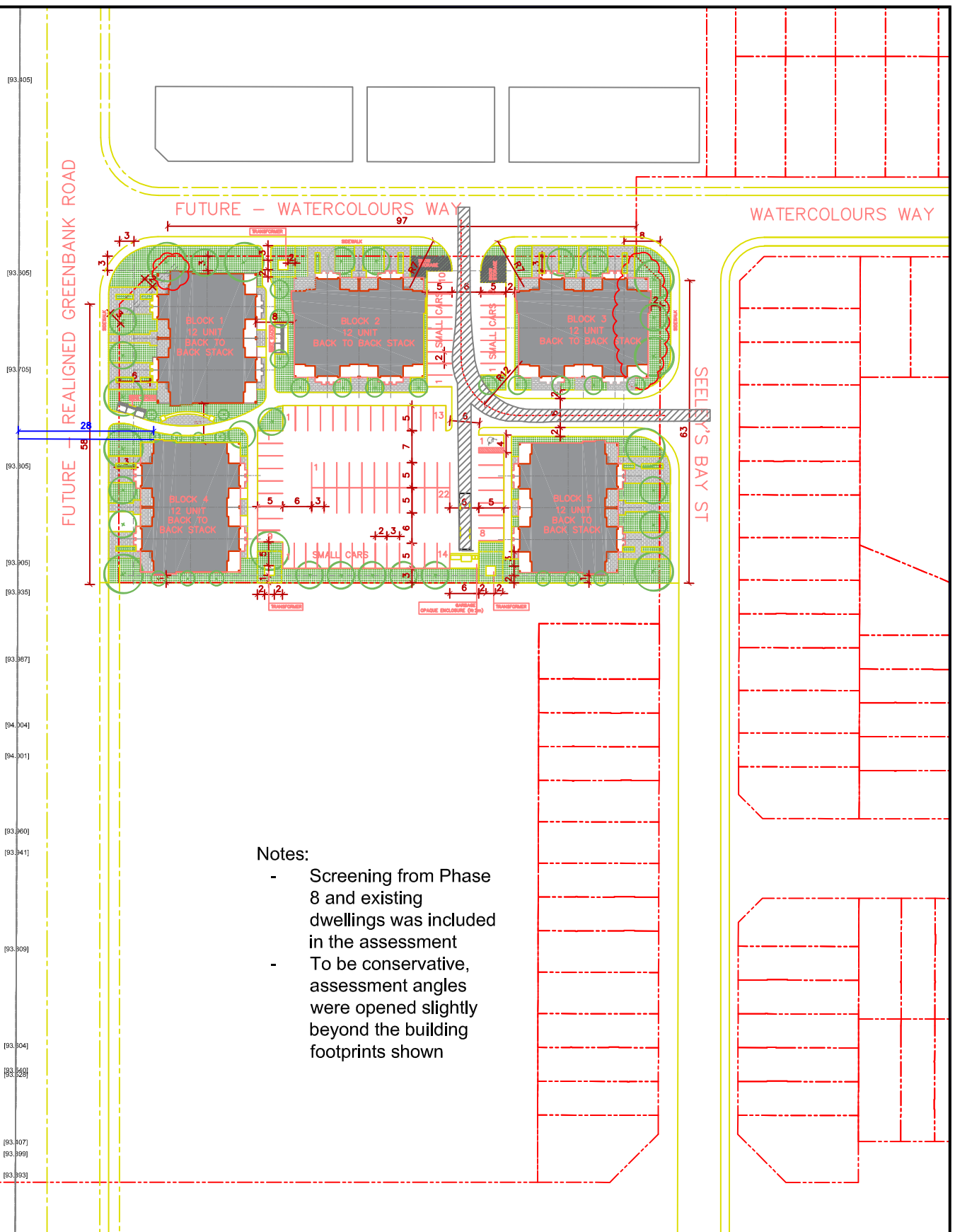
ROAD (0.00 + 62.28 + 0.00) = 62.28 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	90	0.00	68.01	0.00	-2.71	-3.01	0.00	0.00	0.00	62.28


 Segment Leq : 62.28 dBA

Total Leq All Segments: 62.28 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 69.40
 (NIGHT): 62.28



- Screening from Phase 8 and existing dwellings was included in the assessment
- To be conservative, assessment angles were opened slightly beyond the building footprints shown

			 <p>30 Wertheim Court, Unit 25 Richmond Hill, Ontario Canada L4B 1B9 Tel: 905-764-5223 Fax: 905-764-6813 solutions@valcoustics.com</p>	Title	Project No.	Date
				Block 4 - North Facade	113-107-400	Aug. 17, 2018
				Project Name	Scale	Figure
				Half Moon Bay - Apartment Block	N.T.S.	A6
No.	Revision/Issue	Date				

STAMSON 5.04 NORMAL REPORT Date: 17-08-2018 10:19:32
 MINISTRY OF ENVIRONMENT, CONSERVATION AND PARKS / NOISE ASSESSMENT

Filename: b4_sf.te Time Period: Day/Night 16/8 hours
Description: Block 4 - South Facade

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

```
-----
Car traffic volume   : 28336/2464   veh/TimePeriod
Medium truck volume : 2542/320    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)
```

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 : 28.00 / 28.00 m
Receiver height  : 7.50 / 7.50 m
Topography      : 1 (Flat/gentle slope; no barrier)
Reference angle  : 0.00
```

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

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

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

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

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

```
-----
Angle1   Angle2      : -35.00 deg   90.00 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  : 7.50 / 7.50 m
Topography      : 1 (Flat/gentle slope; no barrier)
Reference angle  : 0.00
```

Results segment # 1: R Greenbank (day)

Source height = 1.49 m

ROAD (0.00 + 69.40 + 0.00) = 69.40 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	0	0.00	75.12	0.00	-2.71	-3.01	0.00	0.00	0.00	69.40

Segment Leq : 69.40 dBA

Results segment # 2: Cambrian (day)

Source height = 1.50 m

ROAD (0.00 + 62.24 + 0.00) = 62.24 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-35	90	0.00	73.68	0.00	-9.85	-1.58	0.00	0.00	0.00	62.24

Segment Leq : 62.24 dBA

Total Leq All Segments: 70.16 dBA

Results segment # 1: R Greenbank (night)

Source height = 1.48 m

ROAD (0.00 + 62.28 + 0.00) = 62.28 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	0	0.00	68.01	0.00	-2.71	-3.01	0.00	0.00	0.00	62.28

Segment Leq : 62.28 dBA

Results segment # 2: Cambrian (night)

Source height = 1.50 m

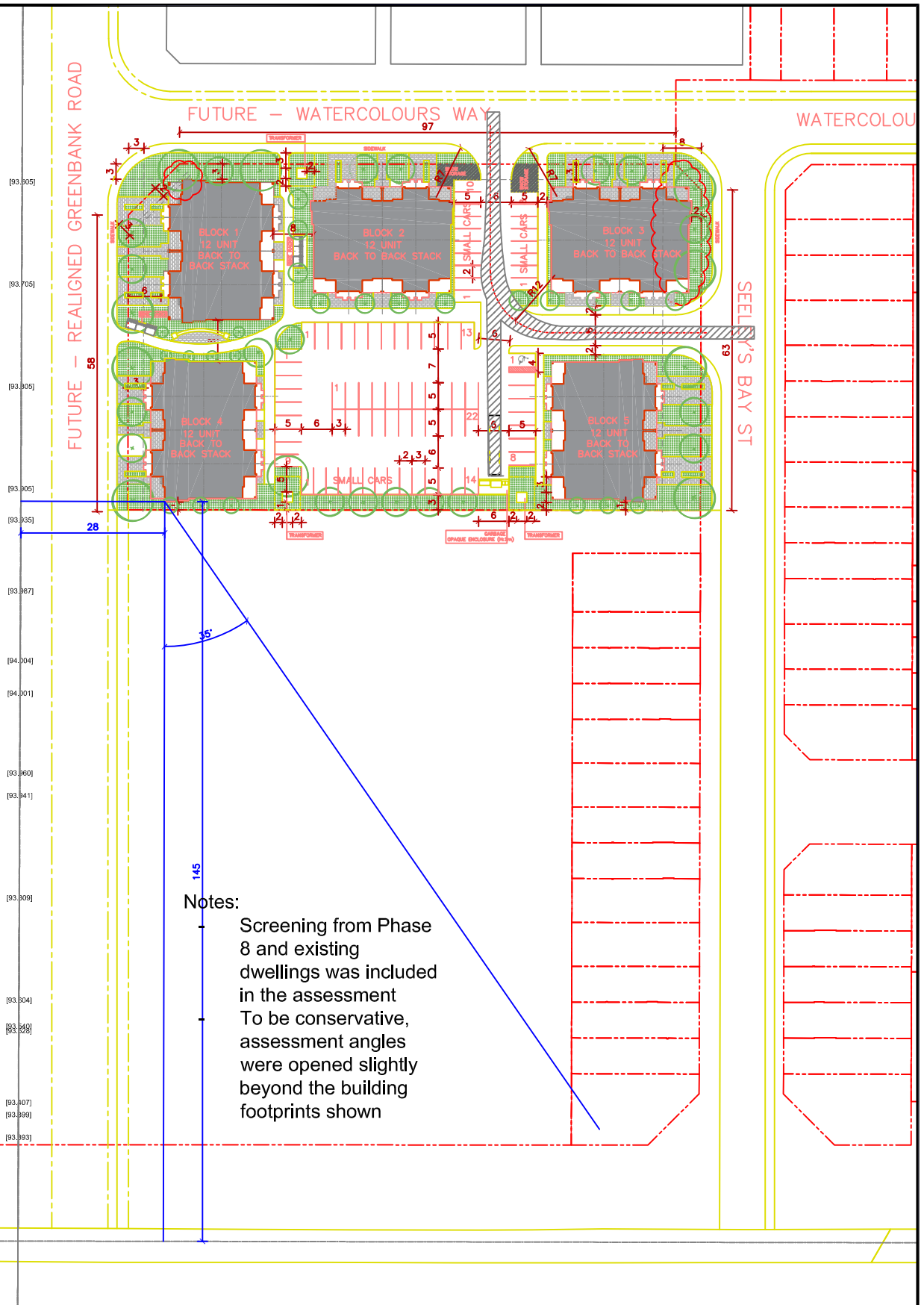
ROAD (0.00 + 54.64 + 0.00) = 54.64 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-35	90	0.00	66.08	0.00	-9.85	-1.58	0.00	0.00	0.00	54.64

Segment Leq : 54.64 dBA

Total Leq All Segments: 62.97 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 70.16
 (NIGHT): 62.97



Notes:

Screening from Phase 8 and existing dwellings was included in the assessment
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30 Wertheim Court, Unit 25
Richmond Hill, Ontario
Canada L4B 1B9
Tel: 905-764-5223
Fax: 905-764-6813
solutions@valcoustics.com

Title

Block 4 - South Facade

Project Name

Half Moon Bay - Apartment Block

Project No.

113-107-400

Date

Aug. 17, 2018

Scale

N.T.S.

Figure

A7

No.	Revision/Issue	Date
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STAMSON 5.04 NORMAL REPORT Date: 17-08-2018 10:18:44
 MINISTRY OF ENVIRONMENT, CONSERVATION AND PARKS / NOISE ASSESSMENT

Filename: b4_ef.te Time Period: Day/Night 16/8 hours
Description: Block 4 - East Facade

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

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

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

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

Data for Segment # 1: Cambrian (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 : 145.00 / 145.00 m
Receiver height  : 7.50 / 7.50 m
Topography      : 1 (Flat/gentle slope; no barrier)
Reference angle  : 0.00
```

Results segment # 1: Cambrian (day)

Source height = 1.50 m

ROAD (0.00 + 56.71 + 0.00) = 56.71 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-35	0	0.00	73.68	0.00	-9.85	-7.11	0.00	0.00	0.00	56.71

Segment Leq : 56.71 dBA

Total Leq All Segments: 56.71 dBA

Results segment # 1: Cambrian (night)

Source height = 1.50 m

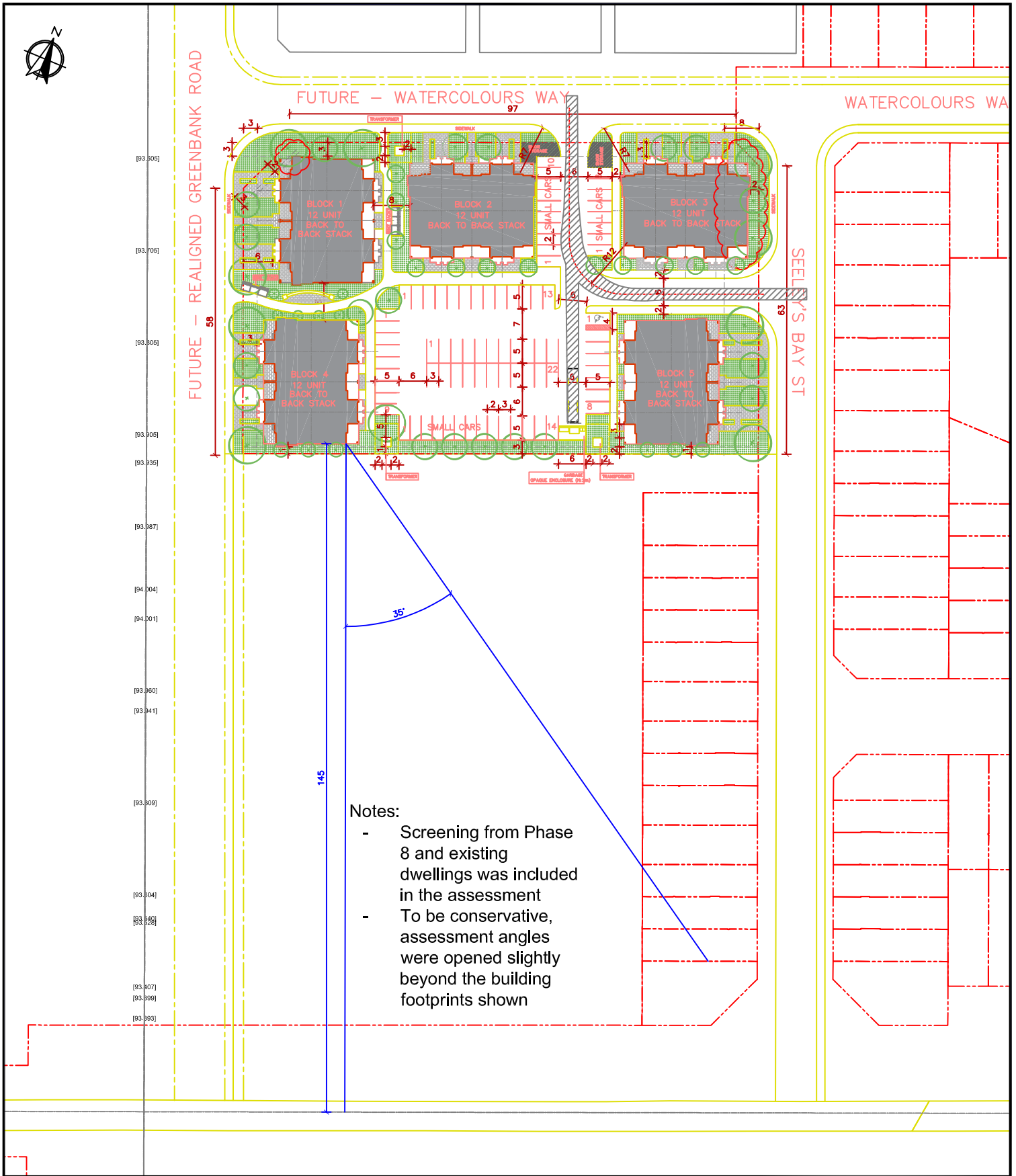
ROAD (0.00 + 49.11 + 0.00) = 49.11 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-35	0	0.00	66.08	0.00	-9.85	-7.11	0.00	0.00	0.00	49.11


Segment Leq : 49.11 dBA

Total Leq All Segments: 49.11 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 56.71
 (NIGHT): 49.11



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			 <p>30 Wertheim Court, Unit 25 Richmond Hill, Ontario Canada L4B 1B9 Tel: 905-764-5223 Fax: 905-764-6813 solutions@valcoustics.com</p>	Title	Project No.	Date
				Block 4 - East Facade	113-107-400	Aug. 17, 2018
				Project Name	Scale	Figure
				Half Moon Bay - Apartment Block	N.T.S.	A8
No.	Revision/Issue	Date				