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January 7, 2020

Mattamy Homes

50 Hines Road, Suite 100
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Attention: Jillian Normand
Jillian.Normand@mattamycorp.com

VIA E-MAIL

**Re: Addendum #1 to the Transportation Noise Assessment
Wateridge Village – Phase 1B
Block 15
Ottawa, Ontario
VCL File: 117-0363-020**

Dear Ms. Normand:

1.0 INTRODUCTION

Valcoustics Canada Ltd. (VCL) previously prepared a Transportation Noise Assessment report (herein referred to as the "Noise Report"), dated December 14, 2017, for Blocks 15, 22 and 24 in Wateridge Village – Phase 1B. At the time the Noise Report was prepared, detailed floor plan and elevation drawings for the townhouse blocks 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 for Block 15 has been prepared to update the analysis based on revisions to the Site Plan, as well as an assessment of the detailed floor plan and elevation drawings for the dwellings within the block.

The analysis is based on:

- Block 15 Site Plan, prepared by Korsiak Urban Planning, dated December 19, 2019;
- The Floor Plan and Elevations drawings for Townhouse Blocks 1 to 7 (models USTA-USTB, USTC-USTD and USTE-ESTF), prepared by Q4 Architects, dated 02/01/2019; and

- The Floor Plan and Elevations drawings for Townhouse Blocks 8 to 14 (models BVHA, BVHB, BVHC, BVHD and BVHE), prepared by Q4 Architects, dated 02/01/2019.

The Site Plan included as Figure 1.

2.0 ASSESSMENT

2.1 NOISE SOURCES

The main road traffic noise sources with the potential for impact at the subject site at Block 15 are Montreal Road, Hemlock Road, Codd's Road, Burma Road and Mikinak Road. The ultimate traffic data for these roadways remains unchanged from the previous Noise Report. The data is summarized in Table 1 below.

2.2 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 Ministry of the Environment, Conservation and Parks (MECP).

Based on the elevation drawings, the sound levels at the facades of Townhouse Blocks 1 to 7 were assessed at a top-storey height of 8.8 m above grade. The sound levels at the facades of Townhouse Blocks 8 to 14 were assessed at a height of 7.5 m above grade.

Inherent screening of each building face due to its orientation to the noise sources was taken into account. To be consistent with the previous analysis, screening from the proposed dwellings at Blocks 22 and 24 was also taken into account. However, screening from other development blocks within Wateridge Village was not included in the assessment.

The existing residential development to the south will provide screening from road traffic on Montreal Road and a portion of Codd's Road. In particular, there are several rows of dwellings between the subject site and Montreal Road (between Codd's Road and Burma Road). To be conservative, the existing dwellings were modelled as one row of 80% screening for Montreal Road and were not included as screening for Codd's Road.

The highest daytime and nighttime sound levels of 65 dBA and 58 dBA, respectively, are predicted to occur at the north façade of Townhouse Block 4.

Table 2 summarizes the predicted sound levels outdoors at specific locations. Note that Table 2 shows the contributions from each of the roadways as well as the total sound level at each location. The sound level calculations are presented in Appendix A.

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 STC requirements for elements of the building envelope were assessed based on the analysis procedures outlined in Building Practice Note BPN 56, "Controlling Sound Transmission into Buildings". To meet the indoor noise criteria, an exterior wall construction meeting STC 37 (typical construction meeting the non-acoustical requirements of the Ontario Building Code) and an exterior window construction meeting STC 26 can be used. Typical non-acoustical windows meet an STC rating of 26, but this should be confirmed by the supplier/manufacturer. Calculation details are shown in Appendix B.

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. 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.

Based on the predicted sound levels, Townhouse Blocks 1 to 4, 8, 9 and 14 require the provision for adding air conditioning. In practice, this means forced air heating with adequately sized ductwork.

3.2 OUTDOORS

There are no grade-level outdoor amenity areas associated with the dwellings.

All units will be provided with small private balconies. The dwelling units in Blocks 1 to 7 will also be provided with rooftop terraces. However, all balconies and terraces are expected to be less than 4 m in depth and therefore do not qualify as OLA's under the noise guidelines. Thus, sound barriers are not required at these locations for noise control purposes.

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.

If you have any questions, please let us know.

Yours truly,

VALCOUSTICS CANADA LTD.

Per:


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



ILMSNtk

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Enclosures

TABLE 1: ROAD TRAFFIC DATA

Roadway	Classification	Ultimate AADT	% Trucks		Speed Limit (kph)	Day / Night Split (%)
			Medium	Heavy		
Montreal Road	4-UAD	35 000	7	5	60	92/8
Hemlock Road	2-UMCU	12 000	7	5	50	92/8
Codd's Road	2-UMCU	12 000	7	5	50	92/8
Burma Road	2-UMCU	12 000	7	5	50	92/8
Mikinak Road	2-UCU	8 000	7	5	50	92/8

Note:

- (1) As per Appendix B of the City of Ottawa "Environmental Noise Control Guidelines" dated January 2018.

TABLE 2: PREDICTED UNMITIGATED SOUND LEVELS OUTDOORS

Location ⁽¹⁾	Source	Leq Day (dBA) ⁽²⁾	Leq Night (dBA) ⁽²⁾
Townhouse Block 1 – Unit 10 (North Face)	Hemlock Road	46	38
	Mikinak Road	65	57
	Codd's Road	42	34
	TOTAL	65	57
Townhouse Block 4 – Unit 6 (North Face)	Hemlock Road	49	41
	Mikinak Road	65	57
	Burma Road	49	41
	TOTAL	65	58
Townhouse Block 6 – Unit 8 (North Face)	Hemlock Road	41	33
	Mikinak Road	54	46
	Burma Road	41	33
	TOTAL	54	47
Townhouse Block 8 – Unit 10 (East Face)	Hemlock Road	46	39
	Mikinak Road	57	50
	Burma Road	49	41
	TOTAL	58	51
Townhouse Block 9 – Unit 10 (East Face)	Hemlock Road	45	38
	Mikinak Road	55	47
	Burma Road	49	41
	TOTAL	56	49
Townhouse Block 10 – Unit 10 (East Face)	Hemlock Road	45	37
	Mikinak Road	54	46
	Burma Road	48	41
	TOTAL	55	47
Townhouse Block 10 – Unit 6 (South Face)	Montreal Road	47	40
	Codd's Road	43	36
	Burma Road	47	39
	TOTAL	51	43
Townhouse Block 13 – Unit 1 (South Face)	Montreal Road	46	38
	Codd's Road	46	38
	TOTAL	49	41
Townhouse Block 14 – Unit 1 (West Face)	Hemlock Road	44	36
	Mikinak Road	57	50
	Codd's Road	46	39
	TOTAL	58	50

Notes:

- (1) See Figure 1.
- (2) Daytime and nighttime sound levels at Blocks 1 to 7 were assessed at a top floor height of 8.8 m above grade. Daytime and nighttime sound levels at Blocks 8 to 14 were assessed at a top floor height of 7.5 m above grade.

TABLE 3: NOISE ABATEMENT MEASURES

Location	Air Conditioning ⁽¹⁾	Exterior Wall and Window ⁽²⁾	Sound Barrier ⁽³⁾	Warning Clauses ⁽⁴⁾
Townhouse Blocks 1 to 3, 8, 9 and 14	Provision for adding	No special acoustical requirements	None	A + B + E
Townhouse Block 4	Provision for adding	No special acoustical requirements	None	A + B + D + E
All other locations	No special acoustical requirements			E

Notes:

- (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 are based on the elevation and floor plan drawings, prepared by Q4 Architects, dated 02/01/2019.
- (3) 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.
- (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 and Climate Change 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."
- "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 and Climate Change. 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."
- "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 and Climate Change. The details of this building component design are available by contacting the builder of this unit."
- D. "The Transferee, for himself, his heirs, executors, administrators, successors and assigns acknowledge being additionally advised that due to the proximity of the adjacent school, sound levels from the school may at times be audible"
- E. "The Transferee, for himself, his heirs, executors, administrators, successors and assigns acknowledge being additionally advised that due to the proximity of the Rockcliffe Airport, sound levels from the airport may at times be audible"
- (6) Conventional ventilated attic roof construction meeting OBC requirements is satisfactory.
- (7) All exterior doors shall be fully weatherstripped.

LEGEND

◆ Provision for Air Conditioning



Base drawing by Korsiak Urban Design



Title

Block 15 Site Plan and Noise Mitigation Requirements

Project Name

Wateridge Village – Phase 1B – Block 15

Date

2020-01-06

Project No.

117-0363-020

Figure

1

APPENDIX A

SOUND LEVEL CALCULATIONS

STAMSON 5.04 NORMAL REPORT Date: 21-06-2019 10:10:52
MINISTRY OF ENVIRONMENT, CONSERVATION AND PARKS / NOISE ASSESSMENT

Filename: b4_6_nf.te Time Period: Day/Night 16/8 hours
Description: Block 4 - Unit 6 - North Facade

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

Car traffic volume : 9715/845 veh/TimePeriod *
Medium truck volume : 773/67 veh/TimePeriod *
Heavy truck volume : 552/48 veh/TimePeriod *
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 12000
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: Hemlock (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 : 173.00 / 173.00 m
Receiver height : 8.80 / 8.80 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: Mikinak (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 # 2: Mikinak (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 : 18.00 / 18.00 m
Receiver height       :      8.80 / 8.80 m
Topography           :      1           (Flat/gentle slope; no barrier)
Reference angle       :      0.00
  
```

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

```

-----
Car traffic volume   : 9715/845   veh/TimePeriod *
Medium truck volume  : 773/67     veh/TimePeriod *
Heavy truck volume   : 552/48     veh/TimePeriod *
Posted speed limit   : 50 km/h
Road gradient         : 0 %
Road pavement        : 1 (Typical asphalt or concrete)
  
```

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

```

24 hr Traffic Volume (AADT or SADT): 12000
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: Burma (day/night)

```

-----
Angle1   Angle2           : -90.00 deg   25.00 deg
Wood depth           :      0           (No woods.)
No of house rows     :      0 / 0
Surface              :      1           (Absorptive ground surface)
Receiver source distance : 200.00 / 200.00 m
Receiver height       :      8.80 / 8.80 m
Topography           :      1           (Flat/gentle slope; no barrier)
Reference angle       :      0.00
  
```

Results segment # 1: Hemlock (day)

Source height = 1.50 m

ROAD (0.00 + 48.71 + 0.00) = 48.71 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-10	90	0.44	67.51	0.00	-15.30	-3.50	0.00	0.00	0.00	48.71

Segment Leq : 48.71 dBA

Results segment # 2: Mikinak (day)

Source height = 1.50 m

ROAD (0.00 + 64.96 + 0.00) = 64.96 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	65.75	0.00	-0.79	0.00	0.00	0.00	0.00	64.96

Segment Leq : 64.96 dBA

Results segment # 3: Burma (day)

Source height = 1.50 m

ROAD (0.00 + 48.53 + 0.00) = 48.53 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	25	0.44	67.51	0.00	-16.21	-2.77	0.00	0.00	0.00	48.53

Segment Leq : 48.53 dBA

Total Leq All Segments: 65.16 dBA

Results segment # 1: Hemlock (night)

Source height = 1.50 m

ROAD (0.00 + 41.11 + 0.00) = 41.11 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-10	90	0.44	59.91	0.00	-15.30	-3.50	0.00	0.00	0.00	41.11

Segment Leq : 41.11 dBA

Results segment # 2: Mikinak (night)

Source height = 1.50 m

ROAD (0.00 + 57.37 + 0.00) = 57.37 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	58.16	0.00	-0.79	0.00	0.00	0.00	0.00	57.37

Segment Leq : 57.37 dBA

Results segment # 3: Burma (night)

Source height = 1.50 m

ROAD (0.00 + 40.93 + 0.00) = 40.93 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	25	0.44	59.91	0.00	-16.21	-2.77	0.00	0.00	0.00	40.93

Segment Leq : 40.93 dBA

Total Leq All Segments: 57.57 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 65.16
 (NIGHT): 57.57

STAMSON 5.0 NORMAL REPORT Date: 21-06-2019 10:13:01
MINISTRY OF ENVIRONMENT, CONSERVATION AND PARKS / NOISE ASSESSMENT

Filename: b6_8_nf.te Time Period: Day/Night 16/8 hours
Description: Block 6 - Unit 8 - North Facade

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

Car traffic volume : 9715/845 veh/TimePeriod *
Medium truck volume : 773/67 veh/TimePeriod *
Heavy truck volume : 552/48 veh/TimePeriod *
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 12000
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: Hemlock (day/night)

Angle1 Angle2 : 10.00 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 : 217.00 / 217.00 m
Receiver height : 8.80 / 8.80 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

```

-----
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth           :      0           (No woods.)
No of house rows     :      1 / 1
House density        :      80 %
Surface              :      2           (Reflective ground surface)
Receiver source distance : 62.00 / 62.00 m
Receiver height       :      8.80 / 8.80 m
Topography           :      1           (Flat/gentle slope; no barrier)
Reference angle       :      0.00
    
```

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

```

-----
Car traffic volume   : 9715/845   veh/TimePeriod *
Medium truck volume  : 773/67     veh/TimePeriod *
Heavy truck volume   : 552/48     veh/TimePeriod *
Posted speed limit   : 50 km/h
Road gradient         : 0 %
Road pavement        : 1 (Typical asphalt or concrete)
    
```

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

```

24 hr Traffic Volume (AADT or SADT): 12000
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: Burma (day/night)

```

-----
Angle1   Angle2           : -60.00 deg   25.00 deg
Wood depth           :      0           (No woods.)
No of house rows     :      1 / 1
House density        :      80 %
Surface              :      1           (Absorptive ground surface)
Receiver source distance : 256.00 / 256.00 m
Receiver height       :      8.80 / 8.80 m
Topography           :      1           (Flat/gentle slope; no barrier)
Reference angle       :      0.00
    
```

Results segment # 1: Hemlock (day)

Source height = 1.50 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
10	90	0.44	67.51	0.00	-16.72	-4.74	0.00	-5.36	0.00	40.69

Segment Leq : 40.69 dBA

Results segment # 2: Mikinak (day)

Source height = 1.50 m

ROAD (0.00 + 53.70 + 0.00) = 53.70 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	65.75	0.00	-6.16	0.00	0.00	-5.89	0.00	53.70

Segment Leq : 53.70 dBA

Results segment # 3: Burma (day)

Source height = 1.50 m

ROAD (0.00 + 40.94 + 0.00) = 40.94 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-60	25	0.44	67.51	0.00	-17.76	-3.54	0.00	-5.27	0.00	40.94

Segment Leq : 40.94 dBA

Total Leq All Segments: 54.13 dBA

Results segment # 1: Hemlock (night)

Source height = 1.50 m

ROAD (0.00 + 33.09 + 0.00) = 33.09 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
10	90	0.44	59.91	0.00	-16.72	-4.74	0.00	-5.36	0.00	33.09

Segment Leq : 33.09 dBA

Results segment # 2: Mikinak (night)

Source height = 1.50 m

ROAD (0.00 + 46.10 + 0.00) = 46.10 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	58.16	0.00	-6.16	0.00	0.00	-5.89	0.00	46.10

Segment Leq : 46.10 dBA

Results segment # 3: Burma (night)

Source height = 1.50 m

ROAD (0.00 + 33.34 + 0.00) = 33.34 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-60	25	0.44	59.91	0.00	-17.76	-3.54	0.00	-5.27	0.00	33.34

Segment Leq : 33.34 dBA

Total Leq All Segments: 46.53 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 54.13
 (NIGHT): 46.53

STAMSON 5.0 NORMAL REPORT Date: 21-06-2019 10:24:22
MINISTRY OF ENVIRONMENT, CONSERVATION AND PARKS / NOISE ASSESSMENT

Filename: b8_10_ef.te Time Period: Day/Night 16/8 hours
Description: Block 8 - Unit 10 - East Facade

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

Car traffic volume : 9715/845 veh/TimePeriod *
Medium truck volume : 773/67 veh/TimePeriod *
Heavy truck volume : 552/48 veh/TimePeriod *
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 12000
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: Hemlock (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 : 210.00 / 210.00 m
Receiver height : 7.50 / 7.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: Mikinak (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 # 2: Mikinak (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 : 54.00 / 54.00 m
Receiver height       : 7.50 / 7.50 m
Topography           :      1      (Flat/gentle slope; no barrier)
Reference angle       : 0.00

```

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

```

-----
Car traffic volume   : 9715/845   veh/TimePeriod *
Medium truck volume  : 773/67    veh/TimePeriod *
Heavy truck volume   : 552/48    veh/TimePeriod *
Posted speed limit   : 50 km/h
Road gradient        : 0 %
Road pavement        : 1 (Typical asphalt or concrete)

```

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

```

24 hr Traffic Volume (AADT or SADT): 12000
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: Burma (day/night)

```

-----
Angle1   Angle2           : -70.00 deg   90.00 deg
Wood depth           :      0      (No woods.)
No of house rows     :      0 / 0
Surface              :      1      (Absorptive ground surface)
Receiver source distance : 213.00 / 213.00 m
Receiver height       : 7.50 / 7.50 m
Topography           :      1      (Flat/gentle slope; no barrier)
Reference angle       : 0.00

```

Results segment # 1: Hemlock (day)

Source height = 1.50 m

ROAD (0.00 + 46.40 + 0.00) = 46.40 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	90	0.48	67.51	0.00	-16.96	-4.15	0.00	0.00	0.00	46.40

Segment Leq : 46.40 dBA

Results segment # 2: Mikinak (day)

Source height = 1.50 m

ROAD (0.00 + 57.18 + 0.00) = 57.18 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	-5.56	-3.01	0.00	0.00	0.00	57.18

Segment Leq : 57.18 dBA

Results segment # 3: Burma (day)

Source height = 1.50 m

ROAD (0.00 + 49.06 + 0.00) = 49.06 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-70	90	0.48	67.51	0.00	-17.06	-1.40	0.00	0.00	0.00	49.06

Segment Leq : 49.06 dBA

Total Leq All Segments: 58.11 dBA

Results segment # 1: Hemlock (night)

Source height = 1.50 m

ROAD (0.00 + 38.80 + 0.00) = 38.80 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	90	0.48	59.91	0.00	-16.96	-4.15	0.00	0.00	0.00	38.80

Segment Leq : 38.80 dBA

Results segment # 2: Mikinak (night)

Source height = 1.50 m

ROAD (0.00 + 49.58 + 0.00) = 49.58 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	-5.56	-3.01	0.00	0.00	0.00	49.58

Segment Leq : 49.58 dBA

Results segment # 3: Burma (night)

Source height = 1.50 m

ROAD (0.00 + 41.46 + 0.00) = 41.46 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-70	90	0.48	59.91	0.00	-17.06	-1.40	0.00	0.00	0.00	41.46

Segment Leq : 41.46 dBA

Total Leq All Segments: 50.51 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 58.11
 (NIGHT): 50.51

STAMSON 5.0 NORMAL REPORT Date: 21-06-2019 10:24:37
MINISTRY OF ENVIRONMENT, CONSERVATION AND PARKS / NOISE ASSESSMENT

Filename: b9_10_ef.te Time Period: Day/Night 16/8 hours
Description: Block 9 - Unit 10 - East Facade

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

Car traffic volume : 9715/845 veh/TimePeriod *
Medium truck volume : 773/67 veh/TimePeriod *
Heavy truck volume : 552/48 veh/TimePeriod *
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 12000
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: Hemlock (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 : 246.00 / 246.00 m
Receiver height : 7.50 / 7.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: Mikinak (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 # 2: Mikinak (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 : 91.00 / 91.00 m
 Receiver height : 7.50 / 7.50 m
 Topography : 1 (Flat/gentle slope; no barrier)
 Reference angle : 0.00

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

Car traffic volume : 9715/845 veh/TimePeriod *
 Medium truck volume : 773/67 veh/TimePeriod *
 Heavy truck volume : 552/48 veh/TimePeriod *
 Posted speed limit : 50 km/h
 Road gradient : 0 %
 Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 12000
 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: Burma (day/night)

Angle1 Angle2 : -70.00 deg 90.00 deg
 Wood depth : 0 (No woods.)
 No of house rows : 0 / 0
 Surface : 1 (Absorptive ground surface)
 Receiver source distance : 227.00 / 227.00 m
 Receiver height : 7.50 / 7.50 m
 Topography : 1 (Flat/gentle slope; no barrier)
 Reference angle : 0.00

Results segment # 1: Hemlock (day)

Source height = 1.50 m

ROAD (0.00 + 45.38 + 0.00) = 45.38 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	90	0.48	67.51	0.00	-17.98	-4.15	0.00	0.00	0.00	45.38

Segment Leq : 45.38 dBA

Results segment # 2: Mikinak (day)

Source height = 1.50 m

ROAD (0.00 + 54.91 + 0.00) = 54.91 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	-7.83	-3.01	0.00	0.00	0.00	54.91

Segment Leq : 54.91 dBA

Results segment # 3: Burma (day)

Source height = 1.50 m

ROAD (0.00 + 48.65 + 0.00) = 48.65 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-70	90	0.48	67.51	0.00	-17.46	-1.40	0.00	0.00	0.00	48.65

Segment Leq : 48.65 dBA

Total Leq All Segments: 56.21 dBA

Results segment # 1: Hemlock (night)

Source height = 1.50 m

ROAD (0.00 + 37.78 + 0.00) = 37.78 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	90	0.48	59.91	0.00	-17.98	-4.15	0.00	0.00	0.00	37.78

Segment Leq : 37.78 dBA

Results segment # 2: Mikinak (night)

Source height = 1.50 m

ROAD (0.00 + 47.32 + 0.00) = 47.32 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	-7.83	-3.01	0.00	0.00	0.00	47.32

Segment Leq : 47.32 dBA

Results segment # 3: Burma (night)

Source height = 1.50 m

ROAD (0.00 + 41.05 + 0.00) = 41.05 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-70	90	0.48	59.91	0.00	-17.46	-1.40	0.00	0.00	0.00	41.05

Segment Leq : 41.05 dBA

Total Leq All Segments: 48.61 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 56.21
 (NIGHT): 48.61

STAMSON 5.04 NORMAL REPORT Date: 21-06-2019 10:25:22
MINISTRY OF ENVIRONMENT, CONSERVATION AND PARKS / NOISE ASSESSMENT

Filename: b10_6_sf.te Time Period: Day/Night 16/8 hours
Description: Block 10 - Unit 6 - South Facade

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

Angle1 Angle2 : -90.00 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 : 339.00 / 339.00 m
Receiver height : 7.50 / 7.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: Codd's (day/night)

Car traffic volume : 9715/845 veh/TimePeriod *
Medium truck volume : 773/67 veh/TimePeriod *
Heavy truck volume : 552/48 veh/TimePeriod *
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 12000
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: Codds (day/night)

```

-----
Angle1   Angle2           : -90.00 deg   25.00 deg
Wood depth           :      0           (No woods.)
No of house rows     :      0 / 0
Surface              :      1           (Absorptive ground surface)
Receiver source distance : 416.00 / 416.00 m
Receiver height       :      7.50 / 7.50 m
Topography           :      1           (Flat/gentle slope; no barrier)
Reference angle       :      0.00
  
```

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

```

-----
Car traffic volume   : 9715/845   veh/TimePeriod *
Medium truck volume  : 773/67     veh/TimePeriod *
Heavy truck volume   : 552/48     veh/TimePeriod *
Posted speed limit   : 50 km/h
Road gradient         : 0 %
Road pavement        : 1 (Typical asphalt or concrete)
  
```

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

```

24 hr Traffic Volume (AADT or SADT): 12000
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: Burma (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 : 225.00 / 225.00 m
Receiver height       :      7.50 / 7.50 m
Topography           :      1           (Flat/gentle slope; no barrier)
Reference angle       :      0.00
  
```

Results segment # 1: Montreal (day)

Source height = 1.50 m

ROAD (0.00 + 47.40 + 0.00) = 47.40 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.48	73.68	0.00	-20.04	-1.14	0.00	-5.09	0.00	47.40

Segment Leq : 47.40 dBA

Results segment # 2: Codd's (day)

Source height = 1.50 m

ROAD (0.00 + 43.33 + 0.00) = 43.33 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	25	0.48	67.51	0.00	-21.36	-2.83	0.00	0.00	0.00	43.33

Segment Leq : 43.33 dBA

Results segment # 3: Burma (day)

Source height = 1.50 m

ROAD (0.00 + 46.80 + 0.00) = 46.80 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-15	90	0.48	67.51	0.00	-17.41	-3.30	0.00	0.00	0.00	46.80

Segment Leq : 46.80 dBA

Total Leq All Segments: 50.95 dBA

Results segment # 1: Montreal (night)

Source height = 1.50 m

ROAD (0.00 + 39.81 + 0.00) = 39.81 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.48	66.08	0.00	-20.04	-1.14	0.00	-5.09	0.00	39.81

Segment Leq : 39.81 dBA

Results segment # 2: Codd's (night)

Source height = 1.50 m

ROAD (0.00 + 35.73 + 0.00) = 35.73 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	25	0.48	59.91	0.00	-21.36	-2.83	0.00	0.00	0.00	35.73

Segment Leq : 35.73 dBA

Results segment # 3: Burma (night)

Source height = 1.50 m

ROAD (0.00 + 39.20 + 0.00) = 39.20 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-15	90	0.48	59.91	0.00	-17.41	-3.30	0.00	0.00	0.00	39.20

Segment Leq : 39.20 dBA

Total Leq All Segments: 43.35 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 50.95
 (NIGHT): 43.35

STAMSON 5.04 NORMAL REPORT Date: 21-06-2019 10:27:55
MINISTRY OF ENVIRONMENT, CONSERVATION AND PARKS / NOISE ASSESSMENT

Filename: b1_10_nf.te Time Period: Day/Night 16/8 hours
Description: Block 1 - Unit 10 - North Facade

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

```
-----
Car traffic volume   : 9715/845   veh/TimePeriod  *
Medium truck volume : 773/67    veh/TimePeriod  *
Heavy truck volume  : 552/48    veh/TimePeriod  *
Posted speed limit  : 50 km/h
Road gradient       : 0 %
Road pavement      : 1 (Typical asphalt or concrete)
```

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

```
24 hr Traffic Volume (AADT or SADT): 12000
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: Hemlock (day/night)

```
-----
Angle1   Angle2       : -90.00 deg   0.00 deg
Wood depth : 0         (No woods.)
No of house rows : 1 / 1
House density : 50 %
Surface      : 1         (Absorptive ground surface)
Receiver source distance : 173.00 / 173.00 m
Receiver height : 8.80 / 8.80 m
Topography     : 1         (Flat/gentle slope; no barrier)
Reference angle : 0.00
```

Road data, segment # 2: Mikinak (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 # 2: Mikinak (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	:	18.00 / 18.00	m	
Receiver height	:	8.80 / 8.80	m	
Topography	:	1	(Flat/gentle slope; no barrier)	
Reference angle	:	0.00		

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

Car traffic volume	:	9715/845	veh/TimePeriod	*
Medium truck volume	:	773/67	veh/TimePeriod	*
Heavy truck volume	:	552/48	veh/TimePeriod	*
Posted speed limit	:	50 km/h		
Road gradient	:	0 %		
Road pavement	:	1	(Typical asphalt or concrete)	

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

24 hr Traffic Volume (AADT or SADT):	12000
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: Codds (day/night)

Angle1	Angle2	:	0.00 deg	50.00 deg
Wood depth	:	0	(No woods.)	
No of house rows	:	0 / 0		
Surface	:	1	(Absorptive ground surface)	
Receiver source distance	:	363.00 / 363.00	m	
Receiver height	:	8.80 / 8.80	m	
Topography	:	1	(Flat/gentle slope; no barrier)	
Reference angle	:	0.00		

Results segment # 1: Hemlock (day)

Source height = 1.50 m

ROAD (0.00 + 45.58 + 0.00) = 45.58 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	0	0.44	67.51	0.00	-15.30	-4.07	0.00	-2.56	0.00	45.58

Segment Leq : 45.58 dBA

Results segment # 2: Mikinak (day)

Source height = 1.50 m

ROAD (0.00 + 64.96 + 0.00) = 64.96 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	65.75	0.00	-0.79	0.00	0.00	0.00	0.00	64.96

Segment Leq : 64.96 dBA

Results segment # 3: Codds (day)

Source height = 1.50 m

ROAD (0.00 + 41.75 + 0.00) = 41.75 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	50	0.44	67.51	0.00	-19.94	-5.82	0.00	0.00	0.00	41.75

Segment Leq : 41.75 dBA

Total Leq All Segments: 65.03 dBA

Results segment # 1: Hemlock (night)

Source height = 1.50 m

ROAD (0.00 + 37.98 + 0.00) = 37.98 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	0	0.44	59.91	0.00	-15.30	-4.07	0.00	-2.56	0.00	37.98

Segment Leq : 37.98 dBA

Results segment # 2: Mikinak (night)

Source height = 1.50 m

ROAD (0.00 + 57.37 + 0.00) = 57.37 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	58.16	0.00	-0.79	0.00	0.00	0.00	0.00	57.37

Segment Leq : 57.37 dBA

Results segment # 3: Codd's (night)

Source height = 1.50 m

ROAD (0.00 + 34.15 + 0.00) = 34.15 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	50	0.44	59.91	0.00	-19.94	-5.82	0.00	0.00	0.00	34.15

Segment Leq : 34.15 dBA

Total Leq All Segments: 57.44 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 65.03
 (NIGHT): 57.44

STAMSON 5.04 NORMAL REPORT Date: 21-06-2019 10:24:55
MINISTRY OF ENVIRONMENT, CONSERVATION AND PARKS / NOISE ASSESSMENT

Filename: b10_10_e.te Time Period: Day/Night 16/8 hours
Description: Block 10 - Unit 10 - East Facade

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

```
-----
Car traffic volume : 9715/845   veh/TimePeriod  *
Medium truck volume : 773/67   veh/TimePeriod  *
Heavy truck volume : 552/48    veh/TimePeriod  *
Posted speed limit : 50 km/h
Road gradient      : 0 %
Road pavement     : 1 (Typical asphalt or concrete)
```

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

```
24 hr Traffic Volume (AADT or SADT): 12000
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: Hemlock (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 : 281.00 / 281.00 m
Receiver height : 7.50 / 7.50 m
Topography    : 1         (Flat/gentle slope; no barrier)
Reference angle : 0.00
```

Road data, segment # 2: Mikinak (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 # 2: Mikinak (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	:	126.00 / 126.00 m		
Receiver height	:	7.50 / 7.50 m		
Topography	:	1	(Flat/gentle slope; no barrier)	
Reference angle	:	0.00		

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

Car traffic volume	:	9715/845	veh/TimePeriod	*
Medium truck volume	:	773/67	veh/TimePeriod	*
Heavy truck volume	:	552/48	veh/TimePeriod	*
Posted speed limit	:	50 km/h		
Road gradient	:	0 %		
Road pavement	:	1	(Typical asphalt or concrete)	

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

24 hr Traffic Volume (AADT or SADT):	12000
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: Burma (day/night)

Angle1	Angle2	:	-70.00 deg	90.00 deg
Wood depth	:	0	(No woods.)	
No of house rows	:	0 / 0		
Surface	:	1	(Absorptive ground surface)	
Receiver source distance	:	240.00 / 240.00 m		
Receiver height	:	7.50 / 7.50 m		
Topography	:	1	(Flat/gentle slope; no barrier)	
Reference angle	:	0.00		

Results segment # 1: Hemlock (day)

Source height = 1.50 m

ROAD (0.00 + 44.53 + 0.00) = 44.53 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	90	0.48	67.51	0.00	-18.84	-4.15	0.00	0.00	0.00	44.53

Segment Leq : 44.53 dBA

Results segment # 2: Mikinak (day)

Source height = 1.50 m

ROAD (0.00 + 53.50 + 0.00) = 53.50 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	-9.24	-3.01	0.00	0.00	0.00	53.50

Segment Leq : 53.50 dBA

Results segment # 3: Burma (day)

Source height = 1.50 m

ROAD (0.00 + 48.29 + 0.00) = 48.29 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-70	90	0.48	67.51	0.00	-17.82	-1.40	0.00	0.00	0.00	48.29

Segment Leq : 48.29 dBA

Total Leq All Segments: 55.05 dBA

Results segment # 1: Hemlock (night)

Source height = 1.50 m

ROAD (0.00 + 36.93 + 0.00) = 36.93 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	90	0.48	59.91	0.00	-18.84	-4.15	0.00	0.00	0.00	36.93

Segment Leq : 36.93 dBA

Results segment # 2: Mikinak (night)

Source height = 1.50 m

ROAD (0.00 + 45.90 + 0.00) = 45.90 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	-9.24	-3.01	0.00	0.00	0.00	45.90

Segment Leq : 45.90 dBA

Results segment # 3: Burma (night)

Source height = 1.50 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
-70	90	0.48	59.91	0.00	-17.82	-1.40	0.00	0.00	0.00	40.69

Segment Leq : 40.69 dBA

Total Leq All Segments: 47.45 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 55.05
 (NIGHT): 47.45

STAMSON 5.04 NORMAL REPORT Date: 21-06-2019 10:25:42
MINISTRY OF ENVIRONMENT, CONSERVATION AND PARKS / NOISE ASSESSMENT

Filename: b13_1_sf.te Time Period: Day/Night 16/8 hours
Description: Block 13 - Unit 1 - South Facade

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

Angle1 Angle2 : -50.00 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 : 412.00 / 412.00 m
Receiver height : 7.50 / 7.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 9715/845 veh/TimePeriod *
Medium truck volume : 773/67 veh/TimePeriod *
Heavy truck volume : 552/48 veh/TimePeriod *
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 12000
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: Codds (day/night)

Angle1	Angle2	:	-90.00 deg	50.00 deg
Wood depth	:	0	(No woods.)	
No of house rows	:	0 / 0		
Surface	:	1	(Absorptive ground surface)	
Receiver source distance	:	315.00 / 315.00 m		
Receiver height	:	7.50 / 7.50 m		
Topography	:	1	(Flat/gentle slope; no barrier)	
Reference angle	:	0.00		

Results segment # 1: Montreal (day)

Source height = 1.50 m

ROAD (0.00 + 45.53 + 0.00) = 45.53 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-50	90	0.48	73.68	0.00	-21.30	-1.90	0.00	-4.94	0.00	45.53

Segment Leq : 45.53 dBA

Results segment # 2: Codds (day)

Source height = 1.50 m

ROAD (0.00 + 46.04 + 0.00) = 46.04 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	50	0.48	67.51	0.00	-19.57	-1.90	0.00	0.00	0.00	46.04

Segment Leq : 46.04 dBA

Total Leq All Segments: 48.80 dBA

Results segment # 1: Montreal (night)

Source height = 1.50 m

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
-50	90	0.48	66.08	0.00	-21.30	-1.90	0.00	-4.94	0.00	37.94

Segment Leq : 37.94 dBA

Results segment # 2: Codd's (night)

Source height = 1.50 m

ROAD (0.00 + 38.44 + 0.00) = 38.44 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	50	0.48	59.91	0.00	-19.57	-1.90	0.00	0.00	0.00	38.44

Segment Leq : 38.44 dBA

Total Leq All Segments: 41.21 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 48.80
 (NIGHT): 41.21

STAMSON 5.04 NORMAL REPORT Date: 21-06-2019 10:26:05
MINISTRY OF ENVIRONMENT, CONSERVATION AND PARKS/ NOISE ASSESSMENT

Filename: b14_1 wf.te Time Period: Day/Night 16/8 hours
Description: Block 14 - Unit 1 - West Facade

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

Car traffic volume	:	9715/845	veh/TimePeriod	*
Medium truck volume	:	773/67	veh/TimePeriod	*
Heavy truck volume	:	552/48	veh/TimePeriod	*
Posted speed limit	:	50 km/h		
Road gradient	:	0 %		
Road pavement	:	1	(Typical asphalt or concrete)	

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

24 hr Traffic Volume (AADT or SADT):	12000
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: Hemlock (day/night)

Angle1	Angle2	:	-90.00 deg	0.00 deg
Wood depth	:	0	(No woods.)	
No of house rows	:	1 / 1		
House density	:	50 %		
Surface	:	1	(Absorptive ground surface)	
Receiver source distance	:	210.00 / 210.00 m		
Receiver height	:	7.50 / 7.50 m		
Topography	:	1	(Flat/gentle slope; no barrier)	
Reference angle	:	0.00		

Road data, segment # 2: Mikinak (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 # 2: Mikinak (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 : 55.00 / 55.00 m
Receiver height       : 7.50 / 7.50 m
Topography           :      1      (Flat/gentle slope; no barrier)
Reference angle       :      0.00
  
```

Road data, segment # 3: Codd's (day/night)

```

-----
Car traffic volume   : 9715/845   veh/TimePeriod *
Medium truck volume  : 773/67    veh/TimePeriod *
Heavy truck volume   : 552/48    veh/TimePeriod *
Posted speed limit   : 50 km/h
Road gradient        : 0 %
Road pavement        : 1 (Typical asphalt or concrete)
  
```

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

```

24 hr Traffic Volume (AADT or SADT): 12000
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: Codd's (day/night)

```

-----
Angle1   Angle2           : -65.00 deg   90.00 deg
Wood depth           :      0      (No woods.)
No of house rows     :      0 / 0
Surface              :      1      (Absorptive ground surface)
Receiver source distance : 326.00 / 326.00 m
Receiver height       : 7.50 / 7.50 m
Topography           :      1      (Flat/gentle slope; no barrier)
Reference angle       :      0.00
  
```

Results segment # 1: Hemlock (day)

Source height = 1.50 m

ROAD (0.00 + 43.87 + 0.00) = 43.87 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	0	0.48	67.51	0.00	-16.96	-4.15	0.00	-2.53	0.00	43.87

Segment Leq : 43.87 dBA

Results segment # 2: Mikinak (day)

Source height = 1.50 m

ROAD (0.00 + 57.10 + 0.00) = 57.10 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	0	0.00	65.75	0.00	-5.64	-3.01	0.00	0.00	0.00	57.10

Segment Leq : 57.10 dBA

Results segment # 3: Codds (day)

Source height = 1.50 m

ROAD (0.00 + 46.21 + 0.00) = 46.21 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-65	90	0.48	67.51	0.00	-19.79	-1.51	0.00	0.00	0.00	46.21

Segment Leq : 46.21 dBA

Total Leq All Segments: 57.63 dBA

Results segment # 1: Hemlock (night)

Source height = 1.50 m

ROAD (0.00 + 36.27 + 0.00) = 36.27 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	0	0.48	59.91	0.00	-16.96	-4.15	0.00	-2.53	0.00	36.27

Segment Leq : 36.27 dBA

Results segment # 2: Mikinak (night)

Source height = 1.50 m

ROAD (0.00 + 49.50 + 0.00) = 49.50 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	0	0.00	58.16	0.00	-5.64	-3.01	0.00	0.00	0.00	49.50

Segment Leq : 49.50 dBA

Results segment # 3: Cods (night)

Source height = 1.50 m

ROAD (0.00 + 38.61 + 0.00) = 38.61 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-65	90	0.48	59.91	0.00	-19.79	-1.51	0.00	0.00	0.00	38.61

Segment Leq : 38.61 dBA

Total Leq All Segments: 50.03 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 57.63
(NIGHT): 50.03

APPENDIX B

STC CALCULATIONS

APPENDIX B

STC CALCULATIONS

Note on the Sample STC Calculations:

The following sample calculations are attached:

- USTA-USTB – 3rd Floor Master Bedroom
- USTC-USTD – 3rd Floor Master Bedroom
- USTE-USTF – 3rd Floor Master Bedroom
- BVHE – Bedroom 3

Blocks 1 to 7 are unit types USTA-USTB, USTC-USTD and USTE-USTF. The highest sound levels at these blocks are predicted to occur along the north facades of Blocks 1 to 4. The calculations are shown for one of each unit type, based on the highest sound level.

At the remaining blocks, the highest sound level occurs at Block 8 (unit type BVHE). The calculation at Bedroom 3 in unit type BVHE represents the worst case location for these blocks.

STC - Sound Transmission Calculator

Valcoustics Canada Limited

Find/Change Required STC for Components

13-Mar-19

File # .17-0363-020

Indoor Sound Level 45 dB(A)
 Room Absorption Category Intermediate
 Outdoor Sound Level 58 dB(A) +3dB = 61 dB(A) (plus 0 dB from Table 2 to for 0 to 90 Degrees) for surface 1 (East)
 58 dB(A) +3dB = 61 dB(A) (plus 0 dB from Table 2 to for 0 to 90 Degrees) for surface 2 (North)
 Spectrum D (Mixed Road Traffic, or Distant Aircraft)
 Calc Location BVHE - Bedroom 3

Components:			Surf.	After Step 2	From Table 3 (% Energy)	From Table 4 (% floor area)	From Table 5 (spectrum)	STC	Calc
1	East	(8 , Exterior Wall)	1	16	14.9 (3 %)	-0.9 (65 %)	7.0	37	By STC
2	North	(8 , Exterior Wall)	2	16	13.5 (4 %)	0.5 (89 %)	7.0	37	By STC
3	East	(4 , Window, openable thin, dou)	1	16	0.3 (92 %)	-4.6 (28 %)	2.0	14	By Energy

STC - Sound Transmission Calculator

Valcoustics Canada Limited

Find/Change Required STC for Components

13-Mar-19

File # .17-0363-020

Indoor Sound Level 45 dB(A)
 Room Absorption Category Intermediate
 Outdoor Sound Level 65 dB(A) +3dB = 68 dB(A) (plus 0 dB from Table 2 to for 0 to 90 Degrees) for surface 1 (North)
 Spectrum D (Mixed Road Traffic, or Distant Aircraft)
 Calc Location USTAB - M Bedroom

Components:			Surf.	After Step 2	From Table 3 (% Energy)	From Table 4 (% floor area)	From Table 5 (spectrum)	STC	Calc
1	North	(8 , Exterior Wall)	1	23	11.3 (7 %)	-4.3 (30 %)	7.0	37	By STC
3	North	(4 , Window, openable thin, dou)	1	23	0.3 (93 %)	-3.8 (33 %)	2.0	21	By Energy

STC - Sound Transmission Calculator

Valcoustics Canada Limited

Find/Change Required STC for Components

13-Mar-19

File # .17-0363-020

Indoor Sound Level 45 dB(A)
 Room Absorption Category Intermediate
 Outdoor Sound Level 65 dB(A) +3dB = 68 dB(A) (plus 0 dB from Table 2 to for 0 to 90 Degrees) for surface 1 (North)

Spectrum D (Mixed Road Traffic, or Distant Aircraft)
 Calc Location USTCD - M Bedroom

Components:			Surf.	After Step 2	From Table 3 (% Energy)	From Table 4 (% floor area)	From Table 5 (spectrum)	STC	Calc
1	North	(8 , Exterior Wall)	1	23	10.3 (9 %)	-3.3 (37 %)	7.0	37	By STC
3	North	(4 , Window, openable thin, dou)	1	23	0.4 (91 %)	-3.7 (34 %)	2.0	22	By Energy

STC - Sound Transmission Calculator

Valcoustics Canada Limited

Find/Change Required STC for Components

13-Mar-19

File # .17-0363-020

Indoor Sound Level 45 dB(A)
Room Absorption Category Intermediate
Outdoor Sound Level 65 dB(A) +3dB = 68 dB(A) (plus 0 dB from Table 2 to for 0 to 90 Degrees) for surface 1 (North)
62 dB(A) +3dB = 65 dB(A) (plus 0 dB from Table 2 to for 0 to 90 Degrees) for surface 2 (West)
Spectrum D (Mixed Road Traffic, or Distant Aircraft)
Calc Location USTEF - M Bedroom

Components:			Surf.	After Step 2	From Table 3 (% Energy)	From Table 4 (% floor area)	From Table 5 (spectrum)	STC	Calc
1	North	(8 , Exterior Wall)	1	23	11.0 (8 %)	-4.0 (32 %)	7.0	37	By STC
2	West	(8 , Exterior Wall)	2	20	10.6 (9 %)	-0.6 (70 %)	7.0	37	By STC
3	North	(4 , window, openable thin, dou)	1	23	1.4 (73 %)	-4.1 (31 %)	2.0	22	By Energy
4	West	(4 , window, openable thin, dou)	2	20	10.0 (10 %)	-10.0 (8 %)	2.0	22	By STC