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Paterson Group Inc.
Consulting Engineers
154 Colonnade Road South
Ottawa (Nepean), Ontario
Canada K2E 7J5

Tel: (613) 226-7381
Fax: (613) 226-6344
www.patersongroup.ca

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Environmental Noise Control Study

Proposed Development
1330 Carling Avenue and
815 Archibald Street
Ottawa, Ontario

Prepared For

1343678 Ontario Ltd.

April 20, 2020

Report: PG5156-1

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Appendices

1.0 Introduction

Paterson Group (Paterson) was commissioned by 1343678 Ontario Ltd. to conduct an environmental noise control study for the proposed development to be located at 1330 Carling Avenue and 815 Archibald Street, in the City of Ottawa.

The objective of the current study is to:

- ❑ Determine the primary noise sources impacting the site and compare the projected sound levels to guidelines set out by the Ministry of Environment and Climate Change (MOECC) and the City of Ottawa.

- ❑ Review the projected noise levels and offer recommendations regarding warning classes, construction materials or alternative sound barriers.

The following report has been prepared specifically and solely for the aforementioned project which is described herein. It contains our findings and includes acoustical recommendations pertaining to the design and construction of the subject development as they are understood at the time of writing this report.

This study has been conducted according to City of Ottawa document - Engineering Noise Control Guidelines (ENCG), dated January 2016, and the Ontario Ministry of the Environment Guideline NPC-300.

2.0 Background

It is understood that the proposed development will consist of a twenty four (24) storey building. An outdoor amenity area was noted on the sixth (6^{th}) storey, on the southern elevation of the building.

3.0 Methodology and Noise Assessment Criteria

The City of Ottawa outlines three (3) sources of environmental noise that must be analyzed separately:

- Surface Transportation Noise
- Stationary Noise
  - new noise-sensitive development applications (noise receptors) in proximity to existing or approved stationary sources of noise, and
  - new stationary sources of noise (noise generating) in proximity to existing or approved noise-sensitive developments
- Aircraft noise

Surface Transportation Noise

The City of Ottawa's Official Plan, in addition to the ENCG dictate that the influence area must contain any of following conditions to classify as a surface transportation noise source for a subject site:

- Within 100 m of the right-of-way of an existing or proposed arterial, collector or major collector road; a light rail transit corridor; bus rapid transit, or transit priority corridor
- Within 250 m of the right-of-way for an existing or proposed highway or secondary rail line
- Within 300 m from the right of way of a proposed or existing rail corridor or a secondary main railway line
- Within 500 m of an existing 400 series provincial highway, freeway or principle main railway line.

The NPC-300 outlines the limitations of the stationary and environmental noise levels in relation to the location of the receptors. These can be found in the following tables:

Table 1 - Sound Level Limits for Outdoor Living Areas

Time Period	Required $L_{eq(16)}$ (dBA)
16-hour, 7:00-23:00	55

- Standards taken from Table 2.2a; Sound Level Limit for Outdoor Living Areas - Road and Rail

Table 2 - Sound Level Limits for Indoor Living Area			
Type of Space	**Time Period**	**Required L_{eq} (dBA)**	
		Road	**Rail**
Living/Dining, den areas of residences, hospitals, nursing homes, schools, daycare centres, etc	7:00-23:00	45	40
Theaters, place of worship, libraries, individual or semi-private offices, conference rooms, reading rooms	23:00-7:00	45	40
Sleeping quarters	7:00-23:00	45	40
	23:00-7:00	40	35
❑ Standards taken from Table 2.2b; Sound Level Limit for Indoor Living Areas - Road and Rail			

It is noted in ENCG that the limits outlined in Table 2 are for the sound levels on the interior of the glass pane. The ENCG further goes on to state that the limit for the exterior of the pane of glass will be 55 dBA.

If the sound level limits are exceeded at the window panes for the indoor living areas, the following Warning Clauses may be referenced:

Table 3 - Warning Clauses for Sound Level Exceedances	
Warning Clause	**Description**
Warning Clause Type A	"Purchasers/tenants are advised that sound levels due to increasing road traffic (rail traffic) (air traffic) may occasionally interfere with some activities of the dwelling occupants as the sound levels exceed the sound level limits of the Municipality and the Ministry of the Environment."
Warning Clause Type B	"Purchasers/tenants are advised that despite the inclusion of noise control features in the development and within the building units, sound levels due to increasing road traffic (rail traffic) (air traffic) may on occasions interfere with some activities of the dwelling occupants as the sound levels exceed the sound level limits of the Municipality and the Ministry of the Environment."
Warning Clause Type C	"This dwelling unit has been designed with the provision for adding central air conditioning at the occupant's discretion. Installation of central air conditioning by the occupant in low and medium density developments will allow windows and exterior doors to remain closed, thereby ensuring that the indoor sound levels are within the sound level limits of the Municipality and the Ministry of the Environment."
Warning Clause Type D	"This dwelling unit has been supplied with a central air conditioning system which will allow windows and exterior doors to remain closed, thereby ensuring that the indoor sound levels are within the sound level limits of the Municipality and the Ministry of the Environment."
❑ Clauses taken from section C8 Warning Clauses; Environmental Noise Guidelines - NPC-300	

Stationary Noise

Stationary noise sources include sources or facilities that are fixed or mobile and can cause a combination of sound and vibration levels emitted beyond the property line. These sources may include commercial air conditioner units, generators and fans. Facilities that may contribute to stationary noise may include car washes, snow disposal sites, transit stations and manufacturing facilities.

A stationary noise analysis will not be required for this analysis at this time. Once outdoor mechanical equipment has been selected, a stationary noise analysis may be required.

Aircraft/Airport Noise

Due to the location of the proposed development, an aircraft/airport noise analysis will not be required.

4.0 Analysis

4.1 Surface Transportation Noise

The proposed development is bordered to the north by Carling Avenue, to the west by Archibald Street, to the south by residential properties and to the east by commercial properties. Thames Street is also located within the 100 m buffer zone.

Based on the City of Ottawa Official Plan, Schedule E, Carling Avenue is a 6-Lane urban arterial divided (6-UAD). All other roads within the 100 m radius are not classified as either arterial, collector or major collector road and therefore are not included in this study. Additionally, the provincial Highway 417 is within the 500 m radius from the proposed building. Therefore, both the eastbound and westbound lanes have been included in this assessment. All noise sources are presented in Drawing PG5156-2B to 2F - Site Geometry, located in Appendix 1.

It is understood that the proposed development will consist of a twenty-four storey building. Reception points were selected on the first, tenth and twenty-fourth floor at every elevation. A reception point was also added for the outdoor amenity area.

The noise levels from road traffic are provided by the City of Ottawa, taking into consideration the right-of-way width and the implied roadway class. It is understood that these values represent the maximum allowable capacity of the proposed roadways. Due to the separation of the eastbound and westbound, these roads have been divided into Carling Avenue Eastbound and Carling Avenue Westbound. The provided AADT has been divided evenly between the two directions. The parameters to be used for sound level predictions can be found on the following page.

Table 4 - Traffic and Road Parameters

Road	Implied Roadway	AADT (Veh/day)	Posted Speed (km/h)	Day/Night Split %	Medium Truck %	Heavy Truck %
Carling Avenue - Eastbound	6-UAD	25,000	60	92/8	7	5
Carling Avenue - Westbound	6-UAD	25,000	60	92/8	7	5
Highway 417 West	3 Lane Freeway	54,999	100	92/8	7	5
Highway 417 East	3 Lane Freeway	54,999	100	92/8	7	5

❑ Data obtained from the City of Ottawa document ENCG

Three (3) levels of reception points were selected for this analysis. The following elevations were selected from the heights provided on the building elevation plans for this development.

Table 5 - Elevation of Reception Points

Floor Number	Elevation at Centre of Window (m)	Floor Use	Daytime/Nighttime Analysis
Ground Floor	1.5	Living and sleeping quarters	daytime/nighttime
Tenth Floor	30.3	Living and sleeping quarters	daytime/nighttime
Twenty-Fourth Floor	75.3	Living and sleeping quarters	daytime/nighttime
Outdoor Amenity	18.3	Outdoor Living Area	--

For this analysis, a reception point was taken at the centre of the predetermined floors. Reception points are noted on Drawing PG5156-2 - Receptor Locations in Appendix 1.

All horizontal distances have been measured from the reception point to the edge of the right-of-way. The roadways were analyzed where they intersected the 100 m buffer zone, which is reflected in the local angles, presented in Drawings PG5156-1B to 1F - Site Geometry in Appendix 1.

Table 8 - Summary of Reception Points and Geometry in Appendix 1, provides a summary of the points of reception and their geometry with respect to the noise sources. The analysis is completed so that no effects of sound reflection off of the building facade are considered, as stipulated by the ENGC.

The subject site is relatively flat and at grade with the neighbouring roads within the 100 m radius.

The analysis was completed using STAMSON version 5.04, a computer program which uses the road and rail traffic noise prediction methods using ORNAMENT (Ontario Road Noise Analysis Method for Environment and Transportation) and STEAM (Sound from Trains Environment Analysis Method), publications from the Ontario Ministry of Environment and Energy.

5.0 Results

5.1 Surface Transportation Noise

The primary descriptors are the 16-hour daytime and the 8-hour night time equivalent sound levels, $L_{eq(16)}$ and the $L_{eq(8)}$ for City roads.

The proposed traffic noise levels were analyzed at all reception points. The results of the STAMSON software are presented in Appendix 2, and the summary of the results are detailed in Table 6 below.

Table 6 - Proposed Noise Levels

Reception Point	Description	Daytime at Facade $L_{EQ(16)}$ (dBA)	Nighttime at Facade $L_{EQ(16)}$ (dBA)	Outdoor Living Area $L_{EQ(16)}$ (dBA)
REC 1-1	Western Elevation, 1st Floor	67.97	60.37	--
REC 1-10	Western Elevation, 10th Floor	71.65	64.04	--
REC 1-24	Western Elevation, 24th Floor	71.65	64.05	--
REC 2-1	Northern Elevation, 1st Floor	72.76	65.16	--
REC 2-10	Northern Elevation, 10th Floor	75.26	67.67	--
REC 2-24	Northern Elevation, 24th Floor	75.26	67.67	--
REC 3-1	Eastern Elevation, 1st Floor	67.59	60.00	--
REC 3-10	Eastern Elevation, 10th Floor	70.49	62.90	--
REC 3-24	Eastern Elevation, 24th Floor	70.49	62.90	--
REC 4-1	Southern Elevation, 1st Floor	35.64	28.04	--
REC 4-10	Southern Elevation, 10th Floor	42.45	34.86	--
REC 4-24	Southern Elevation, 24th Floor	42.45	34.86	--
REC 5	Sixth Floor Amenity Area	--	--	42.45

6.0 Discussion and Recommendations

6.1 Outdoor Living Areas

A common amenity area was noted on the sixth floor on the southern elevation of the proposed building. The initial analysis took into account no effect of sound reflection from the facade, however it does take into consideration the building orientation. The $L_{eq(16)}$ for the amenity area was determined to be 42.45 dBA, which is below the 55 dBA threshhold that is required. Therefore no mitigation measures will be required.

6.2 Indoor Living Areas and Ventilation

All units must have a Warning Clause Type D attached to all purchase of sales and be supplied with central air conditioning:

> "This dwelling unit has been supplied with a central air conditioning system which will allow windows and exterior doors to remain closed, thereby ensuring that the indoor sound levels are within the sound level limits of the Municipality and the Ministry of the Environment."

As previously described, where the daytime sound level at the plane of the window exceeds 60 dBA on the northern, western and eastern elevations, noise control measures should be implemented. The following table outlines the MOECC recommended options for sound mitigation and the respected responses.

Table 7 - Indoor Living Area Noise Mitigation Solutions	
MOECC Recommended Option	**Site Specific Response**
Distance setback with soft ground.	The proposed development configuration limits the actual maximum setback distance. An additional setback is not feasible.
Insertion of noise insensitive land uses between the source and sensitive receptor.	Not applicable to this development.
Orientation of buildings to provide sheltered zones or modified interior spaces (room and corridor arrangement) and amenity areas	The proposed building is situated in order to shield the rear yards from the noise sources. There is a possibility that living areas and bedrooms will face the noise source.
Enhanced construction techniques and construction quality (e.g. brick veneers, multi-pane windows).	Construction techniques and building materials are to be analyzed to confirm sufficient soundproofing.
Earth berms (sound barriers).	Not required
Indoor isolation - air conditioning and ventilation, enhanced dampening materials (indoor isolation)	Not required

Proposed Construction Specifications

It is understood that typical window and wall details are proposed for the residential building. The effectiveness of the noise insulation can be expressed as the Acoustical Insulation Factor (AIF), calculated as follows:

$$AIF = L_{eq(16)(Exterior)} - L_{eq(16)(Interior)} + 10\log_{10}(N) + 2dBA$$

Where:

$L_{eq(16)(Exterior)}$ = Calculated value at the window pane
$L_{eq(16)(Interior)}$ = 45 dBA
N = number of components in the room

No floor plans or detailed design drawings were provided for this portion of the review. A conservative approach is to assume that there are 2 components per room. Therefore, the AIF would need to be at least 30 dBA.

A conversion from AIF to a Standard Transmission Class (STC) rating will require the knowledge of room dimensions in addition to the wall and window dimensions. However, a conservative approach would be to increase the AIF factor by 3. **Therefore, provided the building materials of either the windows and/or exterior walls have an STC rating of 35 or higher, this would be a sufficient noise attenuation device.**

Detailed shop drawing are not available at the time of issuance of this report. Once detailed shop drawings are available, they are to be reviewed with respect to soundproofing.

7.0 Conclusion

The subject site is located at 1330 Carling Avenue and 815 Archibald Street. It is understood that the development will consist of a twenty-four storey building with an outdoor amenity area (outdoor living area) on the sixth floor. The noise analysis identified four noise sources: Carling Avneue Eastbound, Carling Avenue Westbound, Highway 417 Eastbound and Highway 417 Westbound (surface transportation noise).

Pane of glass reception points were selected on the northern, eastern, western, and southern elevations, at 1.5 m (ground floor), 30.3 m (tenth floor) 75.3 m (twenty-fourth floor). The elevation for the outdoor amenity area reception point was selected to be 18.3 m, 1.5 m above the outdoor amenity area elevation. The results indicate that the noise levels will be below 55 dBA for the outdoor amenity area. Therefore, no additional mitigation measures are required for the outdoor amenity area

The northern, eastern and western elevation of the proposed building exceeded the 55 dBA guideline specified by the ENCG. Therefore, a warning clause Type D will be required for these units in addition to the installation of a central air conditioning unit.

The results of the surface transportation noise indicates that the noise levels will be above 65 dBA on the northern, eastern and western elevations. Therefore, a review of the construction materials will be required. Based on industry standards, the construction materials suitable for the proposed noise attenuation would be concrete panels or brick veneer, with windows being double pane. If alternative construction materials are proposed, a review will be required.

The following warning clause is to be included on all Offers of Purchase and Sale and/or lease agreements:

> "This dwelling unit has been supplied with a central air conditioning system which will allow windows and exterior doors to remain closed, thereby ensuring that the indoor sound levels are within the sound level limits of the Municipality and the Ministry of the Environment."

8.0 Statement of Limitations

The recommendations made in this report are in accordance with our present understanding of the project. Our recommendations should be reviewed when the project drawings and specifications are complete.

The present report applies only to the project described in this document. Use of this report for purposes other than those described herein or by person(s) other than 1343678 Ontario Ltd. or their agent(s) is not authorized without review by this firm for the applicability of our recommendations to the altered use of the report.

Paterson Group Inc.

Stephanie A. Boisvenue, P.Eng.

Scott Dennis, P.Eng.

Report Distribution:

- ❑ 1343678 Ontario Ltd. (3 copies)
- ❑ Paterson Group (1 copy)

APPENDIX 1

TABLE 8 - SUMMARY OF RECEPTION POINTS AND GEOMETRY

DRAWING PG5156-1 - SITE PLAN

DRAWING PG5156-2 - SITE GEOMETRY

DRAWING PG5156-2B - SITE GEOMETRY (REC 1-1 and REC 1-3)

DRAWING PG5156-2C - SITE GEOMETRY (REC 2-1 and REC 2-3)

DRAWING PG5156-2D - SITE GEOMETRY (REC 3-1 and REC 3-3)

DRAWING PG5156-2E - SITE GEOMETRY (REC 4-1 and REC 4-3)

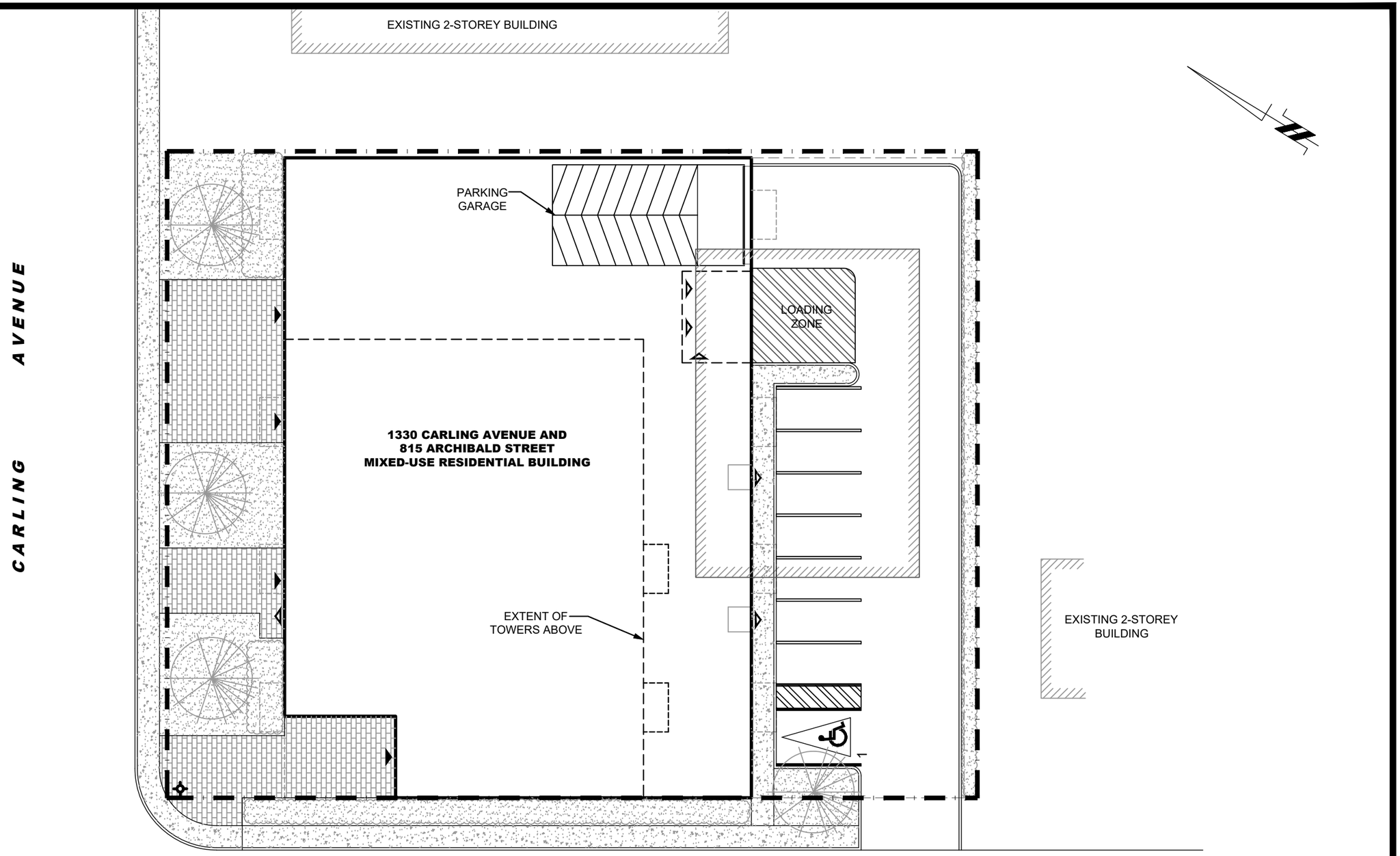
DRAWING PG5156-2F - SITE GEOMETRY (REC 5)

DRAWING PG5156-3 - RECEPTOR LOCATIONS

Table 8 - Summary of Reception Points and Geometry
1330 Carling Avenue and 815 Archibald Street

Point of Reception	Location	Leq Day (dBA)	Carling Avenue Westbound						Carling Avenue Eastbound					
			Horizontal (m)	Vertical (m)	Total (m)	Local Angle (degree)	Number of Rows of Houses	Density (%)	Horizontal (m)	Vertical (m)	Total (m)	Local Angle (degree)	Number of Rows of Houses	Density (%)
REC 1-1	Western Elevation, 1st Floor	67.97	35	1.5	35.03	0,48	n/a	n/a	20	1.5	20.06	0, 71	n/a	n/a
REC 1-10	Western Elevation, 10th Floor	71.65	35	30.3	46.29	0, 48	n/a	n/a	20	30.3	36.31	0, 71	n/a	n/a
REC 1-24	Western Elevation, 24th Floor	71.65	35	75.3	83.04	0, 48	n/a	n/a	20	75.3	77.91	0, 71	n/a	n/a
REC 2-1	Northern Elevation, 1st Floor	72.76	25	1.5	25.04	-50, 75	n/a	n/a	10	1.5	10.11	-80, 83	n/a	n/a
REC 2-10	Northern Elevation, 10th Floor	75.26	25	30.3	n/a	-50, 75	n/a	n/a	10	30.3	n/a	-80, 83	n/a	n/a
REC 2-24	Northern Elevation, 24th Floor	75.26	25	75.3	n/a	-50, 75	n/a	n/a	10	75.3	n/a	-80, 83	n/a	n/a
REC 3-1	Eastern Elevation, 1st Floor	67.59	35	1.5	35.03	0, 65	n/a	n/a	20	1.5	20.06	0, 75	n/a	n/a
REC 3-10	Easter Elevation, 10th Floor	70.49	35	30.3	46.29	0, 65	n/a	n/a	20	30.3	36.31	0, 75	n/a	n/a
REC 3-24	Eastern Elevation, 24th Floor	70.49	35	75.3	83.04	0, 65	n/a	n/a	20	75.3	77.91	0, 75	n/a	n/a
REC 4-1	Southern Elevation, 1st Floor	35.64	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
REC 4-10	Southern Elevation, 10th Floor	42.45	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
REC 4-24	Southern Elevation, 24th Floor	42.45	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
REC 5	Outdoor Amenity Area	42.45	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Point of Reception	Location	Leq Day (dBA)	Highway 417 Westbound						Highway 417 Eastbound					
			Horizontal (m)	Vertical (m)	Total (m)	Local Angle (degree)	Barrier Height (m)	Distance (m)	Horizontal (m)	Vertical (m)	Total (m)	Local Angle (degree)	Barrier Height (m)	Distance (m)
REC 1-1	Western Elevation, 1st Floor	67.97	220	1.5	220.01	-2, 90	n/a	n/a	200	1.5	200.01	-7, 90	n/a	n/a
REC 1-10	Western Elevation, 10th Floor	71.65	220	30.3	222.08	-2, 90	n/a	n/a	200	30.3	202.28	-7, 90	n/a	n/a
REC 1-24	Western Elevation, 24th Floor	71.65	220	75.3	n/a	-2, 90	n/a	n/a	200	75.3	213.71	-7, 90	n/a	n/a
REC 2-1	Northern Elevation, 1st Floor	72.76	210	1.5	n/a	-90, 43	n/a	n/a	190	1.5	190.01	-90, 45	n/a	n/a
REC 2-10	Northern Elevation, 10th Floor	75.26	210	30.3	212.17	-90, 43	n/a	n/a	190	30.3	192.4	-90, 45	n/a	n/a
REC 2-24	Northern Elevation, 24th Floor	75.26	210	75.3	223.09	-90, 43	n/a	n/a	190	75.3	204.38	-90, 45	n/a	n/a
REC 3-1	Eastern Elevation, 1st Floor	67.59	220	1.5	220.01	0, 40	n/a	n/a	200	1.5	200.01	0, 43	n/a	n/a
REC 3-10	Easter Elevation, 10th Floor	70.49	220	30.3	222.08	0, 40	n/a	n/a	200	30.3	202.28	0, 43	n/a	n/a
REC 3-24	Eastern Elevation, 24th Floor	70.49	220	75.3	232.53	0, 40	n/a	n/a	200	75.3	213.71	0, 43	n/a	n/a
REC 4-1	Southern Elevation, 1st Floor	35.64	n/a	n/a	n/a	n/a	n/a	n/a	490	1.5	490	-1, 0	n/a	n/a
REC 4-10	Southern Elevation, 10th Floor	42.45	n/a	n/a	n/a	n/a	n/a	n/a	490	30.3	490.94	-1, 0	n/a	n/a
REC 4-24	Southern Elevation, 24th Floor	42.45	n/a	n/a	n/a	n/a	n/a	n/a	490	75.3	495.75	-1, 0	n/a	n/a
REC 5	Outdoor Amenity Area	42.45	n/a	n/a	n/a	n/a	n/a	n/a	490	18.3	490.34	-1, 0	n/a	n/a



patersongroup
consulting engineers

154 Colonnade Road South
Ottawa, Ontario K2E 7J5
Tel: (613) 226-7381 Fax: (613) 226-6344

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1343678 ONTARIO INC.

NOISE ATTENUATION STUDY
1330 CARLING AVENUE AND 815 ARCHIBALD STREET

OTTAWA, ONTARIO

Title:

SITE PLAN

Scale: 1:250	Date: 04/2020
Drawn by: YA	Report No.: PG5156-1
Checked by: SB	Dwg. No.: PG5156-1
Approved by: DJG	Revision No.:

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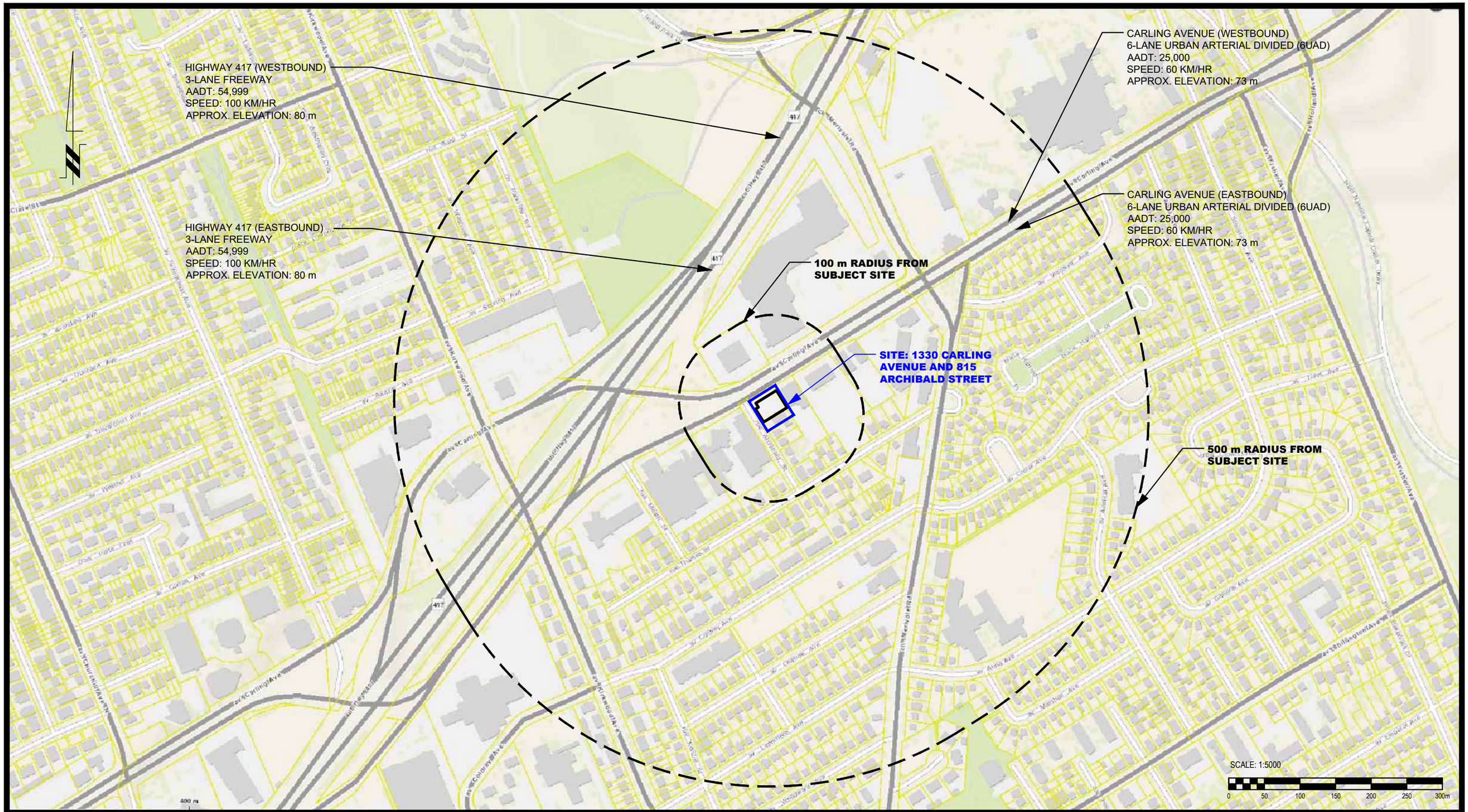

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NOISE ATTENUATION STUDY
1330 CARLING AVENUE AND 815 ARCHIBALD STREET

OTTAWA, ONTARIO

Title:

SITE GEOMETRY

Scale: 1:5000	Date: 04/2020
Drawn by: YA	Report No.: PG5156-1
Checked by: SB	Dwg. No.: PG5156-2
Approved by: DJG	Revision No.:

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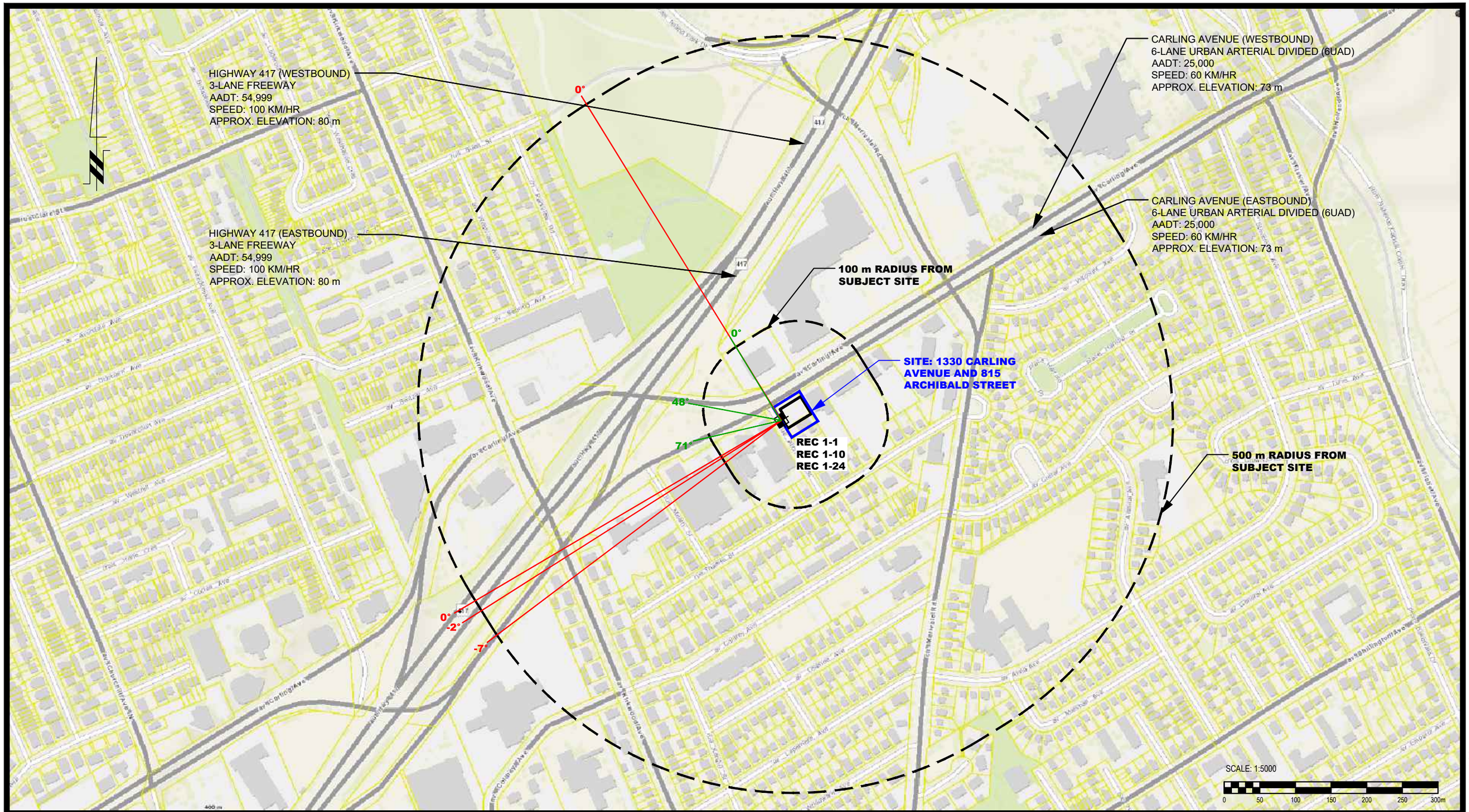

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1343678 ONTARIO INC.

NOISE ATTENUATION STUDY
1330 CARLING AVENUE AND 815 ARCHIBALD STREET

OTTAWA, ONTARIO

Title:

SITE GEOMETRY-REC1-1, REC1-10, AND REC1-24

Scale: 1:5000	Date: 04/2020
Drawn by: YA	Report No.: PG5156-1
Checked by: SB	Dwg. No.: PG5156-2B
Approved by: DJG	Revision No.:

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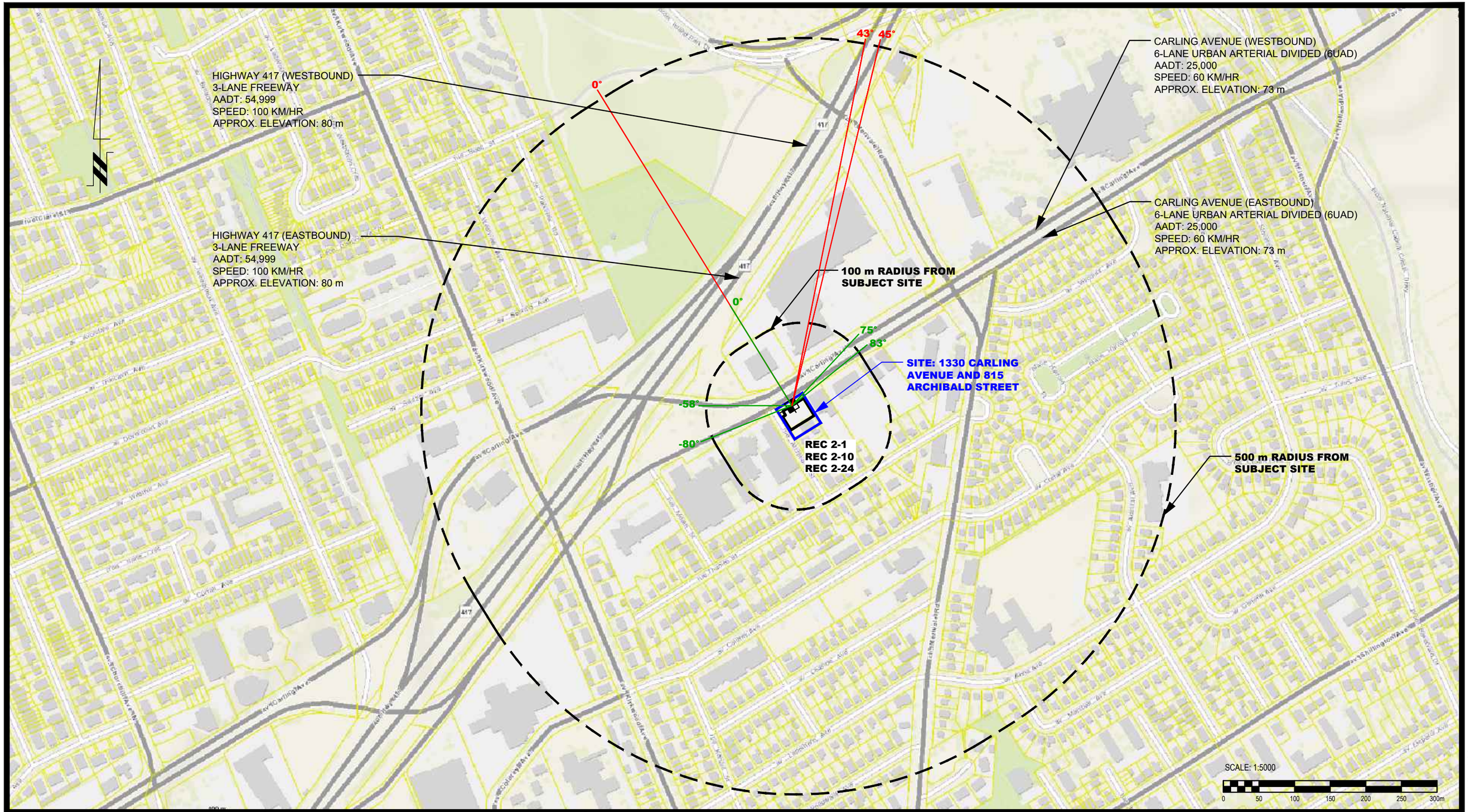

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NOISE ATTENUATION STUDY
1330 CARLING AVENUE AND 815 ARCHIBALD STREET

OTTAWA, ONTARIO

Title:

SITE GEOMETRY-REC 2-1, REC 2-10, AND REC 2-24

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Approved by: DJG	Revision No.:

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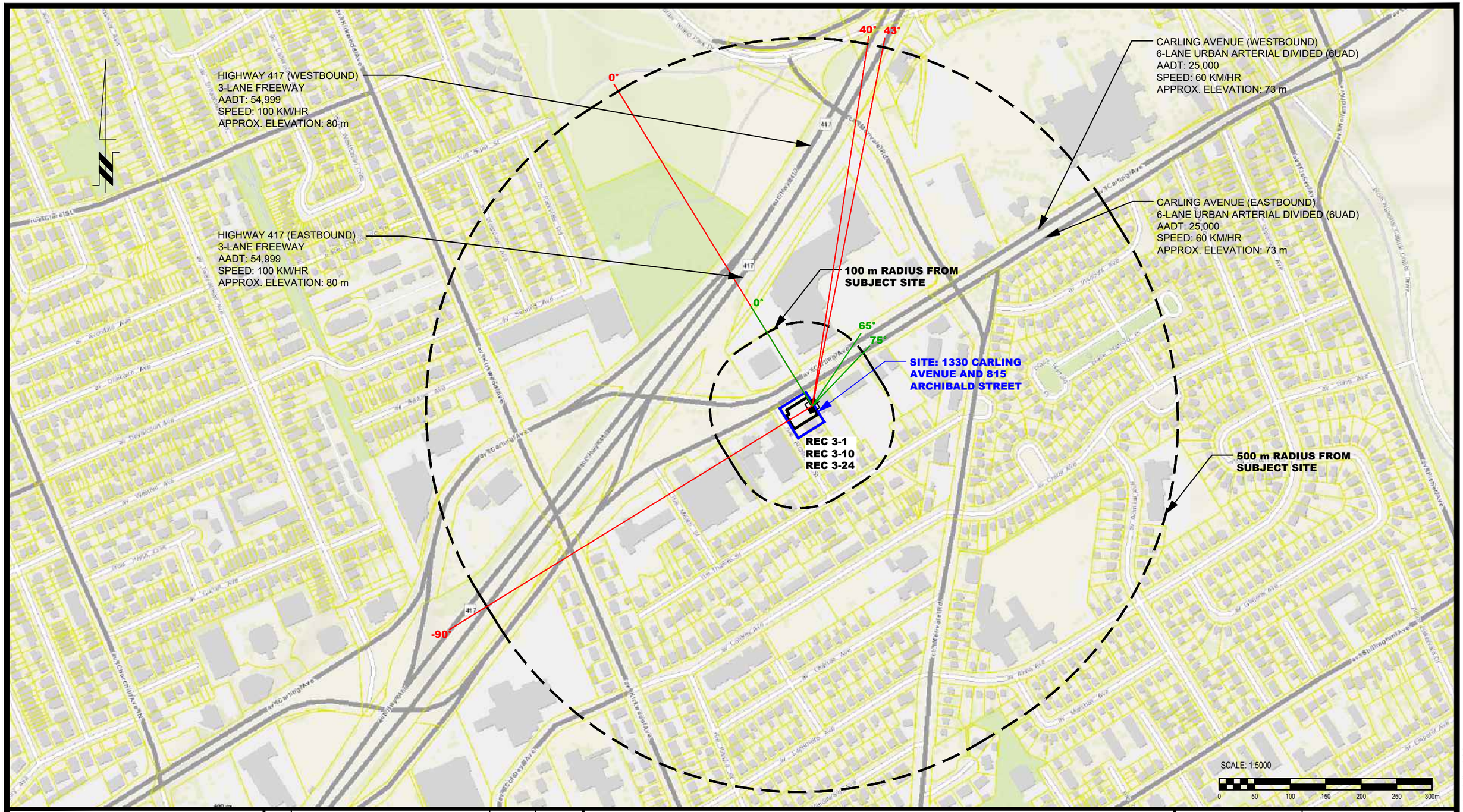

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NOISE ATTENUATION STUDY
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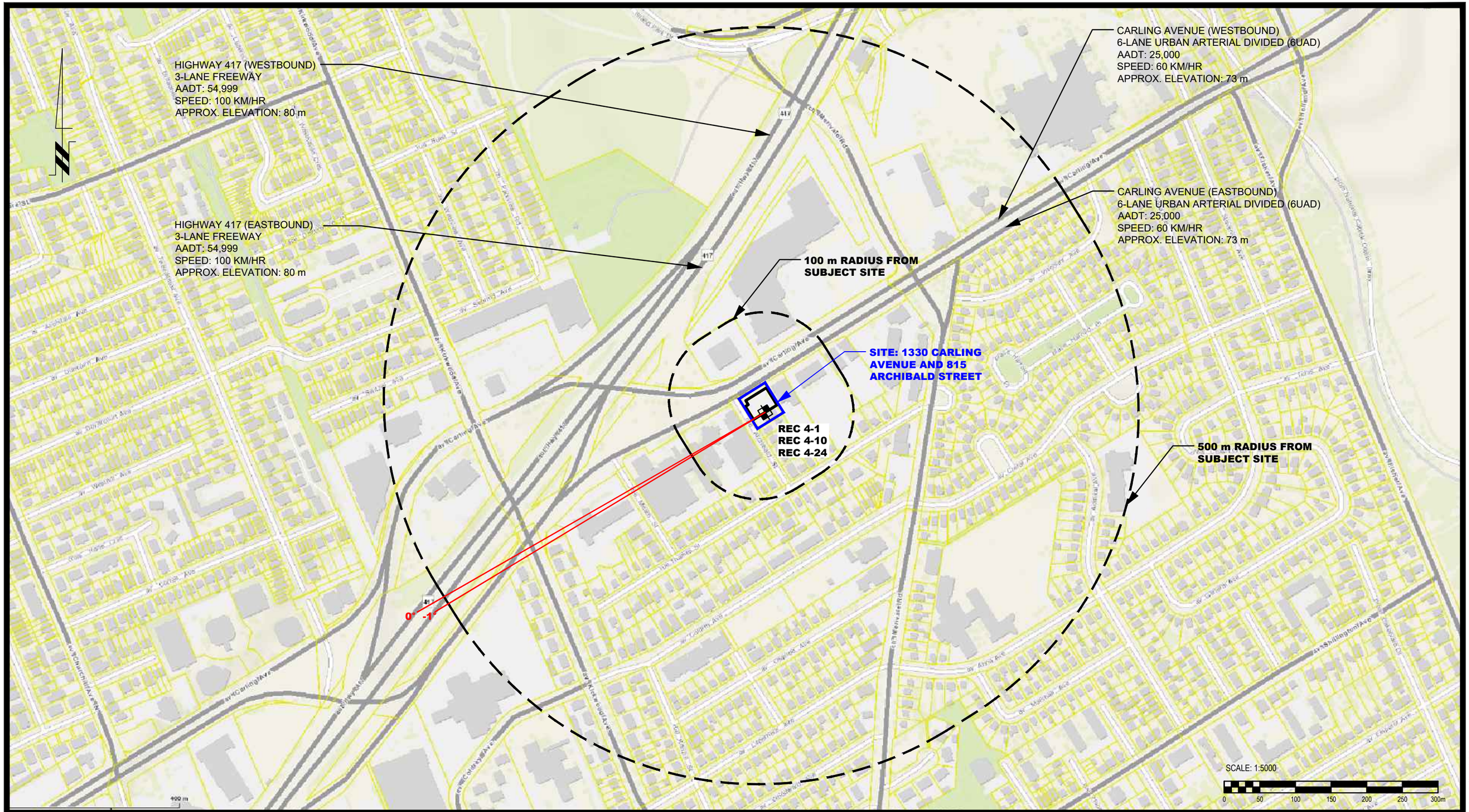
OTTAWA, ONTARIO

Title:

SITE GEOMETRY-REC 3-1, REC 3-10, AND REC 3-24

Scale: 1:5000	Date: 04/2020
Drawn by: YA	Report No.: PG5156-1
Checked by: SB	Dwg. No.: PG5156-2D
Approved by: DJG	Revision No.:

p:\autocad drawings\geotechnical\pg51xx\pg5156\pg5156-2-site geometry.dwg



patersongroup
consulting engineers

154 Colonnade Road South
Ottawa, Ontario K2E 7J5
Tel: (613) 226-7381 Fax: (613) 226-6344

NO.	REVISIONS	DATE	INITIAL
0			

1343678 ONTARIO INC.

NOISE ATTENUATION STUDY
1330 CARLING AVENUE AND 815 ARCHIBALD STREET

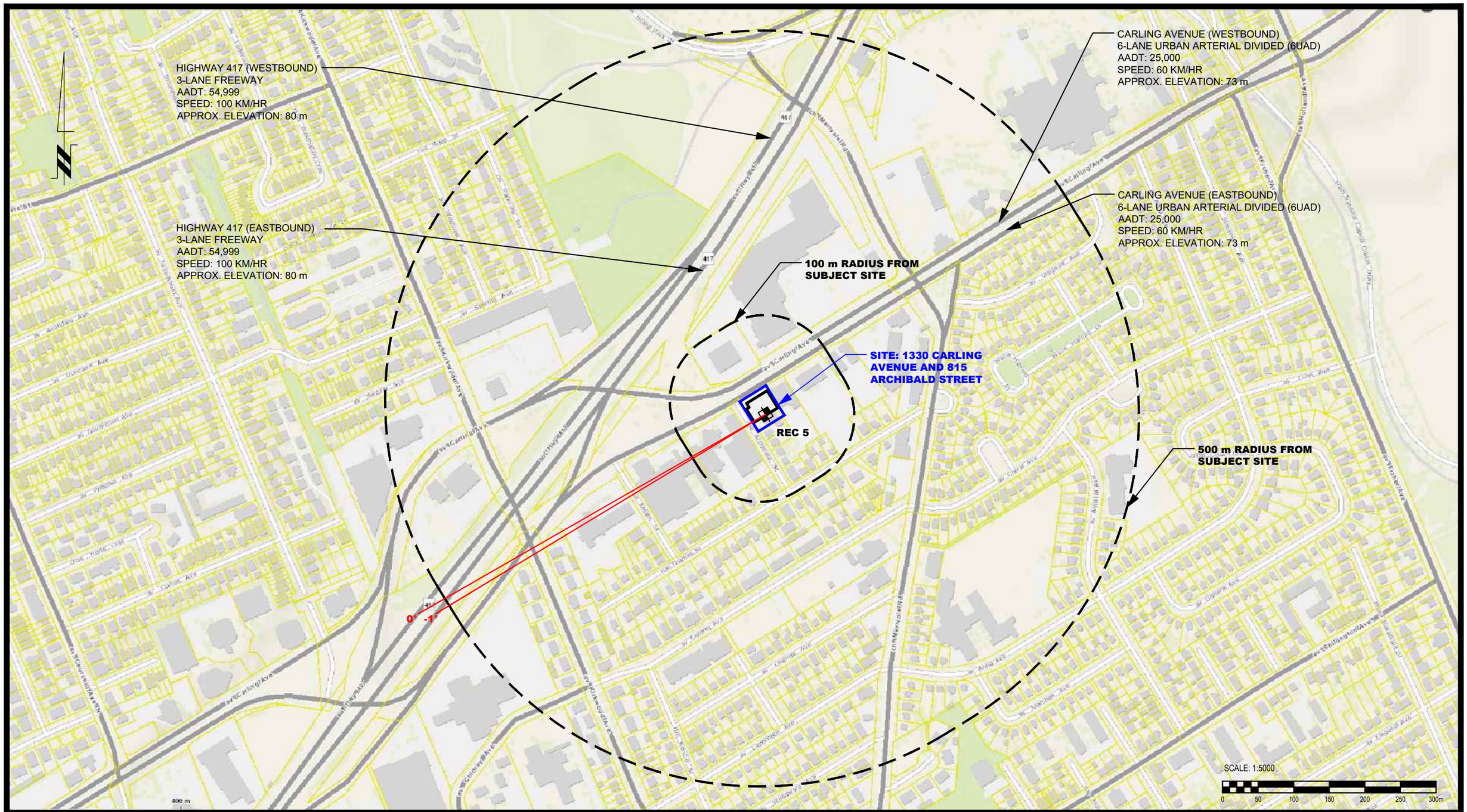
OTTAWA, ONTARIO

Title:

SITE GEOMETRY-REC 4-1, REC 4-10, AND REC 4-24

Scale: 1:5000	Date: 04/2020
Drawn by: YA	Report No.: PG5156-1
Checked by: SB	Dwg. No.: PG5156-2E
Approved by: DJG	Revision No.:

p:\autocad drawings\geotechnical\pg51xx\pg5156\pg5156-2-site geometry.dwg



patersongroup
consulting engineers

154 Colonnade Road South
Ottawa, Ontario K2E 7J5
Tel: (613) 226-7381 Fax: (613) 226-6344

NO.	REVISIONS	DATE	INITIAL
0			

1343678 ONTARIO INC.

NOISE ATTENUATION STUDY
1330 CARLING AVENUE AND 815 ARCHIBALD STREET

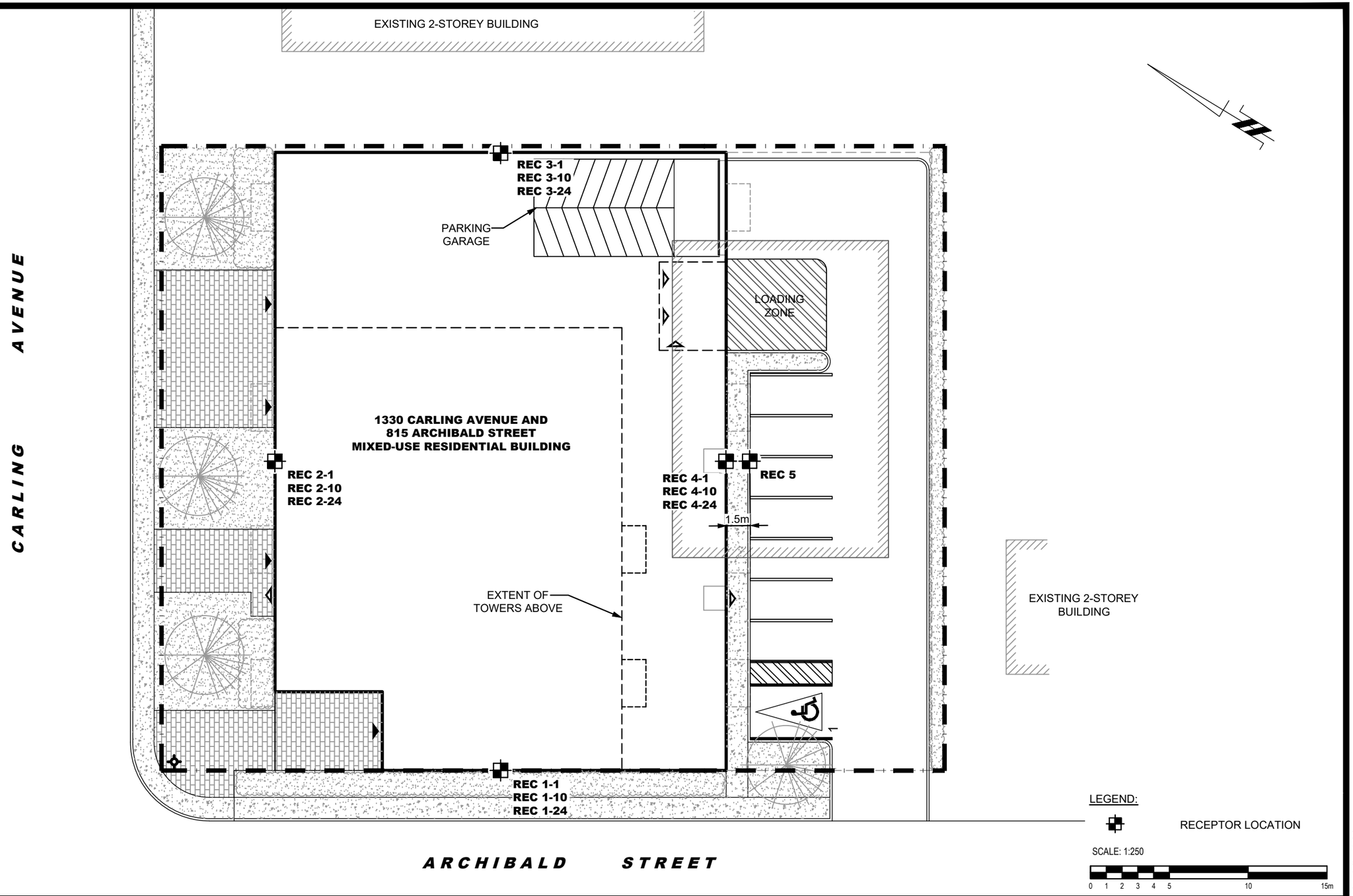
OTTAWA, ONTARIO

Title:

SITE GEOMETRY-REC 5

Scale: 1:5000	Date: 04/2020
Drawn by: YA	Report No.: PG5156-1
Checked by: SB	Dwg. No.: PG5156-2F
Approved by: DJG	Revision No.:

p:\autocad drawings\geotechnical\pg51xx\pg5156\pg5156-2-site geometry.dwg



patersongroup
consulting engineers

154 Colonnade Road South
Ottawa, Ontario K2E 7J5
Tel: (613) 226-7381 Fax: (613) 226-6344

NO.	REVISIONS	DATE	INITIAL

1343678 ONTARIO INC.

NOISE ATTENUATION STUDY
1330 CARLING AVENUE AND 815 ARCHIBALD STREET

OTTAWA, ONTARIO

Title:

RECEPTOR LOCATION PLAN

Scale: 1:250	Date: 04/2020
Drawn by: YA	Report No.: PG5156-1
Checked by: SB	Dwg. No.: PG5156-3
Approved by: DJG	Revision No.:

p:\autocad drawings\geotechnical\pg51xx\pg5156\pg5156-3-receptor location plan.dwg

APPENDIX 2

STAMSON RESULTS

STAMSON 5.0 NORMAL REPORT Date: 19-04-2020 23:01:24
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec11.te Time Period: Day/Night 16/8 hours
Description: Reception Point 1-1

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

Car traffic volume : 20240/1760 veh/TimePeriod *
Medium truck volume : 1610/140 veh/TimePeriod *
Heavy truck volume : 1150/100 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): 25000
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: Carling W (day/night)

Angle1 Angle2 : 0.00 deg 48.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 35.00 / 35.00 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

↑
Road data, segment # 2: Carling E (day/night)

Car traffic volume : 20240/1760 veh/TimePeriod *
Medium truck volume : 1610/140 veh/TimePeriod *
Heavy truck volume : 1150/100 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): 25000
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: Carling E (day/night)
-------------------------------------------
Angle1   Angle2           :   0.00 deg   71.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  20.00 / 20.00  m
Receiver height           :   1.50 / 1.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

↟

```
Road data, segment # 3: Hwy 417 W (day/night)
---------------------------------------------
Car traffic volume  : 44527/3872  veh/TimePeriod  *
Medium truck volume :  3542/308   veh/TimePeriod  *
Heavy truck volume  :  2530/220   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  54999
    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: Hwy 417 W (day/night)
-------------------------------------------
Angle1   Angle2           :  -2.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 220.00 / 220.00 m
Receiver height           :   1.50 / 1.50   m
Topography                :      3       (Elevated; no barrier)
Elevation                 :   7.00 m
Reference angle           :   0.00
```

↟

```
Road data, segment # 4: Hwy 417 E (day/night)
---------------------------------------------
```

```
Car traffic volume  : 44527/3872  veh/TimePeriod  *
Medium truck volume :  3542/308   veh/TimePeriod  *
Heavy truck volume  :  2530/220   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  54999
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 4: Hwy 417 E (day/night)
-------------------------------------------
Angle1   Angle2           :  -7.00 deg   90.00 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           :   1.50 / 1.50   m
Topography                :      3       (Elevated; no barrier)
Elevation                 :   7.00 m
Reference angle           :   0.00

↟
Results segment # 1: Carling W (day)
------------------------------------

Source height = 1.50 m

ROAD (0.00 + 60.02 + 0.00) = 60.02 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0     48   0.66  72.21   0.00  -6.11  -6.09   0.00   0.00   0.00  60.02
-------------------------------------------------------------------------------

Segment Leq : 60.02 dBA

↟
Results segment # 2: Carling E (day)
------------------------------------

Source height = 1.50 m

ROAD (0.00 + 65.29 + 0.00) = 65.29 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
```

```
-------------------------------------------------------------------------------
     0     71   0.66  72.21   0.00  -2.07  -4.85   0.00   0.00   0.00  65.29
-------------------------------------------------------------------------------

Segment Leq : 65.29 dBA

↟
Results segment # 3: Hwy 417 W (day)
-----------------------------------

Source height = 1.50 m

ROAD (0.00 + 59.26 + 0.00) = 59.26 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    -2     90   0.45  80.15   0.00 -16.91  -3.97   0.00   0.00   0.00  59.26
-------------------------------------------------------------------------------

Segment Leq : 59.26 dBA

↟
Results segment # 4: Hwy 417 E (day)
-----------------------------------

Source height = 1.50 m

ROAD (0.00 + 60.16 + 0.00) = 60.16 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    -7     90   0.45  80.15   0.00 -16.31  -3.68   0.00   0.00   0.00  60.16
-------------------------------------------------------------------------------

Segment Leq : 60.16 dBA

Total Leq All Segments: 67.97 dBA

↟
Results segment # 1: Carling W (night)
-------------------------------------

Source height = 1.50 m

ROAD (0.00 + 52.42 + 0.00) = 52.42 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0     48   0.66  64.62   0.00  -6.11  -6.09   0.00   0.00   0.00  52.42
-------------------------------------------------------------------------------

Segment Leq : 52.42 dBA
```

↟
Results segment # 2: Carling E (night)

Source height = 1.50 m

ROAD (0.00 + 57.69 + 0.00) = 57.69 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	71	0.66	64.62	0.00	-2.07	-4.85	0.00	0.00	0.00	57.69

Segment Leq : 57.69 dBA

↟
Results segment # 3: Hwy 417 W (night)

Source height = 1.50 m

ROAD (0.00 + 51.67 + 0.00) = 51.67 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-2	90	0.45	72.55	0.00	-16.91	-3.97	0.00	0.00	0.00	51.67

Segment Leq : 51.67 dBA

↟
Results segment # 4: Hwy 417 E (night)

Source height = 1.50 m

ROAD (0.00 + 52.56 + 0.00) = 52.56 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-7	90	0.45	72.55	0.00	-16.31	-3.68	0.00	0.00	0.00	52.56

Segment Leq : 52.56 dBA

Total Leq All Segments: 60.37 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 67.97
(NIGHT): 60.37

STAMSON 5.0 NORMAL REPORT Date: 19-04-2020 23:05:57
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec110.te Time Period: Day/Night 16/8 hours
Description: Reception Point 1-10

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

Car traffic volume : 20240/1760 veh/TimePeriod *
Medium truck volume : 1610/140 veh/TimePeriod *
Heavy truck volume : 1150/100 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): 25000
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: Carling W (day/night)

Angle1 Angle2 : 0.00 deg 48.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 35.00 / 35.00 m
Receiver height : 30.30 / 30.30 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

↑
Road data, segment # 2: Carling E (day/night)

Car traffic volume : 20240/1760 veh/TimePeriod *
Medium truck volume : 1610/140 veh/TimePeriod *
Heavy truck volume : 1150/100 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): 25000
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: Carling E (day/night)
-------------------------------------------
Angle1   Angle2           :   0.00 deg   71.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  20.00 / 20.00  m
Receiver height           :  30.30 / 30.30  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

↟

```
Road data, segment # 3: Hwy 417 W (day/night)
---------------------------------------------
Car traffic volume  : 44527/3872  veh/TimePeriod  *
Medium truck volume :  3542/308   veh/TimePeriod  *
Heavy truck volume  :  2530/220   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  54999
    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: Hwy 417 W (day/night)
-------------------------------------------
Angle1   Angle2           :  -2.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 220.00 / 220.00 m
Receiver height           :  30.30 / 30.30  m
Topography                :      3       (Elevated; no barrier)
Elevation                 :   7.00 m
Reference angle           :   0.00
```

↟

```
Road data, segment # 4: Hwy 417 E (day/night)
---------------------------------------------
```

```
Car traffic volume  : 44527/3872  veh/TimePeriod  *
Medium truck volume :  3542/308   veh/TimePeriod  *
Heavy truck volume  :  2530/220   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  54999
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 4: Hwy 417 E (day/night)
-------------------------------------------
Angle1   Angle2           :  -7.00 deg   90.00 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           :  30.30 / 30.30  m
Topography                :      3       (Elevated; no barrier)
Elevation                 :   7.00 m
Reference angle           :   0.00

↟
Results segment # 1: Carling W (day)
------------------------------------

Source height = 1.50 m

ROAD (0.00 + 62.79 + 0.00) = 62.79 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0     48   0.00  72.21   0.00  -3.68  -5.74   0.00   0.00   0.00  62.79
-------------------------------------------------------------------------------

Segment Leq : 62.79 dBA

↟
Results segment # 2: Carling E (day)
------------------------------------

Source height = 1.50 m

ROAD (0.00 + 66.93 + 0.00) = 66.93 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
```

```
-------------------------------------------------------------------------------
     0     71   0.00  72.21   0.00  -1.25  -4.04   0.00   0.00   0.00  66.93
-------------------------------------------------------------------------------

Segment Leq : 66.93 dBA

↟
Results segment # 3: Hwy 417 W (day)
-----------------------------------

Source height = 1.50 m

ROAD (0.00 + 65.57 + 0.00) = 65.57 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    -2     90   0.00  80.15   0.00 -11.66  -2.91   0.00   0.00   0.00  65.57
-------------------------------------------------------------------------------

Segment Leq : 65.57 dBA

↟
Results segment # 4: Hwy 417 E (day)
-----------------------------------

Source height = 1.50 m

ROAD (0.00 + 66.21 + 0.00) = 66.21 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    -7     90   0.00  80.15   0.00 -11.25  -2.69   0.00   0.00   0.00  66.21
-------------------------------------------------------------------------------

Segment Leq : 66.21 dBA

Total Leq All Segments: 71.65 dBA

↟
Results segment # 1: Carling W (night)
-------------------------------------

Source height = 1.50 m

ROAD (0.00 + 55.20 + 0.00) = 55.20 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0     48   0.00  64.62   0.00  -3.68  -5.74   0.00   0.00   0.00  55.20
-------------------------------------------------------------------------------

Segment Leq : 55.20 dBA
```

↟
Results segment # 2: Carling E (night)

Source height = 1.50 m

ROAD (0.00 + 59.33 + 0.00) = 59.33 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	71	0.00	64.62	0.00	-1.25	-4.04	0.00	0.00	0.00	59.33

Segment Leq : 59.33 dBA

↟
Results segment # 3: Hwy 417 W (night)

Source height = 1.50 m

ROAD (0.00 + 57.97 + 0.00) = 57.97 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-2	90	0.00	72.55	0.00	-11.66	-2.91	0.00	0.00	0.00	57.97

Segment Leq : 57.97 dBA

↟
Results segment # 4: Hwy 417 E (night)

Source height = 1.50 m

ROAD (0.00 + 58.62 + 0.00) = 58.62 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-7	90	0.00	72.55	0.00	-11.25	-2.69	0.00	0.00	0.00	58.62

Segment Leq : 58.62 dBA

Total Leq All Segments: 64.05 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 71.65
(NIGHT): 64.05

STAMSON 5.0 NORMAL REPORT Date: 19-04-2020 23:06:51
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec124.te Time Period: Day/Night 16/8 hours
Description: Reception Point 1-24

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

Car traffic volume : 20240/1760 veh/TimePeriod *
Medium truck volume : 1610/140 veh/TimePeriod *
Heavy truck volume : 1150/100 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): 25000
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: Carling W (day/night)

Angle1 Angle2 : 0.00 deg 48.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 35.00 / 35.00 m
Receiver height : 75.30 / 75.30 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

↑
Road data, segment # 2: Carling E (day/night)

Car traffic volume : 20240/1760 veh/TimePeriod *
Medium truck volume : 1610/140 veh/TimePeriod *
Heavy truck volume : 1150/100 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): 25000
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: Carling E (day/night)
-------------------------------------------
Angle1   Angle2           :   0.00 deg   71.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  20.00 / 20.00  m
Receiver height           :  75.30 / 75.30  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

↟

```
Road data, segment # 3: Hwy 417 W (day/night)
---------------------------------------------
Car traffic volume  : 44527/3872  veh/TimePeriod  *
Medium truck volume :  3542/308   veh/TimePeriod  *
Heavy truck volume  :  2530/220   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  54999
    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: Hwy 417 W (day/night)
-------------------------------------------
Angle1   Angle2           :  -2.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 220.00 / 220.00 m
Receiver height           :  75.30 / 75.30  m
Topography                :      3       (Elevated; no barrier)
Elevation                 :   7.00 m
Reference angle           :   0.00
```

↟

```
Road data, segment # 4: Hwy 417 E (day/night)
---------------------------------------------
```

```
Car traffic volume  : 44527/3872  veh/TimePeriod  *
Medium truck volume :  3542/308   veh/TimePeriod  *
Heavy truck volume  :  2530/220   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  54999
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 4: Hwy 417 E (day/night)
-------------------------------------------
Angle1   Angle2           :  -7.00 deg   90.00 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           :  75.30 / 75.30  m
Topography                :      3       (Elevated; no barrier)
Elevation                 :   7.00 m
Reference angle           :   0.00

🠉
Results segment # 1: Carling W (day)
------------------------------------

Source height = 1.50 m

ROAD (0.00 + 62.79 + 0.00) = 62.79 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0     48   0.00  72.21   0.00  -3.68  -5.74   0.00   0.00   0.00  62.79
-------------------------------------------------------------------------------

Segment Leq : 62.79 dBA

🠉
Results segment # 2: Carling E (day)
------------------------------------

Source height = 1.50 m

ROAD (0.00 + 66.93 + 0.00) = 66.93 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
```

```
-------------------------------------------------------------------------------
     0     71   0.00  72.21   0.00  -1.25  -4.04   0.00   0.00   0.00  66.93
-------------------------------------------------------------------------------

Segment Leq : 66.93 dBA

↟
Results segment # 3: Hwy 417 W (day)
-----------------------------------

Source height = 1.50 m

ROAD (0.00 + 65.57 + 0.00) = 65.57 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    -2     90   0.00  80.15   0.00 -11.66  -2.91   0.00   0.00   0.00  65.57
-------------------------------------------------------------------------------

Segment Leq : 65.57 dBA

↟
Results segment # 4: Hwy 417 E (day)
-----------------------------------

Source height = 1.50 m

ROAD (0.00 + 66.21 + 0.00) = 66.21 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    -7     90   0.00  80.15   0.00 -11.25  -2.69   0.00   0.00   0.00  66.21
-------------------------------------------------------------------------------

Segment Leq : 66.21 dBA

Total Leq All Segments: 71.65 dBA

↟
Results segment # 1: Carling W (night)
-------------------------------------

Source height = 1.50 m

ROAD (0.00 + 55.20 + 0.00) = 55.20 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0     48   0.00  64.62   0.00  -3.68  -5.74   0.00   0.00   0.00  55.20
-------------------------------------------------------------------------------

Segment Leq : 55.20 dBA
```

↟
Results segment # 2: Carling E (night)

Source height = 1.50 m

ROAD (0.00 + 59.33 + 0.00) = 59.33 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	71	0.00	64.62	0.00	-1.25	-4.04	0.00	0.00	0.00	59.33

Segment Leq : 59.33 dBA

↟
Results segment # 3: Hwy 417 W (night)

Source height = 1.50 m

ROAD (0.00 + 57.97 + 0.00) = 57.97 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-2	90	0.00	72.55	0.00	-11.66	-2.91	0.00	0.00	0.00	57.97

Segment Leq : 57.97 dBA

↟
Results segment # 4: Hwy 417 E (night)

Source height = 1.50 m

ROAD (0.00 + 58.62 + 0.00) = 58.62 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-7	90	0.00	72.55	0.00	-11.25	-2.69	0.00	0.00	0.00	58.62

Segment Leq : 58.62 dBA

Total Leq All Segments: 64.05 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 71.65
(NIGHT): 64.05

STAMSON 5.0 NORMAL REPORT Date: 19-04-2020 23:08:21
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec21.te Time Period: Day/Night 16/8 hours
Description: Reception Point 2-1

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

Car traffic volume : 20240/1760 veh/TimePeriod *
Medium truck volume : 1610/140 veh/TimePeriod *
Heavy truck volume : 1150/100 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): 25000
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: Carling West (day/night)

Angle1 Angle2 : -50.00 deg 75.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 25.00 / 25.00 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

↑
Road data, segment # 2: Carling East (day/night)

Car traffic volume : 20240/1760 veh/TimePeriod *
Medium truck volume : 1610/140 veh/TimePeriod *
Heavy truck volume : 1150/100 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): 25000
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: Carling East (day/night)
-----------------------------------------------
Angle1   Angle2           : -80.00 deg   83.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  15.00 / 15.00  m
Receiver height           :   1.50 / 1.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

↟

```
Road data, segment # 3: Hwy 417 West (day/night)
-------------------------------------------------
Car traffic volume  : 44527/3872  veh/TimePeriod  *
Medium truck volume :  3542/308   veh/TimePeriod  *
Heavy truck volume  :  2530/220   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  54999
    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: Hwy 417 West (day/night)
-----------------------------------------------
Angle1   Angle2           : -90.00 deg   43.00 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           :   1.50 / 1.50   m
Topography                :      3       (Elevated; no barrier)
Elevation                 :   7.00 m
Reference angle           :   0.00
```

↟

```
Road data, segment # 4: Hwy 417 East (day/night)
-------------------------------------------------
```

```
Car traffic volume  : 44527/3872  veh/TimePeriod  *
Medium truck volume :  3542/308   veh/TimePeriod  *
Heavy truck volume  :  2530/220   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  54999
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 4: Hwy 417 East (day/night)
-----------------------------------------------
Angle1   Angle2           : -90.00 deg   45.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 190.00 / 190.00 m
Receiver height           :   1.50 / 1.50   m
Topography                :      3       (Elevated; no barrier)
Elevation                 :   7.00 m
Reference angle           :   0.00

↟
Results segment # 1: Carling West (day)
---------------------------------------

Source height = 1.50 m

ROAD (0.00 + 66.25 + 0.00) = 66.25 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -50     75   0.66  72.21   0.00  -3.68  -2.28   0.00   0.00   0.00  66.25
-------------------------------------------------------------------------------

Segment Leq : 66.25 dBA

↟
Results segment # 2: Carling East (day)
---------------------------------------

Source height = 1.50 m

ROAD (0.00 + 70.66 + 0.00) = 70.66 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
```

```
-------------------------------------------------------------------------------
   -80     83   0.66  72.21   0.00   0.00  -1.56   0.00   0.00   0.00  70.66
-------------------------------------------------------------------------------

Segment Leq : 70.66 dBA

↟
Results segment # 3: Hwy 417 West (day)
---------------------------------------

Source height = 1.50 m

ROAD (0.00 + 61.44 + 0.00) = 61.44 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     43   0.45  80.15   0.00 -16.62  -2.09   0.00   0.00   0.00  61.44
-------------------------------------------------------------------------------

Segment Leq : 61.44 dBA

↟
Results segment # 4: Hwy 417 East (day)
---------------------------------------

Source height = 1.50 m

ROAD (0.00 + 62.14 + 0.00) = 62.14 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     45   0.45  80.15   0.00 -15.99  -2.02   0.00   0.00   0.00  62.14
-------------------------------------------------------------------------------

Segment Leq : 62.14 dBA

Total Leq All Segments: 72.76 dBA

↟
Results segment # 1: Carling West (night)
-----------------------------------------

Source height = 1.50 m

ROAD (0.00 + 58.65 + 0.00) = 58.65 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -50     75   0.66  64.62   0.00  -3.68  -2.28   0.00   0.00   0.00  58.65
-------------------------------------------------------------------------------

Segment Leq : 58.65 dBA
```

Results segment # 2: Carling East (night)

Source height = 1.50 m

ROAD (0.00 + 63.06 + 0.00) = 63.06 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-80	83	0.66	64.62	0.00	0.00	-1.56	0.00	0.00	0.00	63.06

Segment Leq : 63.06 dBA

Results segment # 3: Hwy 417 West (night)

Source height = 1.50 m

ROAD (0.00 + 53.84 + 0.00) = 53.84 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	43	0.45	72.55	0.00	-16.62	-2.09	0.00	0.00	0.00	53.84

Segment Leq : 53.84 dBA

Results segment # 4: Hwy 417 East (night)

Source height = 1.50 m

ROAD (0.00 + 54.54 + 0.00) = 54.54 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	45	0.45	72.55	0.00	-15.99	-2.02	0.00	0.00	0.00	54.54

Segment Leq : 54.54 dBA

Total Leq All Segments: 65.16 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 72.76
(NIGHT): 65.16

STAMSON 5.0 NORMAL REPORT Date: 19-04-2020 23:09:50
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec210.te Time Period: Day/Night 16/8 hours
Description: Reception Point 2-10

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

Car traffic volume : 20240/1760 veh/TimePeriod *
Medium truck volume : 1610/140 veh/TimePeriod *
Heavy truck volume : 1150/100 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): 25000
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: Carling West (day/night)

Angle1 Angle2 : -50.00 deg 75.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 25.00 / 25.00 m
Receiver height : 30.30 / 30.30 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

↑
Road data, segment # 2: Carling East (day/night)

Car traffic volume : 20240/1760 veh/TimePeriod *
Medium truck volume : 1610/140 veh/TimePeriod *
Heavy truck volume : 1150/100 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): 25000
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: Carling East (day/night)
-----------------------------------------------
Angle1   Angle2           : -80.00 deg   83.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  15.00 / 15.00  m
Receiver height           :  30.30 / 30.30  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

↟

```
Road data, segment # 3: Hwy 417 West (day/night)
-------------------------------------------------
Car traffic volume  : 44527/3872  veh/TimePeriod  *
Medium truck volume :  3542/308   veh/TimePeriod  *
Heavy truck volume  :  2530/220   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  54999
    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: Hwy 417 West (day/night)
-----------------------------------------------
Angle1   Angle2           : -90.00 deg   43.00 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           :  30.30 / 30.30  m
Topography                :      3       (Elevated; no barrier)
Elevation                 :   7.00 m
Reference angle           :   0.00
```

↟

```
Road data, segment # 4: Hwy 417 East (day/night)
-------------------------------------------------
```

```
Car traffic volume  : 44527/3872  veh/TimePeriod  *
Medium truck volume :  3542/308   veh/TimePeriod  *
Heavy truck volume  :  2530/220   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  54999
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 4: Hwy 417 East (day/night)
-----------------------------------------------
Angle1   Angle2           : -90.00 deg   45.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 190.00 / 190.00 m
Receiver height           :  30.30 / 30.30  m
Topography                :      3       (Elevated; no barrier)
Elevation                 :   7.00 m
Reference angle           :   0.00

🠉
Results segment # 1: Carling West (day)
---------------------------------------

Source height = 1.50 m

ROAD (0.00 + 68.41 + 0.00) = 68.41 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -50     75   0.00  72.21   0.00  -2.22  -1.58   0.00   0.00   0.00  68.41
-------------------------------------------------------------------------------

Segment Leq : 68.41 dBA

🠉
Results segment # 2: Carling East (day)
---------------------------------------

Source height = 1.50 m

ROAD (0.00 + 71.78 + 0.00) = 71.78 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
```

```
-------------------------------------------------------------------------------
   -80     83   0.00  72.21   0.00   0.00  -0.43   0.00   0.00   0.00  71.78
-------------------------------------------------------------------------------

Segment Leq : 71.78 dBA

↟
Results segment # 3: Hwy 417 West (day)
---------------------------------------

Source height = 1.50 m

ROAD (0.00 + 67.37 + 0.00) = 67.37 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     43   0.00  80.15   0.00 -11.46  -1.31   0.00   0.00   0.00  67.37
-------------------------------------------------------------------------------

Segment Leq : 67.37 dBA

↟
Results segment # 4: Hwy 417 East (day)
---------------------------------------

Source height = 1.50 m

ROAD (0.00 + 67.87 + 0.00) = 67.87 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     45   0.00  80.15   0.00 -11.03  -1.25   0.00   0.00   0.00  67.87
-------------------------------------------------------------------------------

Segment Leq : 67.87 dBA

Total Leq All Segments: 75.26 dBA

↟
Results segment # 1: Carling West (night)
-----------------------------------------

Source height = 1.50 m

ROAD (0.00 + 60.82 + 0.00) = 60.82 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -50     75   0.00  64.62   0.00  -2.22  -1.58   0.00   0.00   0.00  60.82
-------------------------------------------------------------------------------

Segment Leq : 60.82 dBA
```

↟
Results segment # 2: Carling East (night)

Source height = 1.50 m

ROAD (0.00 + 64.19 + 0.00) = 64.19 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-80	83	0.00	64.62	0.00	0.00	-0.43	0.00	0.00	0.00	64.19

Segment Leq : 64.19 dBA

↟
Results segment # 3: Hwy 417 West (night)

Source height = 1.50 m

ROAD (0.00 + 59.78 + 0.00) = 59.78 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	43	0.00	72.55	0.00	-11.46	-1.31	0.00	0.00	0.00	59.78

Segment Leq : 59.78 dBA

↟
Results segment # 4: Hwy 417 East (night)

Source height = 1.50 m

ROAD (0.00 + 60.27 + 0.00) = 60.27 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	45	0.00	72.55	0.00	-11.03	-1.25	0.00	0.00	0.00	60.27

Segment Leq : 60.27 dBA

Total Leq All Segments: 67.67 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 75.26
(NIGHT): 67.67

STAMSON 5.0 NORMAL REPORT Date: 19-04-2020 23:09:16
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec224.te Time Period: Day/Night 16/8 hours
Description: Reception Point 2-24

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

Car traffic volume : 20240/1760 veh/TimePeriod *
Medium truck volume : 1610/140 veh/TimePeriod *
Heavy truck volume : 1150/100 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): 25000
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: Carling West (day/night)

Angle1 Angle2 : -50.00 deg 75.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 25.00 / 25.00 m
Receiver height : 75.30 / 75.30 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 20240/1760 veh/TimePeriod *
Medium truck volume : 1610/140 veh/TimePeriod *
Heavy truck volume : 1150/100 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): 25000
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: Carling East (day/night)
-----------------------------------------------
Angle1   Angle2           : -80.00 deg   83.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  15.00 / 15.00  m
Receiver height           :  75.30 / 75.30  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

↟

```
Road data, segment # 3: Hwy 417 West (day/night)
-------------------------------------------------
Car traffic volume  : 44527/3872  veh/TimePeriod  *
Medium truck volume :  3542/308   veh/TimePeriod  *
Heavy truck volume  :  2530/220   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  54999
    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: Hwy 417 West (day/night)
-----------------------------------------------
Angle1   Angle2           : -90.00 deg   43.00 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           :  75.30 / 75.30  m
Topography                :      3       (Elevated; no barrier)
Elevation                 :   7.00 m
Reference angle           :   0.00
```

↟

```
Road data, segment # 4: Hwy 417 East (day/night)
-------------------------------------------------
```

```
Car traffic volume  : 44527/3872  veh/TimePeriod  *
Medium truck volume :  3542/308   veh/TimePeriod  *
Heavy truck volume  :  2530/220   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  54999
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 4: Hwy 417 East (day/night)
-----------------------------------------------
Angle1   Angle2           : -90.00 deg   45.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 190.00 / 190.00 m
Receiver height           :  75.30 / 75.30  m
Topography                :      3       (Elevated; no barrier)
Elevation                 :   7.00 m
Reference angle           :   0.00

↟
Results segment # 1: Carling West (day)
---------------------------------------

Source height = 1.50 m

ROAD (0.00 + 68.41 + 0.00) = 68.41 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -50     75   0.00  72.21   0.00  -2.22  -1.58   0.00   0.00   0.00  68.41
-------------------------------------------------------------------------------

Segment Leq : 68.41 dBA

↟
Results segment # 2: Carling East (day)
---------------------------------------

Source height = 1.50 m

ROAD (0.00 + 71.78 + 0.00) = 71.78 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
```

```
-------------------------------------------------------------------------------
   -80     83   0.00  72.21   0.00   0.00  -0.43   0.00   0.00   0.00  71.78
-------------------------------------------------------------------------------

Segment Leq : 71.78 dBA

↟
Results segment # 3: Hwy 417 West (day)
---------------------------------------

Source height = 1.50 m

ROAD (0.00 + 67.37 + 0.00) = 67.37 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     43   0.00  80.15   0.00 -11.46  -1.31   0.00   0.00   0.00  67.37
-------------------------------------------------------------------------------

Segment Leq : 67.37 dBA

↟
Results segment # 4: Hwy 417 East (day)
---------------------------------------

Source height = 1.50 m

ROAD (0.00 + 67.87 + 0.00) = 67.87 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     45   0.00  80.15   0.00 -11.03  -1.25   0.00   0.00   0.00  67.87
-------------------------------------------------------------------------------

Segment Leq : 67.87 dBA

Total Leq All Segments: 75.26 dBA

↟
Results segment # 1: Carling West (night)
-----------------------------------------

Source height = 1.50 m

ROAD (0.00 + 60.82 + 0.00) = 60.82 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -50     75   0.00  64.62   0.00  -2.22  -1.58   0.00   0.00   0.00  60.82
-------------------------------------------------------------------------------

Segment Leq : 60.82 dBA
```

↟
Results segment # 2: Carling East (night)

Source height = 1.50 m

ROAD (0.00 + 64.19 + 0.00) = 64.19 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-80	83	0.00	64.62	0.00	0.00	-0.43	0.00	0.00	0.00	64.19

Segment Leq : 64.19 dBA

↟
Results segment # 3: Hwy 417 West (night)

Source height = 1.50 m

ROAD (0.00 + 59.78 + 0.00) = 59.78 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	43	0.00	72.55	0.00	-11.46	-1.31	0.00	0.00	0.00	59.78

Segment Leq : 59.78 dBA

↟
Results segment # 4: Hwy 417 East (night)

Source height = 1.50 m

ROAD (0.00 + 60.27 + 0.00) = 60.27 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	45	0.00	72.55	0.00	-11.03	-1.25	0.00	0.00	0.00	60.27

Segment Leq : 60.27 dBA

Total Leq All Segments: 67.67 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 75.26
(NIGHT): 67.67

STAMSON 5.0 NORMAL REPORT Date: 19-04-2020 23:04:26
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec31.te Time Period: Day/Night 16/8 hours
Description: Reception Point 3-1

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

Car traffic volume : 20240/1760 veh/TimePeriod *
Medium truck volume : 1610/140 veh/TimePeriod *
Heavy truck volume : 1150/100 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): 25000
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: Carling West (day/night)

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

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

Car traffic volume : 20240/1760 veh/TimePeriod *
Medium truck volume : 1610/140 veh/TimePeriod *
Heavy truck volume : 1150/100 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): 25000
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: Carling East (day/night)
-----------------------------------------------
Angle1   Angle2           :   0.00 deg   75.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  20.00 / 20.00  m
Receiver height           :   1.50 / 1.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

↟

```
Road data, segment # 3: Hwy 417 West (day/night)
-------------------------------------------------
Car traffic volume  : 44527/3872  veh/TimePeriod  *
Medium truck volume :  3542/308   veh/TimePeriod  *
Heavy truck volume  :  2530/220   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  54999
    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: Hwy 417 West (day/night)
-----------------------------------------------
Angle1   Angle2           :   0.00 deg   40.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 220.00 / 220.00 m
Receiver height           :   1.50 / 1.50   m
Topography                :      3       (Elevated; no barrier)
Elevation                 :   7.00 m
Reference angle           :   0.00
```

↟

```
Road data, segment # 4: Hwy 417 East (day/night)
-------------------------------------------------
```

```
Car traffic volume  : 44527/3872  veh/TimePeriod  *
Medium truck volume :  3542/308   veh/TimePeriod  *
Heavy truck volume  :  2530/220   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  54999
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 4: Hwy 417 East (day/night)
-----------------------------------------------
Angle1   Angle2           :   0.00 deg   43.00 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           :   1.50 / 1.50   m
Topography                :      3       (Elevated; no barrier)
Elevation                 :   7.00 m
Reference angle           :   0.00

🠉
Results segment # 1: Carling West (day)
---------------------------------------

Source height = 1.50 m

ROAD (0.00 + 61.01 + 0.00) = 61.01 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0     65   0.66  72.21   0.00  -6.11  -5.09   0.00   0.00   0.00  61.01
-------------------------------------------------------------------------------

Segment Leq : 61.01 dBA

🠉
Results segment # 2: Carling East (day)
---------------------------------------

Source height = 1.50 m

ROAD (0.00 + 65.41 + 0.00) = 65.41 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
```

```
-------------------------------------------------------------------------------
     0     75   0.66  72.21   0.00  -2.07  -4.73   0.00   0.00   0.00  65.41
-------------------------------------------------------------------------------

Segment Leq : 65.41 dBA

↑
Results segment # 3: Hwy 417 West (day)
---------------------------------------

Source height = 1.50 m

ROAD (0.00 + 56.54 + 0.00) = 56.54 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0     40   0.45  80.15   0.00 -16.91  -6.70   0.00   0.00   0.00  56.54
-------------------------------------------------------------------------------

Segment Leq : 56.54 dBA

↑
Results segment # 4: Hwy 417 East (day)
---------------------------------------

Source height = 1.50 m

ROAD (0.00 + 57.42 + 0.00) = 57.42 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0     43   0.45  80.15   0.00 -16.31  -6.41   0.00   0.00   0.00  57.42
-------------------------------------------------------------------------------

Segment Leq : 57.42 dBA

Total Leq All Segments: 67.59 dBA

↑
Results segment # 1: Carling West (night)
-----------------------------------------

Source height = 1.50 m

ROAD (0.00 + 53.42 + 0.00) = 53.42 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0     65   0.66  64.62   0.00  -6.11  -5.09   0.00   0.00   0.00  53.42
-------------------------------------------------------------------------------

Segment Leq : 53.42 dBA
```

↟
Results segment # 2: Carling East (night)

Source height = 1.50 m

ROAD (0.00 + 57.82 + 0.00) = 57.82 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	75	0.66	64.62	0.00	-2.07	-4.73	0.00	0.00	0.00	57.82

Segment Leq : 57.82 dBA

↟
Results segment # 3: Hwy 417 West (night)

Source height = 1.50 m

ROAD (0.00 + 48.94 + 0.00) = 48.94 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	40	0.45	72.55	0.00	-16.91	-6.70	0.00	0.00	0.00	48.94

Segment Leq : 48.94 dBA

↟
Results segment # 4: Hwy 417 East (night)

Source height = 1.50 m

ROAD (0.00 + 49.83 + 0.00) = 49.83 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	43	0.45	72.55	0.00	-16.31	-6.41	0.00	0.00	0.00	49.83

Segment Leq : 49.83 dBA

Total Leq All Segments: 60.00 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 67.59
(NIGHT): 60.00

STAMSON 5.0 NORMAL REPORT Date: 19-04-2020 23:10:56
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec310.te Time Period: Day/Night 16/8 hours
Description: Reception Point 3-10

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

Car traffic volume : 20240/1760 veh/TimePeriod *
Medium truck volume : 1610/140 veh/TimePeriod *
Heavy truck volume : 1150/100 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): 25000
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: Carling West (day/night)

Angle1 Angle2 : 0.00 deg 65.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 35.00 / 35.00 m
Receiver height : 30.30 / 30.30 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

↑
Road data, segment # 2: Carling East (day/night)

Car traffic volume : 20240/1760 veh/TimePeriod *
Medium truck volume : 1610/140 veh/TimePeriod *
Heavy truck volume : 1150/100 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): 25000
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: Carling East (day/night)
-----------------------------------------------
Angle1   Angle2           :   0.00 deg   75.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  20.00 / 20.00  m
Receiver height           :  30.30 / 30.30  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

↟

```
Road data, segment # 3: Hwy 417 West (day/night)
-------------------------------------------------
Car traffic volume  : 44527/3872  veh/TimePeriod  *
Medium truck volume :  3542/308   veh/TimePeriod  *
Heavy truck volume  :  2530/220   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  54999
    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: Hwy 417 West (day/night)
-----------------------------------------------
Angle1   Angle2           :   0.00 deg   40.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 220.00 / 220.00 m
Receiver height           :  30.30 / 30.30  m
Topography                :      3       (Elevated; no barrier)
Elevation                 :   7.00 m
Reference angle           :   0.00
```

↟

```
Road data, segment # 4: Hwy 417 East (day/night)
-------------------------------------------------
```

```
Car traffic volume  : 44527/3872  veh/TimePeriod  *
Medium truck volume :  3542/308   veh/TimePeriod  *
Heavy truck volume  :  2530/220   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  54999
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 4: Hwy 417 East (day/night)
-----------------------------------------------
Angle1   Angle2           :   0.00 deg   43.00 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           :  30.30 / 30.30  m
Topography                :      3       (Elevated; no barrier)
Elevation                 :   7.00 m
Reference angle           :   0.00

↟
Results segment # 1: Carling West (day)
---------------------------------------

Source height = 1.50 m

ROAD (0.00 + 64.11 + 0.00) = 64.11 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0     65   0.00  72.21   0.00  -3.68  -4.42   0.00   0.00   0.00  64.11
-------------------------------------------------------------------------------

Segment Leq : 64.11 dBA

↟
Results segment # 2: Carling East (day)
---------------------------------------

Source height = 1.50 m

ROAD (0.00 + 67.16 + 0.00) = 67.16 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
```

```
-------------------------------------------------------------------------------
     0     75   0.00  72.21   0.00  -1.25  -3.80   0.00   0.00   0.00  67.16
-------------------------------------------------------------------------------

Segment Leq : 67.16 dBA

↟
Results segment # 3: Hwy 417 West (day)
---------------------------------------

Source height = 1.50 m

ROAD (0.00 + 61.95 + 0.00) = 61.95 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0     40   0.00  80.15   0.00 -11.66  -6.53   0.00   0.00   0.00  61.95
-------------------------------------------------------------------------------

Segment Leq : 61.95 dBA

↟
Results segment # 4: Hwy 417 East (day)
---------------------------------------

Source height = 1.50 m

ROAD (0.00 + 62.68 + 0.00) = 62.68 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0     43   0.00  80.15   0.00 -11.25  -6.22   0.00   0.00   0.00  62.68
-------------------------------------------------------------------------------

Segment Leq : 62.68 dBA

Total Leq All Segments: 70.49 dBA

↟
Results segment # 1: Carling West (night)
-----------------------------------------

Source height = 1.50 m

ROAD (0.00 + 56.51 + 0.00) = 56.51 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0     65   0.00  64.62   0.00  -3.68  -4.42   0.00   0.00   0.00  56.51
-------------------------------------------------------------------------------

Segment Leq : 56.51 dBA
```

↟
Results segment # 2: Carling East (night)

Source height = 1.50 m

ROAD (0.00 + 59.57 + 0.00) = 59.57 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	75	0.00	64.62	0.00	-1.25	-3.80	0.00	0.00	0.00	59.57

Segment Leq : 59.57 dBA

↟
Results segment # 3: Hwy 417 West (night)

Source height = 1.50 m

ROAD (0.00 + 54.36 + 0.00) = 54.36 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	40	0.00	72.55	0.00	-11.66	-6.53	0.00	0.00	0.00	54.36

Segment Leq : 54.36 dBA

↟
Results segment # 4: Hwy 417 East (night)

Source height = 1.50 m

ROAD (0.00 + 55.08 + 0.00) = 55.08 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	43	0.00	72.55	0.00	-11.25	-6.22	0.00	0.00	0.00	55.08

Segment Leq : 55.08 dBA

Total Leq All Segments: 62.90 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 70.49
(NIGHT): 62.90

STAMSON 5.0 NORMAL REPORT Date: 19-04-2020 23:11:37
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec324.te Time Period: Day/Night 16/8 hours
Description: Reception Point 3-24

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

Car traffic volume : 20240/1760 veh/TimePeriod *
Medium truck volume : 1610/140 veh/TimePeriod *
Heavy truck volume : 1150/100 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): 25000
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: Carling West (day/night)

Angle1 Angle2 : 0.00 deg 65.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 35.00 / 35.00 m
Receiver height : 75.30 / 75.30 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

↑
Road data, segment # 2: Carling East (day/night)

Car traffic volume : 20240/1760 veh/TimePeriod *
Medium truck volume : 1610/140 veh/TimePeriod *
Heavy truck volume : 1150/100 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): 25000
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: Carling East (day/night)
-----------------------------------------------
Angle1   Angle2           :   0.00 deg   75.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  20.00 / 20.00  m
Receiver height           :  75.30 / 75.30  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

↟

```
Road data, segment # 3: Hwy 417 West (day/night)
-------------------------------------------------
Car traffic volume  : 44527/3872  veh/TimePeriod  *
Medium truck volume :  3542/308   veh/TimePeriod  *
Heavy truck volume  :  2530/220   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  54999
    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: Hwy 417 West (day/night)
-----------------------------------------------
Angle1   Angle2           :   0.00 deg   40.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 220.00 / 220.00 m
Receiver height           :  75.30 / 75.30  m
Topography                :      3       (Elevated; no barrier)
Elevation                 :   7.00 m
Reference angle           :   0.00
```

↟

```
Road data, segment # 4: Hwy 417 East (day/night)
-------------------------------------------------
```

```
Car traffic volume  : 44527/3872  veh/TimePeriod  *
Medium truck volume :  3542/308   veh/TimePeriod  *
Heavy truck volume  :  2530/220   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  54999
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 4: Hwy 417 East (day/night)
-----------------------------------------------
Angle1   Angle2           :   0.00 deg   43.00 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           :  75.30 / 75.30  m
Topography                :      3       (Elevated; no barrier)
Elevation                 :   7.00 m
Reference angle           :   0.00

↟
Results segment # 1: Carling West (day)
---------------------------------------

Source height = 1.50 m

ROAD (0.00 + 64.11 + 0.00) = 64.11 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0     65   0.00  72.21   0.00  -3.68  -4.42   0.00   0.00   0.00  64.11
-------------------------------------------------------------------------------

Segment Leq : 64.11 dBA

↟
Results segment # 2: Carling East (day)
---------------------------------------

Source height = 1.50 m

ROAD (0.00 + 67.16 + 0.00) = 67.16 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
```

```
-------------------------------------------------------------------------------
     0     75   0.00  72.21   0.00  -1.25  -3.80   0.00   0.00   0.00  67.16
-------------------------------------------------------------------------------

Segment Leq : 67.16 dBA

↟
Results segment # 3: Hwy 417 West (day)
---------------------------------------

Source height = 1.50 m

ROAD (0.00 + 61.95 + 0.00) = 61.95 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0     40   0.00  80.15   0.00 -11.66  -6.53   0.00   0.00   0.00  61.95
-------------------------------------------------------------------------------

Segment Leq : 61.95 dBA

↟
Results segment # 4: Hwy 417 East (day)
---------------------------------------

Source height = 1.50 m

ROAD (0.00 + 62.68 + 0.00) = 62.68 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0     43   0.00  80.15   0.00 -11.25  -6.22   0.00   0.00   0.00  62.68
-------------------------------------------------------------------------------

Segment Leq : 62.68 dBA

Total Leq All Segments: 70.49 dBA

↟
Results segment # 1: Carling West (night)
-----------------------------------------

Source height = 1.50 m

ROAD (0.00 + 56.51 + 0.00) = 56.51 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0     65   0.00  64.62   0.00  -3.68  -4.42   0.00   0.00   0.00  56.51
-------------------------------------------------------------------------------

Segment Leq : 56.51 dBA
```

↟
Results segment # 2: Carling East (night)

Source height = 1.50 m

ROAD (0.00 + 59.57 + 0.00) = 59.57 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	75	0.00	64.62	0.00	-1.25	-3.80	0.00	0.00	0.00	59.57

Segment Leq : 59.57 dBA

↟
Results segment # 3: Hwy 417 West (night)

Source height = 1.50 m

ROAD (0.00 + 54.36 + 0.00) = 54.36 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	40	0.00	72.55	0.00	-11.66	-6.53	0.00	0.00	0.00	54.36

Segment Leq : 54.36 dBA

↟
Results segment # 4: Hwy 417 East (night)

Source height = 1.50 m

ROAD (0.00 + 55.08 + 0.00) = 55.08 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	43	0.00	72.55	0.00	-11.25	-6.22	0.00	0.00	0.00	55.08

Segment Leq : 55.08 dBA

Total Leq All Segments: 62.90 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 70.49
(NIGHT): 62.90

STAMSON 5.0 NORMAL REPORT Date: 19-04-2020 22:42:07
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: REC41.te Time Period: Day/Night 16/8 hours
Description: Reception Point 4-1

Road data, segment # 1: Hwy 417 East (day/night)

Car traffic volume : 44527/3872 veh/TimePeriod *
Medium truck volume : 3542/308 veh/TimePeriod *
Heavy truck volume : 2530/220 veh/TimePeriod *
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 54999
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: Hwy 417 East (day/night)

Angle1 Angle2 : -1.00 deg 0.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 490.00 / 490.00 m
Receiver height : 1.50 / 1.50 m
Topography : 3 (Elevated; no barrier)
Elevation : 7.00 m
Reference angle : 0.00

↑
Results segment # 1: Hwy 417 East (day)

Source height = 1.50 m

ROAD (0.00 + 35.64 + 0.00) = 35.64 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-1	0	0.45	80.15	0.00	-21.96	-22.55	0.00	0.00	0.00	35.64

Segment Leq : 35.64 dBA

Total Leq All Segments: 35.64 dBA

↟
Results segment # 1: Hwy 417 East (night)

Source height = 1.50 m

ROAD (0.00 + 28.04 + 0.00) = 28.04 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-1	0	0.45	72.55	0.00	-21.96	-22.55	0.00	0.00	0.00	28.04

Segment Leq : 28.04 dBA

Total Leq All Segments: 28.04 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 35.64
(NIGHT): 28.04
↟
↟

STAMSON 5.0 NORMAL REPORT Date: 19-04-2020 23:12:18
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec410.te Time Period: Day/Night 16/8 hours
Description: Reception Point 4-10

Road data, segment # 1: Hwy 417 East (day/night)

Car traffic volume : 44527/3872 veh/TimePeriod *
Medium truck volume : 3542/308 veh/TimePeriod *
Heavy truck volume : 2530/220 veh/TimePeriod *
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 54999
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: Hwy 417 East (day/night)

Angle1 Angle2 : -1.00 deg 0.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 490.00 / 490.00 m
Receiver height : 30.30 / 30.30 m
Topography : 3 (Elevated; no barrier)
Elevation : 7.00 m
Reference angle : 0.00

Results segment # 1: Hwy 417 East (day)

Source height = 1.50 m

ROAD (0.00 + 42.45 + 0.00) = 42.45 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-1	0	0.00	80.15	0.00	-15.14	-22.55	0.00	0.00	0.00	42.45

Segment Leq : 42.45 dBA

Total Leq All Segments: 42.45 dBA

↟
Results segment # 1: Hwy 417 East (night)

Source height = 1.50 m

ROAD (0.00 + 34.86 + 0.00) = 34.86 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-1	0	0.00	72.55	0.00	-15.14	-22.55	0.00	0.00	0.00	34.86

Segment Leq : 34.86 dBA

Total Leq All Segments: 34.86 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 42.45
(NIGHT): 34.86
↟
↟

STAMSON 5.0 NORMAL REPORT Date: 19-04-2020 23:12:50
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec424.te Time Period: Day/Night 16/8 hours
Description: Reception Point 4-24

Road data, segment # 1: Hwy 417 East (day/night)

Car traffic volume : 44527/3872 veh/TimePeriod *
Medium truck volume : 3542/308 veh/TimePeriod *
Heavy truck volume : 2530/220 veh/TimePeriod *
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 54999
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: Hwy 417 East (day/night)

Angle1 Angle2 : -1.00 deg 0.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 490.00 / 490.00 m
Receiver height : 75.30 / 75.30 m
Topography : 3 (Elevated; no barrier)
Elevation : 7.00 m
Reference angle : 0.00

Results segment # 1: Hwy 417 East (day)

Source height = 1.50 m

ROAD (0.00 + 42.45 + 0.00) = 42.45 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-1	0	0.00	80.15	0.00	-15.14	-22.55	0.00	0.00	0.00	42.45

Segment Leq : 42.45 dBA

Total Leq All Segments: 42.45 dBA

↟
Results segment # 1: Hwy 417 East (night)

Source height = 1.50 m

ROAD (0.00 + 34.86 + 0.00) = 34.86 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-1	0	0.00	72.55	0.00	-15.14	-22.55	0.00	0.00	0.00	34.86

Segment Leq : 34.86 dBA

Total Leq All Segments: 34.86 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 42.45
(NIGHT): 34.86
↟
↟

STAMSON 5.0 NORMAL REPORT Date: 19-04-2020 23:27:13
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec56.te Time Period: Day/Night 16/8 hours
Description: Reception Point 5-6 - Outdoor Amenity Area

Road data, segment # 1: Hwy 417 East (day/night)

Car traffic volume : 44527/3872 veh/TimePeriod *
Medium truck volume : 3542/308 veh/TimePeriod *
Heavy truck volume : 2530/220 veh/TimePeriod *
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 54999
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: Hwy 417 East (day/night)

Angle1 Angle2 : -1.00 deg 0.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 490.00 / 490.00 m
Receiver height : 18.30 / 18.30 m
Topography : 3 (Elevated; no barrier)
Elevation : 7.00 m
Reference angle : 0.00

↑
Results segment # 1: Hwy 417 East (day)

Source height = 1.50 m

ROAD (0.00 + 42.45 + 0.00) = 42.45 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-1	0	0.00	80.15	0.00	-15.14	-22.55	0.00	0.00	0.00	42.45

Segment Leq : 42.45 dBA

Total Leq All Segments: 42.45 dBA

↟
Results segment # 1: Hwy 417 East (night)

Source height = 1.50 m

ROAD (0.00 + 34.86 + 0.00) = 34.86 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-1	0	0.00	72.55	0.00	-15.14	-22.55	0.00	0.00	0.00	34.86

Segment Leq : 34.86 dBA

Total Leq All Segments: 34.86 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 42.45
(NIGHT): 34.86
↟
↟