

Environmental Noise Control Study

Proposed Residential Development

12 Ross Avenue
Ottawa, Ontario

Prepared for Citymaker Homes

Report PG7950-1 dated May 20, 2026

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1.0 Introduction

Paterson Group (Paterson) was commissioned by Citymaker Homes to conduct an environmental noise control study for the proposed residential development to be located at 12 Ross Avenue in the City of Ottawa.

The objectives of the current study are 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 Conservation and Parks (MOECP) and the City of Ottawa.
- ☐ Review the projected noise levels and offer recommendations regarding warning classes, construction materials or alternative sound barriers.

This 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 residential development as they are understood at the time of writing this report.

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

2.0 Proposed Development

It is understood that the proposed residential development will consist of a multi-storey residential building. Associated at-grade roadways, parking areas, outdoor living areas and landscaped areas are also anticipated as a part of the proposed residential development.

3.0 Methodology and Noise Assessment Criteria

The City of Ottawa outlines 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 the 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 principal 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 below in the following tables:

Table 1 - Sound Level Limits for Outdoor Living Areas

Time Period	Required $L_{eq(16)}$ (dBA)
16 hours, 7:00-23:00	55
I. Standards taken from Table 2.2a; Sound Level Limit for Outdoor Living Areas - Road and Rail	

Table 2 - Sound Level Limits for Indoor Living Areas

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
Theatres, places 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
I. 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."
I.	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.

The proposed residential development is not in proximity to any existing or approved stationary sources of noise. Therefore, a stationary noise analysis will not be required with respect to off-site stationary noise sources impacting the proposed residential development.

4.0 Noise and Vibration Assessment Criteria

Due to the location of the Ottawa Light Rail Transit Line (OLRT), ground vibration and ground-borne noise reviews were also performed for this proposed residential development.

Effects of the OLRT on the Proposed Residential Development

The human body can be affected by exposure to vibration, in particular ground-borne vibrations occurring at low frequencies. These can be caused by the surrounding vibration sources previously identified, such as wheels on a road or rail system. These ground-borne vibrations can cause the building to shake (ground-borne vibration) and/or cause rumbling sounds (ground-borne noise).

The methods of defining and measuring vibrations have their own challenges, based on the oscillatory motion identified as a vibration. Due to the nature of the oscillatory motion of the vibration, there is no net movement of the vibration element, and therefore motion descriptors are zero.

There are 2 main methods of defining the magnitude of the overall vibration. The industry standard approach utilized in construction activities is the peak particle velocity (PPV). The PPV is defined as the maximum instantaneous positive or negative peak of the vibration signal and is often used when monitoring blasting vibrations and is ideal for evaluating the potential for building damage.

However, human responses require a different method of analysis as the human body requires time to respond to vibration signals. The average vibration amplitude would be an applicable method of reporting the ground-borne vibrations that humans would respond to, however, with the vibration being represented as a sine wave, the average vibration amplitude would be zero. Therefore, the root mean square (RMS) amplitude, typically calculated over a 1-second interval, is utilized for the analysis. The RMS value is always less than the PPV.

General factors that could affect the magnitude of the created vibrations include but are not limited to: whether the rail is above grade or below grade, speed, vehicle suspension, wheel and track condition, track support system, depth of system and soil conditions. It should be noted that vibrations that travel through the bedrock surface should be minimal but can travel a further distance.

The Federal Transit Administration's Transit Noise and Vibration Impact Assessment Manual: FTA Report No. 0123 dated September 2018 outlines the vibration standards caused by rail sources. Upon review of this document, the following standards were obtained that apply to this analysis.

Screening distances are based on land-use categories and the type of project vehicles. The OLRT Line 1 is currently active, with a tunnel/corridor structure located approximately 6.0 m below the existing ground surface. The proposed residential buildings would be classified as a "Vibration Category 2 – Residential". Therefore, the screening distance is 61 metres (200 ft). Therefore, a vibration assessment is required.

The criteria for the environmental impact from vibrations are based on the RMS vibration levels for repeated events. The proposed residential buildings would be classified as a "Vibration Category 2 – Residential". The following table outlines the limits for ground-borne vibrations.

Table 4 - Ground-Borne Vibration (GBV) for General Assessment			
Land Use Category	GBV Impact Levels (VdB re 1 micro-inch/sec)		
	Frequent Events	Occasional Events	Infrequent Events
Category 2	72 VdB	75 VdB	80 VdB
Notes: ➤ Standards taken from Table 6.3; Indoor Ground-Borne Vibration and Ground-Borne Noise Impact Criteria for General Vibration Assessment. ➤ Frequent events are defined as more than 70 vibration events of the same source per day. Most rapid transit projects fall into this category. ➤ Occasional events are defined as between 30 and 70 vibration events of the same source per day. Most commuter trunk lines have this many operations. ➤ Infrequent events are defined as fewer than 30 vibration events of the same kind per day. This category includes most commuter rail branch lines.			

Ground-borne vibration can also result in ground-borne noise. This is separate from the noise caused by the trains directly and instead focuses on the vibration of objects to emit noise. Similar to ground-borne vibration, the noise impacts are based on criteria for human annoyance and activity interference. For residential buildings, the criteria for acceptability is given in the table on the following page:

Table 5 - Ground-Borne Noise (GBN) for General Assessment

Land Use Category	GBN Impact Levels (dBA re 20 micro Pascals)		
	Frequent Events	Occasional Events	Infrequent Events
Category 2	35 dBA	38 dBA	43 dBA
Notes: ➤ Standards taken from Table 6.3; Indoor Ground-Borne Vibration and Ground-Borne Noise Impact Criteria for General Vibration Assessment. ➤ Frequent events are defined as more than 70 vibration events of the same source per day. Most rapid transit projects fall into this category. ➤ Occasional events are defined as between 30 and 70 vibration events of the same source per day. Most commuter trunk lines have this many operations. ➤ Infrequent events are defined as fewer than 30 vibration events of the same kind per day. This category includes most commuter rail branch lines.			

5.0 Analysis

Surface Transportation Noise

The subject site is currently occupied with an existing residential building within the southern portion of the site, with Scott Street and the OLRT Line 1 to the north, and residential dwellings to the east, west and south. Scott Street and the OLRT Line 1 were identified within the 100 m radius of the proposed residential development.

Based on the new City of Ottawa Official Plan, Schedule F, Scott Street is considered a 4-lane undivided urban arterial (4-UAU). Other roads within the 100 m radius of the proposed residential development are not classified as either arterial, collector, or major collector roads and, therefore, are not included in this study.

All noise sources are presented in Drawing PG7950-1-Site Geometry, located in Appendix 1.

The City of Ottawa provides noise levels from road traffic, taking into consideration the right-of-way width and the implied roadway class. These values represent the maximum allowable capacity of the proposed roadways. The parameters to be used for sound-level predictions can be found below.

Table 6 - Traffic and Road Parameters						
Road	Implied Roadway	AADT (Veh/day)	Posted Speed (km/h)	Day/Night Split %	Medium Truck %	Heavy Truck %
Scott Street	4-UAU	30000	50	92/8	7	5
Data obtained from the City of Ottawa document ENCG or City of Ottawa Officials						

Table 7 - Rail Parameters				
Rail Line	Engine Type	Maximum Speed (km/hr)	Number of Trips/day	Length of Train
OLRT	Electric	80	180	2

Three (3) levels of reception points were selected for this analysis. The following elevations were selected from the heights provided on the survey plan for the subject buildings.

Table 8 - Elevation of Reception Points			
Floor Number	Elevation at the Centre of Window / Ground Surface (m)	Floor Use	Daytime/Nighttime Analysis
Ground Floor	1.5	Living Area/Bedroom	Daytime/nighttime
Terrace Level	5.0	Outdoor Living Area	Daytime
Third Level	9.0	Living Area/Bedroom	Daytime/nighttime

For this analysis, a reception point was taken at the centre of each floor, on the ground floor, third floor and fourth floor. Reception points are detailed in Drawing PG7950-2 Receptor Location Plans presented 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 100m buffer zone, and the rail lines were analyzed where they intersected the 100m buffer zone which is reflected in the local angles described in Paterson Drawings PG7950-3A to 5A-Site Geometry in Appendix 1.

Table 13 - Summary of Reception Points and Geometry, located in Appendix 1, provides a summary of the points of reception and their geometry concerning the noise sources. The analysis is completed so that no effects of sound reflection off the building facade are considered, as stipulated by the ENGK. It should be noted that one receptor is assigned to the side of the building affected by noise. There are two noise sources: Scott Street and the OLRT Line 1. The anticipated noise at each receptor represents the worst-case scenario for each building.

The subject site is relatively level 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.

Ground-Borne Noise and Vibration

A Ground-borne vibration assessment is required for OLRT Line 1 as it is within 75 m of the proposed development. The OLRT Line 1 is located to the north of the subject site.

The following figure is a base curve for ground surface vibration levels, assuming the equipment is in good condition and speeds of 80 km/hr (50 mph). The Ottawa Light Rail Transit is identified as a light rail vehicle-powered passenger train.

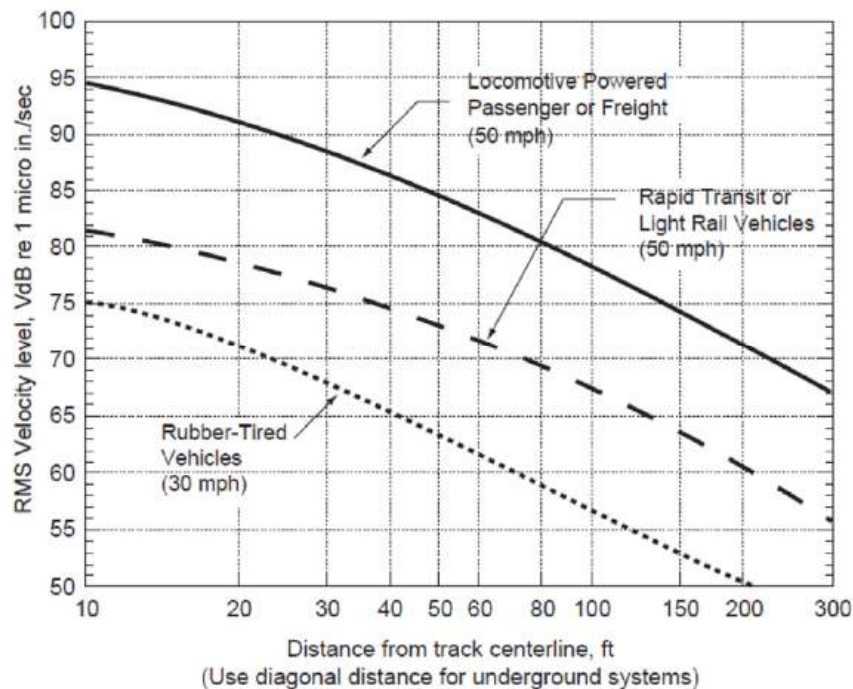


Figure 1 – Generalized Ground Surface Vibration Curve

Figure 1 provides the generalized ground surface vibration curve, but adjustments, noted in Tables 6-11, 6-12 and 6-13 of the Transit Noise and Vibration Impact Assessment, can be made to the ground-borne vibration parameters. The most common adjustments are noted below:

Speed:	Vehicle speed - 80 km/hr (50 mph)	+0 dB
Vehicle Parameter:	Stiff primary suspension	+8 dB
Track Treatments:	Ballast mats	-10 dB
	High-resistance fasteners	-5 dB
	Resiliently supported ties	-10 dB
Track Structure:	Bored subway tunnel in soil; Station	-5 dB
	Bored subway tunnel in soil; Cut and Cover	-3 dB
	Bored subway tunnel in soil; Rock-based	-15 dB
Ground-borne Propagation Effects:		
Geologic Conditions:	in Soil	+10 dB
	in Rock layer (50 ft bgs.)	+2 dB
Building Foundation:	1-2 Storey Masonry	-7 dB
	3-4 Storey Masonry	-10 dB
	Large Masonry on Spread Footings	-13 dB
	Foundation in rock	0 dB
Floor-to-Floor Attenuation:	1 to 5 Floors above Grade	-2 dB/Floor
	5 to 10 Floors above Grade	-1 dB/Floor
Amplification due to Resonances:		+6 dB

Details of track treatment were not available at the time of the study, however based on previous experience and conservative assumptions, the following track treatments were used.

Vehicle speed of 80 km/hr
Stiff Primary Suspension
High-Resilience Fasteners
Tunnel (Corridor) Track Structure
Rock Near Surface

From a review of the geotechnical founding conditions and the proposed residential development, the following conditions were confirmed:

Proposed building is to be founded on the bedrock surface
Rail line constructed on the bedrock
Proposed building to be a 3-storey masonry with up to one basement level.

6.0 Results

Surface Transportation

The primary descriptors are the 16-hour daytime and the 8-hour nighttime 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 located in Appendix 2.

Due to limitations within STAMSON software, additional calculations were performed for receptors with a horizontal distance of less than 15 m to the edge of the right-of-way. This calculation was performed using the following formula which is based on the inverse square law.

$$L_2 = L_1 - 20 \log_{10} \left(\frac{r_2}{r_1} \right)$$

Where:

L_2 : Sound level at distance r_2 (in decibels dBA)

L_1 : Sound level at distance r_1 (in decibels dBA)

r_1 : Initial distance from source (meters)

r_2 : Actual distance from source (meters)

The inverse square law dictates that sound increases proportionally to the square distance from the source. This formula is calculated in free field conditions where there are no obstacles, reflections or atmospheric elements taken into effect. The following table outlines the Receptors where the noise levels were recalculated.

Table 9 - Corrected Noise Level Receptor Locations	
Receptor ID	Horizontal Distance from Edge of ROW for Scott Street
REC 1-1/1-3	10
REC 2-1/2-3	8
REC 3-1/3-3	8
REC 4-1/4-3	11
REC 5	10

After all of the correction factors have been added, a summary of the results is noted in Table 9 below.

Table 10 - Summary of Results			
Reception Point	Description	Daytime at Facade $L_{eq(16)}$ (dBA)	Nighttime at Facade $L_{eq(8)}$ (dBA)
REC 1-1	Western Elevation - Building B - 1st Floor	70.63	62.95
REC 1-3	Western Elevation - Building B - 3rd Floor	71.05	63.35
REC 2-1	Northern Elevation - Building B - 1st Floor	75.53	67.87
REC 2-3	Northern Elevation - Building B - 3rd Floor	75.91	68.25
REC 3-1	Northern Elevation - Building A - 1st Floor	75.51	67.86
REC 3-3	Northern Elevation - Building A - 3rd Floor	75.89	68.23
REC 4-1	Eastern Elevation - Building A - 1st Floor	69.59	61.90
REC 4-3	Eastern Elevation - Building A - 3rd Floor	69.91	62.19
REC 5	2nd Floor Terrace	73.69	n/a
REC 5 REV 1	2nd Floor Terrace - Building Orientations - 2.4 m Barrier Wall	58.41	n/a

Ground-Borne Noise and Vibration

Based on the site proximity to the rail line, the closest location of proposed building was selected for the analysis at 40 m (131'). Therefore, based on Figure 1, the ground-borne vibration before adjustments will be 65 VdB. The following adjustments are to be applied for this baseline calculation:

Vehicle speed of 80 km/hr:	0 dB
Stiff Primary Suspension	+8 dB
High-Resilience Fasteners	-5 dB
Tunnel (Corridor) Track Structure	- 15 dB
Rock Near Surface	+2 dB
3-4 Storey Masonry	-10 dB
Foundation in Rock	0 dB
3 Floors	-2 dB per Floor
Amplification due to resonances	+6 dB

The result in the estimated ground-borne vibration for the will range between 51 VdB and 45 VdB, respectively, for the receivers at the ground level floor and the third floor of the proposed residential building. These values are below the 80 VdB for frequent event that is specified by the FTA and outlined in Table 6-3. Therefore, the ground-borne vibration satisfies the industry standards for residential uses at the proposed building.

Ground-borne noise is a common concern for buildings in close proximity to a rail line. The vibration of the transit structure excites the adjacent ground, creating vibration waves that propagate through the subsurface materials, and into the foundation of neighbouring buildings. This vibration will then be transferred throughout the building, often at the resonance frequency of the various components of the building. This ground-borne vibration of floors and walls may cause items to rattle, or it may manifest itself as a rumble, defined as ground-borne noise.

A conservative conversion from ground-borne vibration to ground-borne noise noted in Table 6-14 of the Transit Noise and Vibration Impact Assessment, can be made to the adjusted ground-borne vibration parameters. The conversion is as follows:

Low frequency (<30 Hz): -50 dB
Typical (peak 30 to 60 Hz): -35 dB
High frequency (>60 Hz): -20 dB

It is understood that the proposed building will be founded on the bedrock surface and the railway is also assumed to be founded on bedrock. Therefore, the peak frequency of ground vibration will be of high frequency (>60 Hz). The conversion from ground-borne vibration to ground-borne noise will result in an estimated ground-borne noise of 31 dB and 25 dB, respectively, for the receivers at the basement floor and the third floor of the proposed residential building. These are below the 35 dBA for frequent events that are specified by the FTA and outlined in Table 5. Therefore, the ground-borne noise satisfies the industry standards for residential uses at the proposed residential building.

7.0 Discussion and Recommendations

7.1 Outdoor Living Areas

One outdoor living area was analyzed as part of the current study. The outdoor living area is located between Building A and Building B and is denoted as REC 5. The results of the STAMSON modelling indicate that the $L_{eq(16)}$ from all sources was 73.69 dBA. The value for the outdoor living area was above the 55 dBA limit as specified in Table 1 therefore, additional noise attenuation features will be required.

Further analysis was performed for REC 5 as it exceeded the 55 dBA threshold. As per Table 11, denoted below of the City of Ottawa Guidelines, the following recommended methods were considered to reduce the noise levels:

- ☐ It is not possible to provide additional setbacks with the current orientation and size of the proposed buildings;
- ☐ It is not possible to insert noise-insensitive lands between the source and the receptor;
- ☐ The orientation of the proposed buildings was considered and is denoted in Drawing PG7950-5A;
- ☐ An acoustic barrier was considered in addition to the building orientation consideration and is further presented on Drawing PG7950-5A.

Primary Mitigation Measure to achieve required dBA – In order of Preference	Secondary Mitigation Measures	
	Landscape plantings and/or non-acoustic fence to obscure the noise source	Warning Clauses *
1. Distance setback with soft ground;	Recommended	
1. Insertion of noise-insensitive land uses between the source and the sensitive receptor		
2. Orientation of Buildings to provide sheltered zones in rear yards	Required	Warning Clauses are necessary and to include - Reference to specific noise mitigation measures in the development - Whether noise is expected to increase in the future and - That there is a need to maintain mitigation
3. Shared outdoor amenity areas		
4. Earth Berms (sound barriers)		
5. Acoustic barriers (acoustic barriers)		

With the implementation of the noise-reducing measures as stated in Table 2.3a of the ENCG, including the use of the building orientations and the implementation of a 2.4 m noise barrier consisting of a solid barrier parallel to Scott Street, the STAMSON results indicate that the sound levels for REC 5 were reduced to 58.49 dBA. As the value still slightly exceeds the 55 dBA threshold, the outdoor living area will require Warning Clause Type B. The noise barrier should be constructed as per the City of Ottawa guidelines. Reference should be made to Drawing PG7950-5A for the noise-reducing measures.

7.2 Indoor Living Areas and Ventilation

The results of the STAMSON modelling indicate that the $L_{eq(16)}$ ranges between 69.59 dBA and 75.91 dBA. All of the values calculated exceed the limit of 65 dBA as specified by the ENCG, and therefore, warning clauses will be required to be stated on any deeds of sale. The applicable warning clauses are summarized in Table 12 below.

Table 12 - Summary of Warning Clauses – Indoor Living Areas			
Building	Elevation	Applicable Warning Clause	Additional Considerations
Building A	Eastern, Northern, Western	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."
Building B	Eastern, Northern, Western	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."

All receptors exceed the 65 dBA threshold; therefore, an analysis of the building materials will be required. However, at this time the building materials and exterior wall construction details have not been finalized. Therefore, a review of the proposed building materials will need to be completed.

Proposed Construction Specifications

It is understood that typical window and wall details are proposed for the residential buildings. 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 windowpane

$L_{eq(16)(Interior)}$: Equals 45 dBA

N : Number of components in the room

No floor plans or detailed design drawings were provided at the time of preparing the current study. A conservative approach was used, assuming two components

per room. Therefore, the AIF would need to be at least **35 dBA** for Building A and **36 dBA** for Building B.

A conversion from AIF to a Standard Transmission Class (STC) rating will require knowledge of room dimensions in addition to the wall and window dimensions. However, as this information was not available, a conservative approach was used, which included increasing the AIF factor by 3. Therefore, provided the building materials of either the windows and/or exterior walls have an **STC rating of 38 for Building A and 39 for Building B** of the proposed residential building, this would be considered an acceptable noise attenuation measure.

8.0 Summary of Findings

The subject site is located at 12 Ross Avenue. It is understood that the proposed residential development will consist of a multi-level residential building. The associated analysis identified two surface transportation noise sources: Scott Street and the OLRT Line 1.

Several reception points were selected for the analysis, consisting of panes of glass reception points on both the first level and the third level in addition to the second floor terrace level.

The sound levels for Building A and Building B exceeded the 65 dBA threshold as specified by ENCG, and will require Warning Clause Type D. This noise level also triggered a review of the wall and window assemblies. It was determined that Building A will require materials that provide an STC rating of 38 and Building B will require materials that provide an STC rating of 39 for it to remain within compliance with the regulations.

One outdoor living area was analyzed as part of the current study. The results of the STAMSON modelling indicate that the $L_{eq(16)}$ from all sources was 73.69 dBA. With the implementation of the noise-reducing measures as stated in Table 2.3a of the ENCG, including the use of the building orientations and the implementation of a 2.4 m noise barrier parallel to Scott Street, the STAMSON results indicate that the sound levels were reduced to 58.49 dBA. As the value still slightly exceeds the 55 dBA threshold, the outdoor living area will require Warning Clause Type B.

All warning clauses are reiterated below and are to be included on all applicable units Offers of Purchase and Sale. It should be noted that all units should receive the Aircraft Noise Warning Clause.

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 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."

9.0 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 Citymakers Homes, 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.



Otilia McLaughlin, B.Eng.



Stephanie A. Boisvenue, P.Eng.

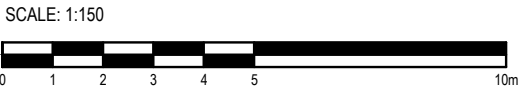
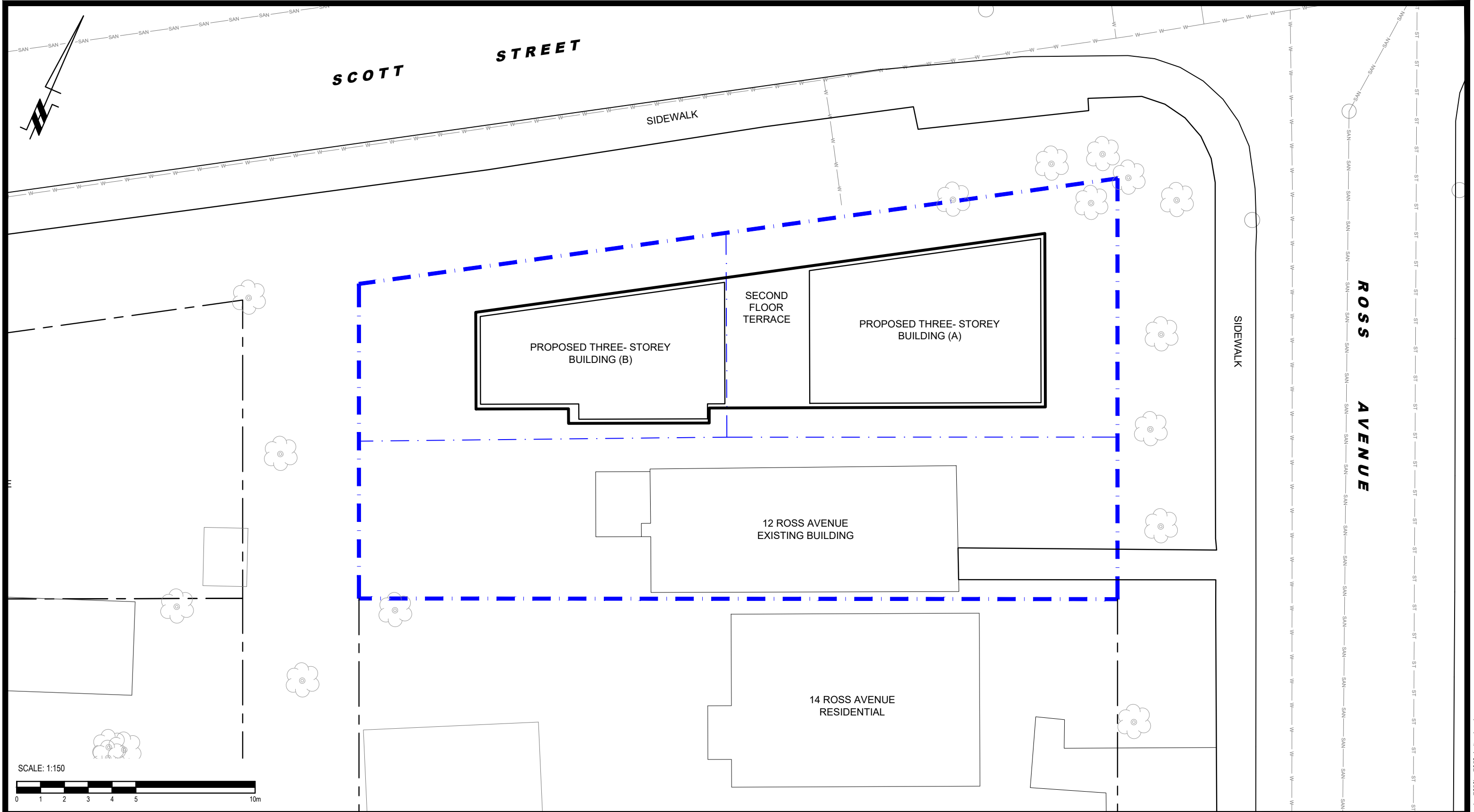
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APPENDIX 1

TABLE 13 – SUMMARY OF RECEPTION POINTS AND GEOMETRY
DRAWING PG7950-1-SITE PLAN
DRAWING PG7950-2-RECEPTOR LOCATION PLAN
DRAWING PG7950-3-SITE GEOMETRY (BUILDING B)
DRAWING PG7950-3A-SITE GEOMETRY (REC 1-1 & REC 1-3)
DRAWING PG7950-3B-SITE GEOMETRY (REC 2-1 & REC 2-3)
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DRAWING PG7950-5-SITE GEOMETRY (TERRACE)
DRAWING PG7950-5A-SITE GEOMETRY (REC 5)
DRAWING PG7950-5A REV.01-SITE GEOMETRY (REC 5 REV.01)

Table 13 - Summary of Reception Points and Geometry															
Proposed Residential Development															
Point of Reception	Location	Total Leq Day (dBA)	Total Leq Night (dBA)	Scott Street						OLRT - Line 1					
				Horizontal	Vertical	Total	Local Angle	Leq Day	Leq Night	Horizontal	Vertical	Total	Local Angle	Leq Day	Leq Night
				(m)	(m)	(m)	(degree)	dBA	dBA	(m)	(m)	(m)	(degree)	dBA	dBA
REC 1-1	Western Elevation - Building B - 1st Floor	70.63	62.95	10	1.5	10.11	-89, 0	70.54	62.94	40	1.5	40.03	-75, 0	53.56	34.01
REC 1-3	Western Elevation - Building B - 3rd Floor	71.05	63.35	10	9	13.45	-89, 0	70.94	63.34	40	9	41	-75, 0	54.82	35.28
REC 2-1	Northern Elevation - Building B - 1st Floor	75.53	67.87	8	1.5	8.14	-86, 86	75.47	67.87	38	1.5	38.03	-69, 69	56.65	37.11
REC 2-3	Northern Elevation - Building B - 3rd Floor	75.91	68.25	8	9	12.04	-86, 86	75.84	68.25	38	9	39.05	-69, 69	57.81	38.27
REC 3-1	Northern Elevation - Building A - 1st Floor	75.51	67.86	8	1.5	8.14	-85, 85	75.45	67.86	38	1.5	38.03	-69, 69	56.65	37.11
REC 3-3	Northern Elevation - Building A - 3rd Floor	75.89	68.23	8	9	12.04	-85, 85	75.82	68.23	38	9	39.05	-69, 69	57.81	38.27
REC 4-1	Eastern Elevation - Building A - 1st Floor	69.59	61.90	11	1.5	11.1	0, 76	69.48	61.89	42	1.5	42.03	0, 59	53.28	33.74
REC 4-3	Eastern Elevation - Building A - 3rd Floor	69.91	62.19	11	9	14.21	0, 76	69.78	62.18	42	9	42.95	0, 59	54.61	35.06
REC 5	2nd Floor Terrace	73.69	n/a	10	5.5	11.41	-89, 76	73.60	n/a	41	5.5	41.37	-76, 59	56.65	n/a
REC 5 Rev 1	2nd Floor Terrace - Building Orientations - 2.4 m Barrier Wall	58.41	n/a	10	5.5	11.41	-41, 39	58.29	n/a	41	5.5	41.37	-41, 39	42.53	n/a





**PATERSON
GROUP**

9 AURIGA DRIVE
OTTAWA, ON
K2E 7T9
TEL: (613) 226-7381

NO.	REVISIONS	DATE	INITIAL

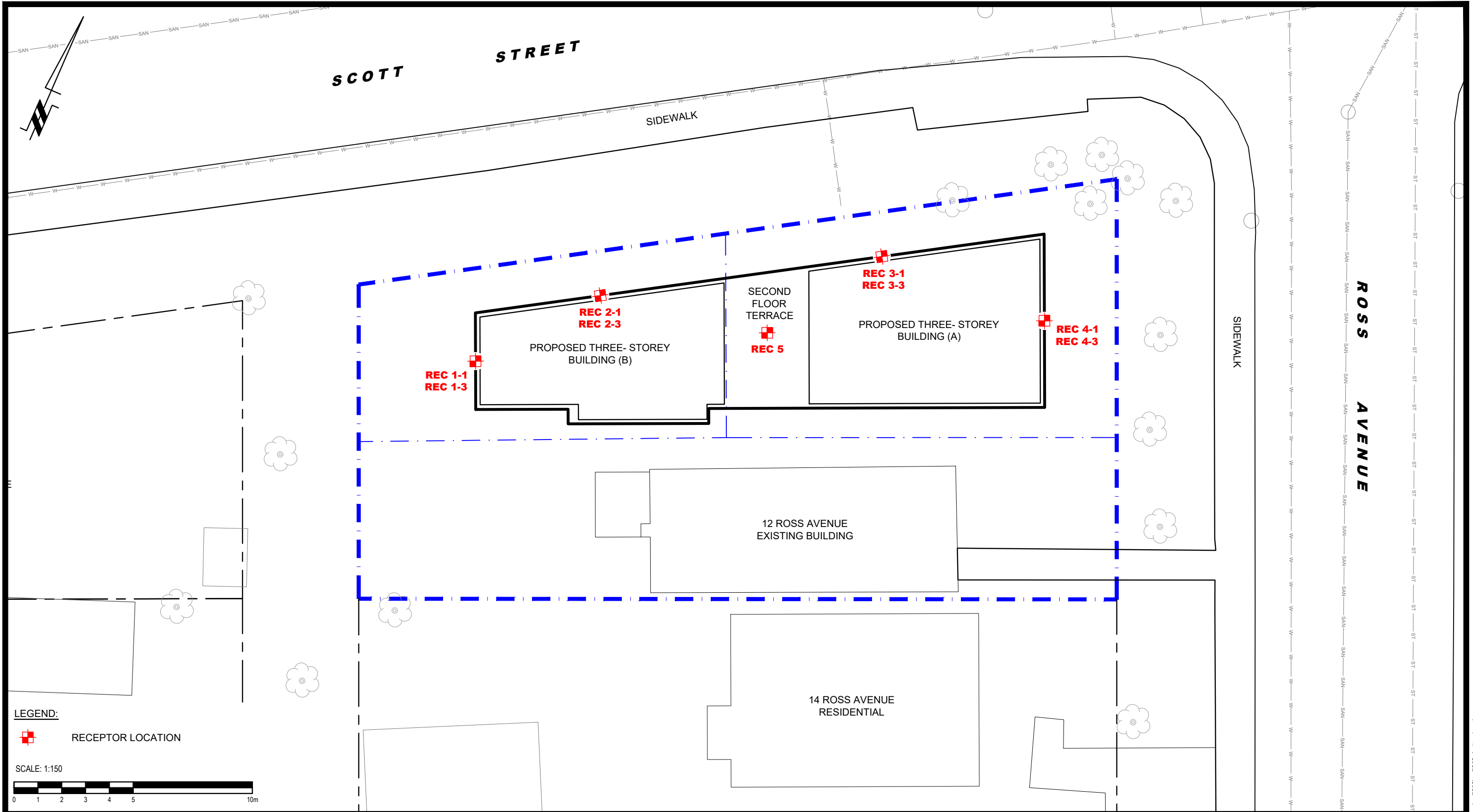
CITY MAKER HOMES
ENVIRONMENTAL NOISE CONTROL STUDY
PROPOSED RESIDENTIAL DEVELOPMENT
12 ROSS AVENUE

OTTAWA,
Title:

ONTARIO

SITE PLAN

Scale:	1:150	Date:	04/2026
Drawn by:	YA	Report No.:	PG7950-1
Checked by:	OM	Dwg. No.:	PG7950-1
Approved by:	SD	Revision No.:	





9 AURIGA DRIVE
OTTAWA, ON
K2E 7T9
TEL: (613) 226-7381

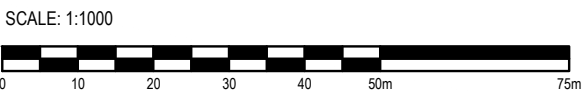
NO.	REVISIONS	DATE	INITIAL

OTTAWA,
Title:

CITY MAKER HOMES
ENVIRONMENTAL NOISE CONTROL STUDY
PROPOSED RESIDENTIAL DEVELOPMENT
12 ROSS AVENUE
RECEPTOR LOCATION PLAN

ONTARIO

Scale:	1:150	Date:	04/2026
Drawn by:	YA	Report No.:	PG7950-1
Checked by:	OM	Dwg. No.:	PG7950-2
Approved by:	SD	Revision No.:	





9 AURIGA DRIVE
OTTAWA, ON
K2E 7T9
TEL: (613) 226-7381

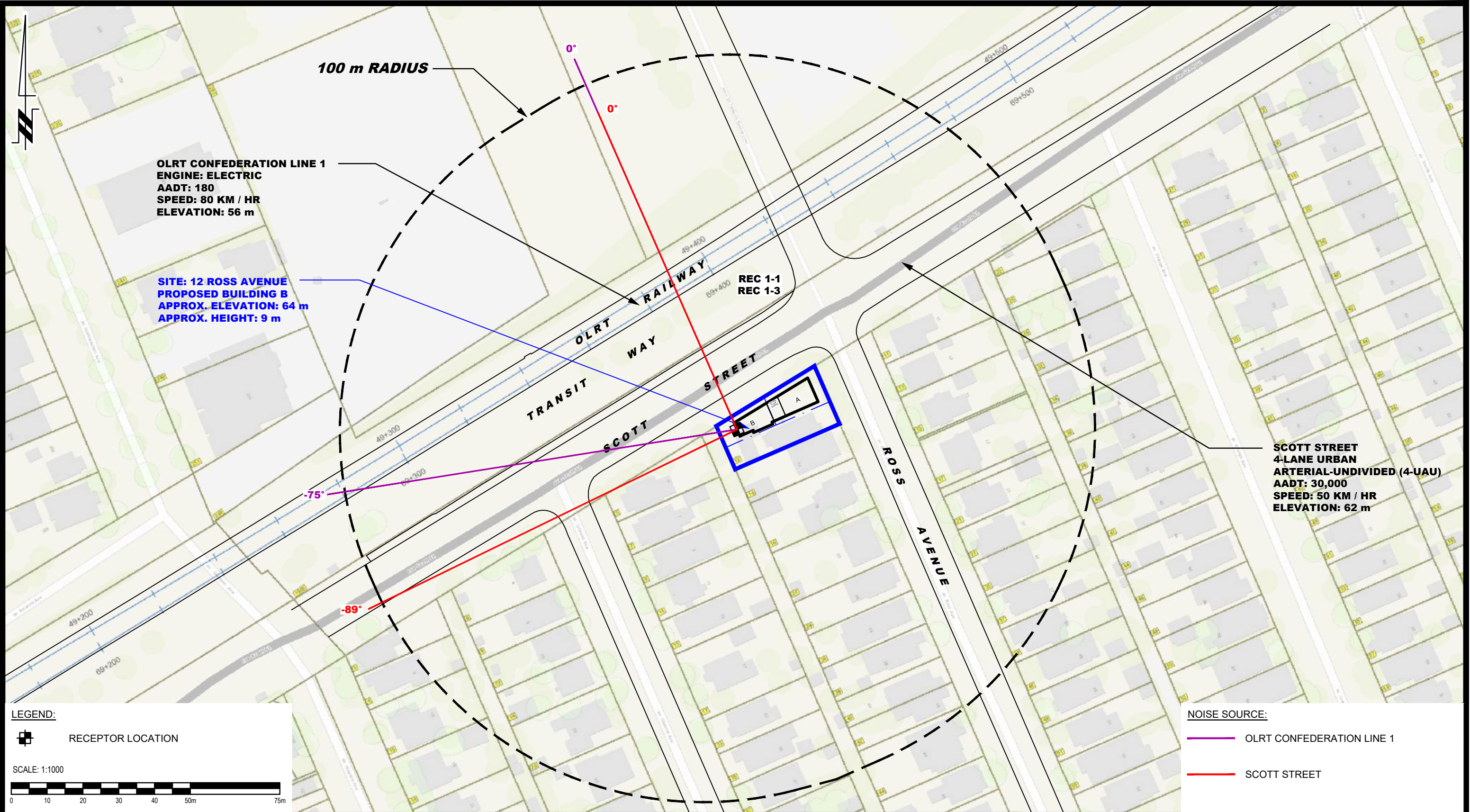
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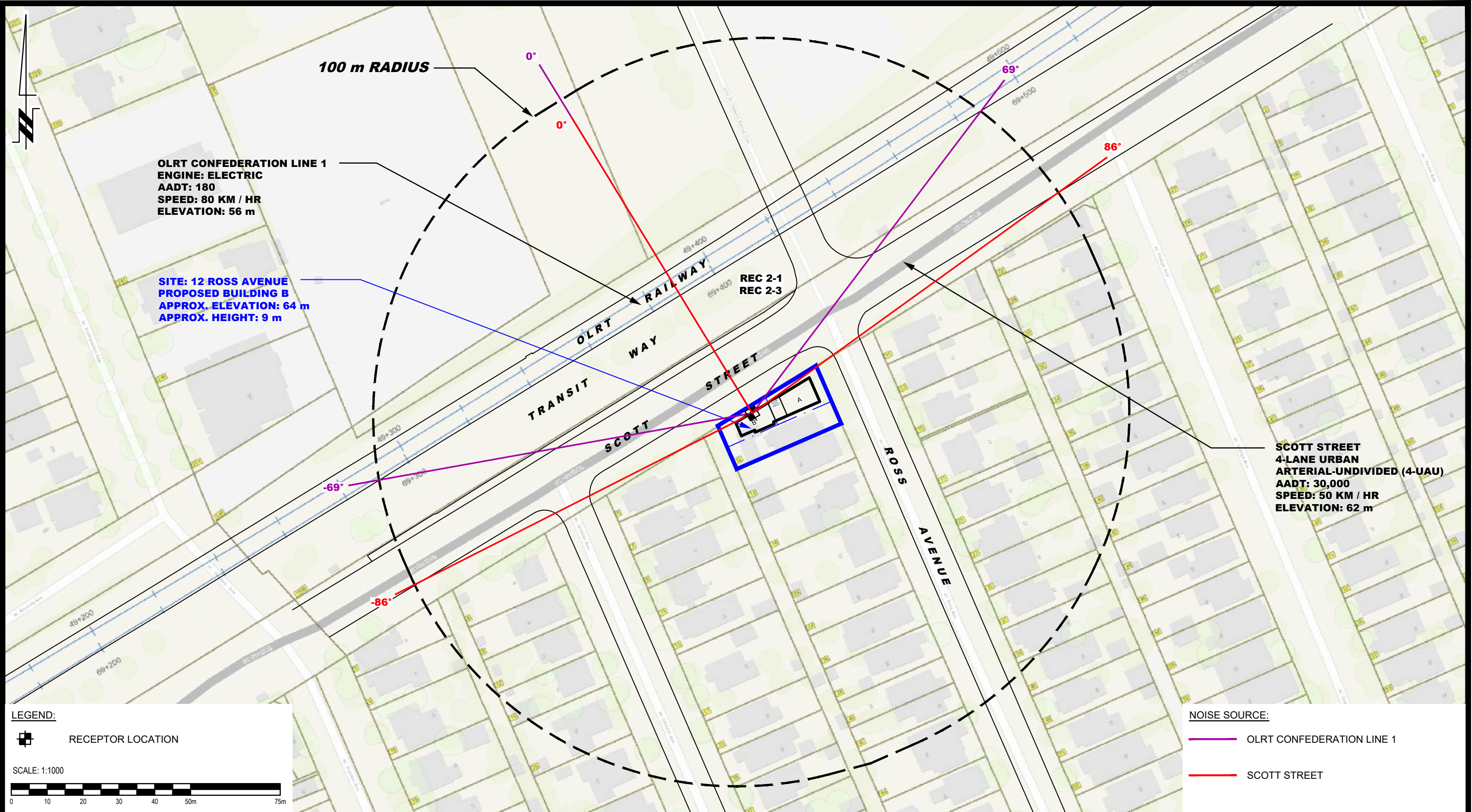
OTTAWA,
Title:

CITY MAKER HOMES
ENVIRONMENTAL NOISE CONTROL STUDY
PROPOSED RESIDENTIAL DEVELOPMENT
12 ROSS AVENUE
ONTARIO

SITE GEOMETRY- BUILDING B

Scale:	1:1000	Date:	04/2026
Drawn by:	YA	Report No.:	PG7950-1
Checked by:	OM	Dwg. No.:	PG7950-3
Approved by:	SD	Revision No.:	





LEGEND:

 RECEPTOR LOCATION

SCALE: 1:1000



NOISE SOURCE:

 OLRT CONFEDERATION LINE 1

 SCOTT STREET

 9 AURIGA DRIVE OTTAWA, ON K2E 7T9 TEL: (613) 226-7381				CITY MAKER HOMES ENVIRONMENTAL NOISE CONTROL STUDY PROPOSED RESIDENTIAL DEVELOPMENT 12 ROSS AVENUE OTTAWA, ONTARIO Title: SITE GEOMETRY- REC 2-1 AND REC 2-3				Scale: 1:1000	Date: 04/2026
								Drawn by: YA	Report No.: PG7950-1
								Checked by: OM	Dwg. No.: PG7950-3B
								Approved by: SD	Revision No.:
NO.	REVISIONS	DATE	INITIAL						



OLRT CONFEDERATION LINE 1
ENGINE: ELECTRIC
AADT: 180
SPEED: 80 KM / HR
ELEVATION: 56 m

RAILWAY
OLRT
TRANSIT WAY

SCOTT STREET

ROSS AVENUE

SCOTT STREET
4-LANE URBAN
ARTERIAL-UNDIVIDED (4-UAU)
AADT: 30,000
SPEED: 50 KM / HR
ELEVATION: 62 m

SITE: 12 ROSS AVENUE
PROPOSED BUILDING A
APPROX. ELEVATION: 64 m
APPROX. HEIGHT: 9 m

SCALE: 1:1000
0 10 20 30 40 50m 75m



PATERSON GROUP
9 AURIGA DRIVE
OTTAWA, ON
K2E 7T9
TEL: (613) 226-7381

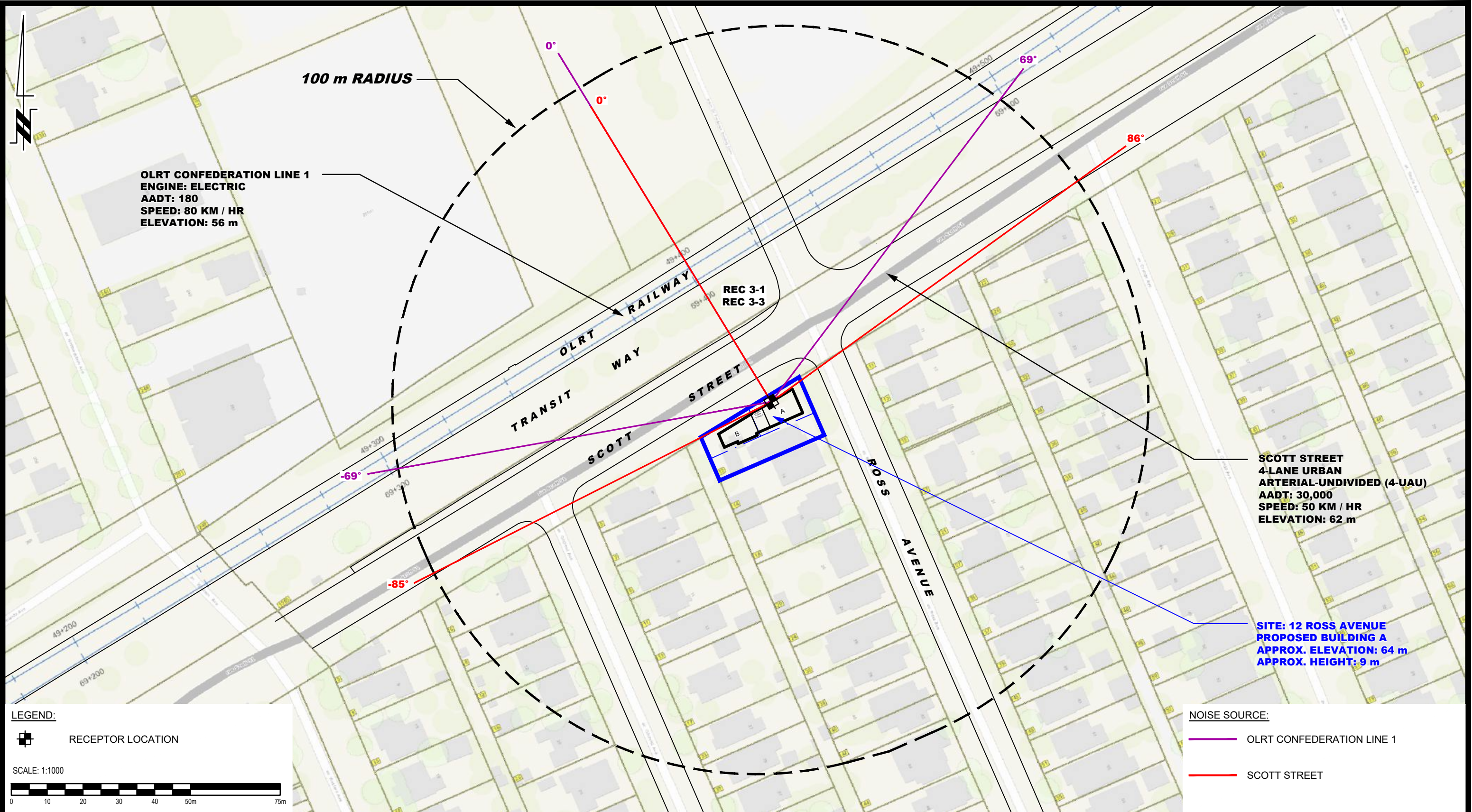
NO.	REVISIONS	DATE	INITIAL

OTTAWA,
Title:

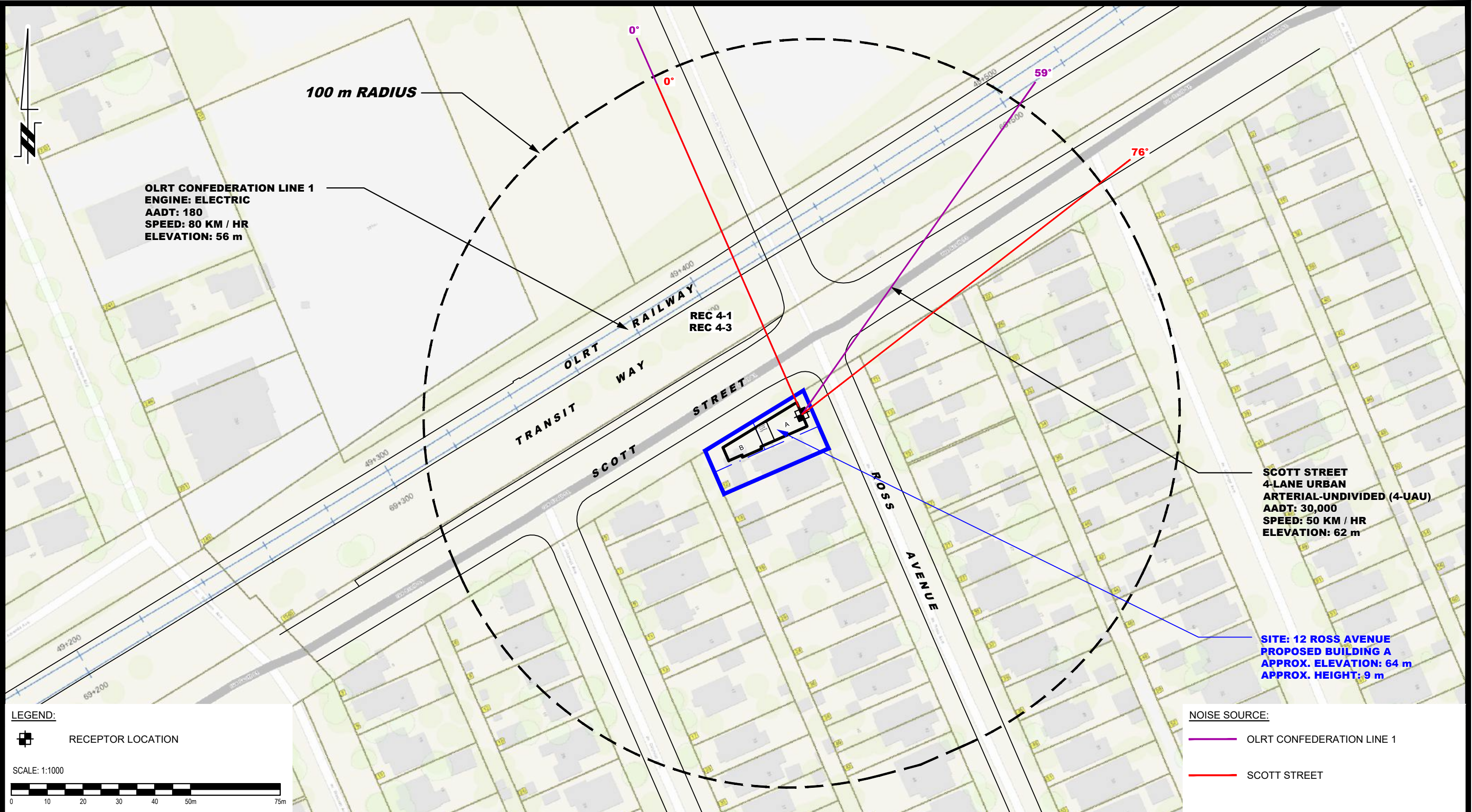
CITY MAKER HOMES
ENVIRONMENTAL NOISE CONTROL STUDY
PROPOSED RESIDENTIAL DEVELOPMENT
12 ROSS AVENUE
ONTARIO

SITE GEOMETRY- BUILDING A

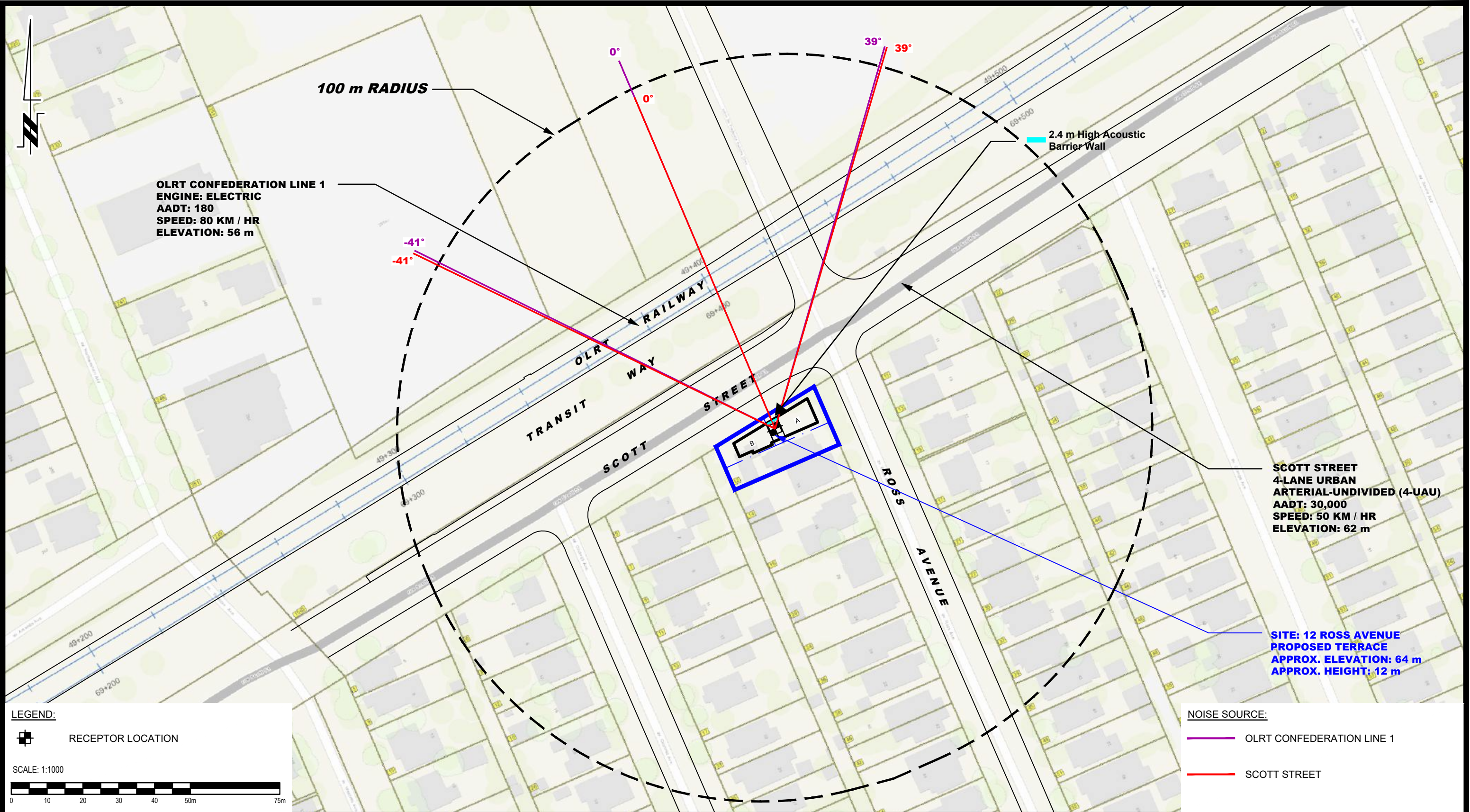
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Drawn by:	YA	Report No.:	PG7950-1
Checked by:	OM	Dwg. No.:	PG7950-4
Approved by:	SD	Revision No.:	



 9 AURIGA DRIVE OTTAWA, ON K2E 7T9 TEL: (613) 226-7381	CITY MAKER HOMES ENVIRONMENTAL NOISE CONTROL STUDY PROPOSED RESIDENTIAL DEVELOPMENT 12 ROSS AVENUE				Scale: 1:1000	Date: 04/2026
	OTTAWA, ONTARIO				Drawn by: YA	Report No.: PG7950-1
	SITE GEOMETRY- REC 3-1 AND REC 3-3				Checked by: OM	Dwg. No.: PG7950-4A
					Approved by: SD	Revision No.:
NO.	REVISIONS	DATE	INITIAL			

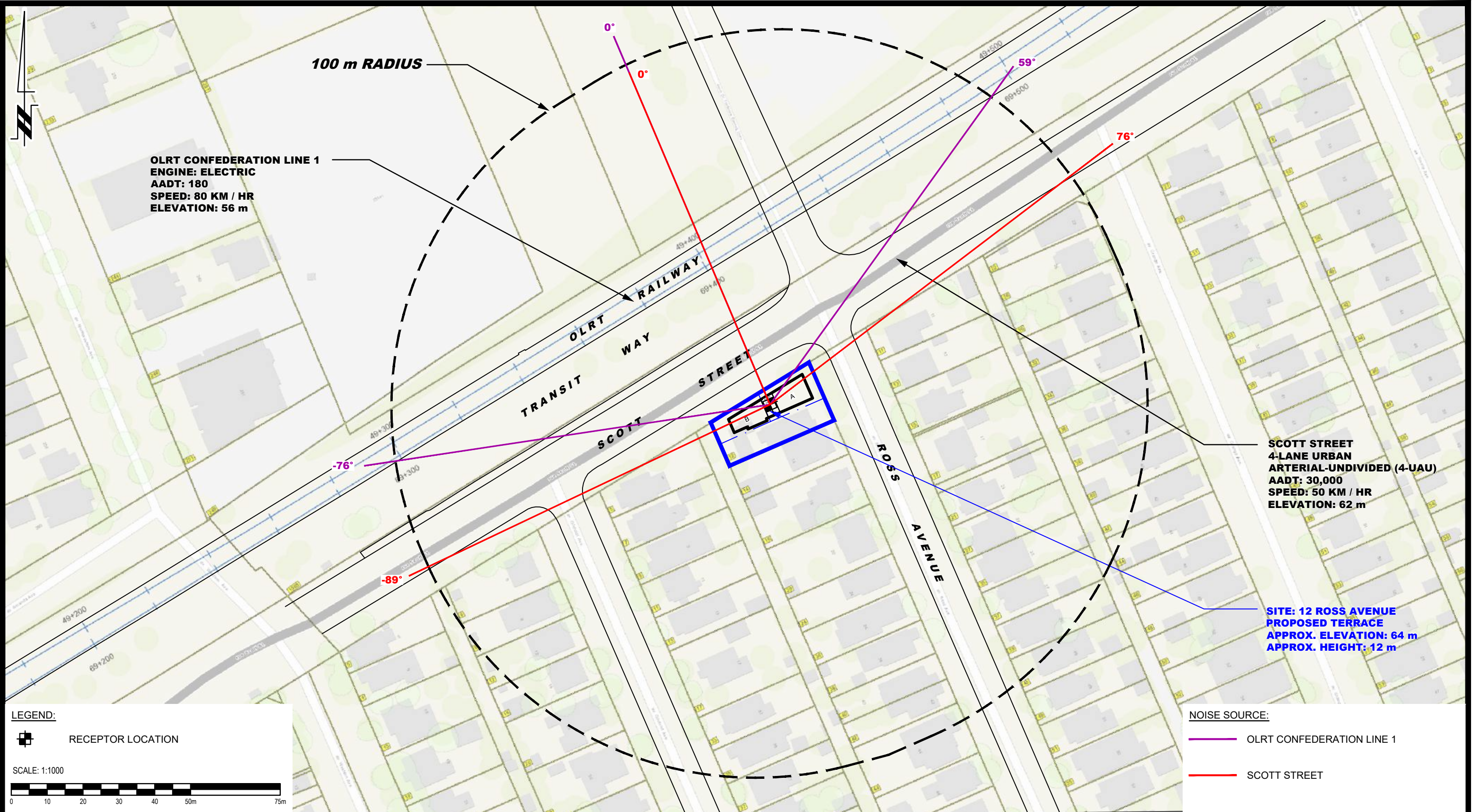


 PATERSON GROUP 9 AURIGA DRIVE OTTAWA, ON K2E 7T9 TEL: (613) 226-7381					CITY MAKER HOMES ENVIRONMENTAL NOISE CONTROL STUDY PROPOSED RESIDENTIAL DEVELOPMENT 12 ROSS AVENUE	Scale: 1:1000	Date: 04/2026							
									Drawn by: YA	Report No.: PG7950-1				
											Checked by: OM	Dwg. No.: PG7950-4B		
													Approved by: SD	Revision No.:
						OTTAWA, ONTARIO								
					Title: SITE GEOMETRY- REC 4-1 AND REC 4-3									
	NO.	REVISIONS	DATE	INITIAL										



 PATERSON GROUP 9 AURIGA DRIVE OTTAWA, ON K2E 7T9 TEL: (613) 226-7381					CITY MAKER HOMES ENVIRONMENTAL NOISE CONTROL STUDY PROPOSED RESIDENTIAL DEVELOPMENT 12 ROSS AVENUE	Scale: 1:1000 Drawn by: YA Checked by: OM Approved by: SD	Date: 04/2026 Report No.: PG7950-1 Dwg. No.: PG7950-5A Revision No.:	
	NO.	REVISIONS	DATE	INITIAL				

OTTAWA, Title:	ONTARIO
SITE GEOMETRY- REC 5 REV.01	



LEGEND:

 RECEPTOR LOCATION

SCALE: 1:1000



NOISE SOURCE:

 OLRT CONFEDERATION LINE 1

 SCOTT STREET

**PATERSON GROUP**

9 AURIGA DRIVE
OTTAWA, ON
K2E 7T9
TEL: (613) 226-7381

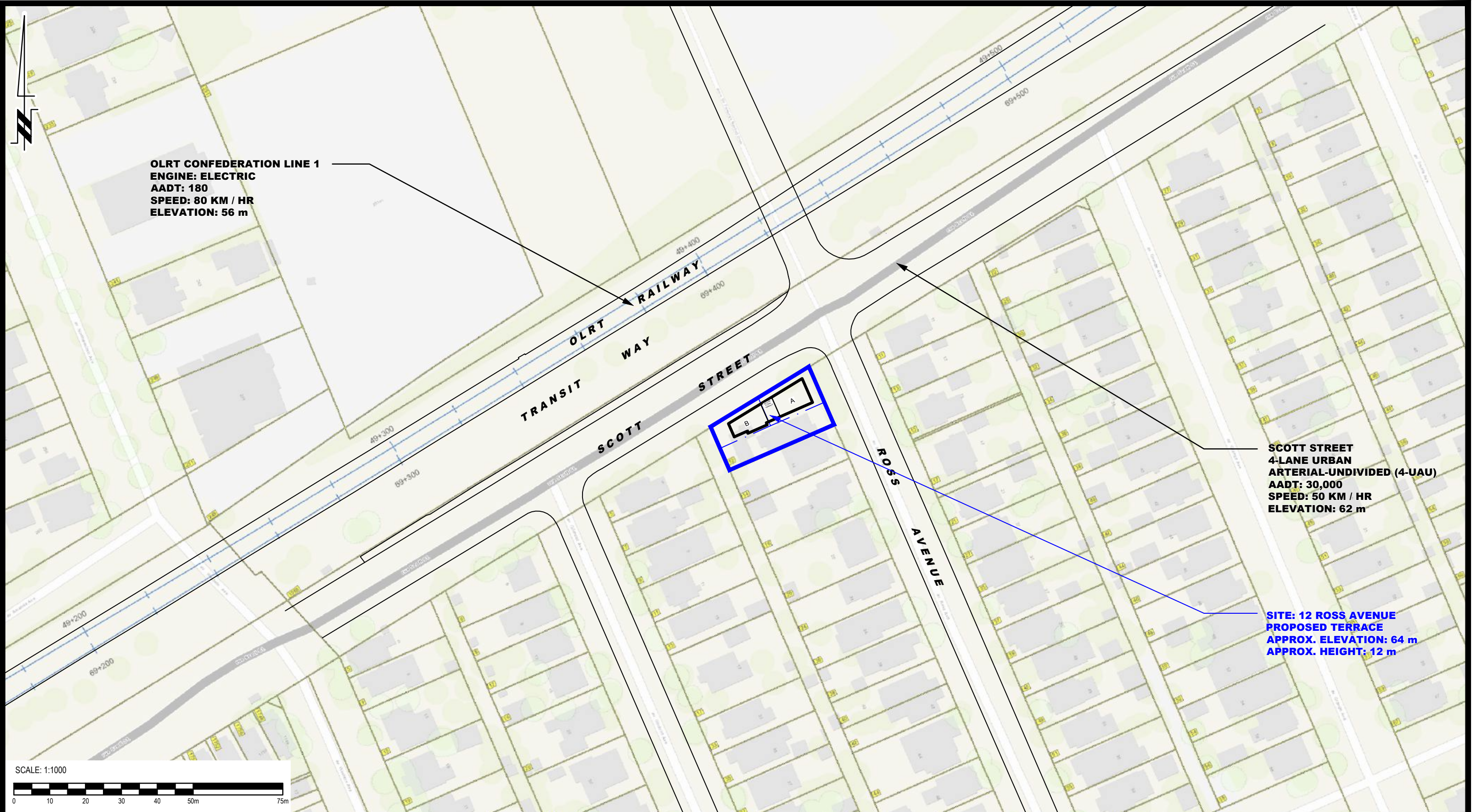
NO.	REVISIONS	DATE	INITIAL

CITY MAKER HOMES
ENVIRONMENTAL NOISE CONTROL STUDY
PROPOSED RESIDENTIAL DEVELOPMENT
12 ROSS AVENUE

OTTAWA, ONTARIO

Title: **SITE GEOMETRY- REC 5**

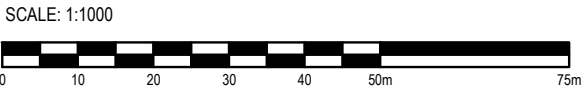
Scale:	1:1000	Date:	04/2026
Drawn by:	YA	Report No.:	PG7950-1
Checked by:	OM	Dwg. No.:	PG7950-5A
Approved by:	SD	Revision No.:	



OLRT CONFEDERATION LINE 1
ENGINE: ELECTRIC
AADT: 180
SPEED: 80 KM / HR
ELEVATION: 56 m

SCOTT STREET
4-LANE URBAN
ARTERIAL-UNDIVIDED (4-UAU)
AADT: 30,000
SPEED: 50 KM / HR
ELEVATION: 62 m

SITE: 12 ROSS AVENUE
PROPOSED TERRACE
APPROX. ELEVATION: 64 m
APPROX. HEIGHT: 12 m





**PATERSON
GROUP**

9 AURIGA DRIVE
OTTAWA, ON
K2E 7T9
TEL: (613) 226-7381

NO.	REVISIONS	DATE	INITIAL

OTTAWA,
Title:

CITY MAKER HOMES
ENVIRONMENTAL NOISE CONTROL STUDY
PROPOSED RESIDENTIAL DEVELOPMENT
12 ROSS AVENUE
ONTARIO

SITE GEOMETRY- PROPOSED TERRACE

Scale:	1:1000	Date:	04/2026
Drawn by:	YA	Report No.:	PG7950-1
Checked by:	OM	Dwg. No.:	PG7950-5
Approved by:	SD	Revision No.:	

APPENDIX 2

STAMSON RESULTS

STAMSON 5.0 NORMAL REPORT Date: 09-04-2026 16:01:11
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: REC11r.te Time Period: Day/Night 16/8 hours
Description: REC 1-1 - Road Segment

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

Car traffic volume : 24288/2112 veh/TimePeriod *
Medium truck volume : 1932/168 veh/TimePeriod *
Heavy truck volume : 1380/120 veh/TimePeriod *
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 30000
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: Scott Street (day/night)

Angle1 Angle2 : -89.00 deg 0.00 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

↑

Results segment # 1: Scott Street (day)

Source height = 1.50 m

ROAD (0.00 + 67.02 + 0.00) = 67.02 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-89	0	0.66	71.49	0.00	0.00	-4.47	0.00	0.00	0.00	67.02

Segment Leq : 67.02 dBA

Total Leq All Segments: 67.02 dBA

↑

Results segment # 1: Scott Street (night)

Source height = 1.50 m

ROAD (0.00 + 59.42 + 0.00) = 59.42 dBA

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

-89	0	0.66	63.89	0.00	0.00	-4.47	0.00	0.00	0.00	59.42
-----	---	------	-------	------	------	-------	------	------	------	-------

Segment Leq : 59.42 dBA

Total Leq All Segments: 59.42 dBA

↑

TOTAL Leq FROM ALL SOURCES (DAY): 67.02

(NIGHT): 59.42

↑

↑

STAMSON 5.0 NORMAL REPORT Date: 10-04-2026 07:38:43
 MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec11t.te Time Period: Day/Night 16/8 hours
 Description: REC 1-1 - Western - OLRT

Rail data, segment # 1: OLRT Line 1 (day/night)

Train Type	! Trains	! Speed (km/h)	!# loc /Train	!# Cars /Train	! Eng type	!Cont weld
* 1. OLRT	! 180.0/1.0	! 80.0	! 1.0	! 2.0	! Elec	! Yes

* The identified number of trains have been adjusted for future growth using the following parameters:

Train No	! Name	! Unadj. Trains	! Annual % Increase	! Years of Growth
1.	OLRT	! 180.0/1.0	! 0.00	! 0.00

Data for Segment # 1: OLRT Line 1 (day/night)

Angle1 Angle2 : -75.00 deg 0.00 deg
 Wood depth : 0 (No woods.)
 No of house rows : 0 / 0
 Surface : 1 (Absorptive ground surface)
 Receiver source distance : 40.00 / 40.00 m
 Receiver height : 1.50 / 1.50 m
 Topography : 3 (Elevated; no barrier)
 No Whistle
 Elevation : 6.00 m
 Reference angle : 0.00

↑
 Results segment # 1: OLRT Line 1 (day)

LOCOMOTIVE (0.00 + 49.91 + 0.00) = 49.91 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-75	0	0.41	60.29	-5.98	-4.40	0.00	0.00	0.00	49.91

WHEEL (0.00 + 51.10 + 0.00) = 51.10 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-75	0	0.51	62.06	-6.43	-4.54	0.00	0.00	0.00	51.10

Segment Leq : 53.56 dBA

Total Leq All Segments: 53.56 dBA

↑

Results segment # 1: OLRT Line 1 (night)

LOCOMOTIVE (0.00 + 30.37 + 0.00) = 30.37 dBA

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

-75	0	0.41	40.75	-5.98	-4.40	0.00	0.00	0.00	30.37
-----	---	------	-------	-------	-------	------	------	------	-------

WHEEL (0.00 + 31.55 + 0.00) = 31.55 dBA

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

-75	0	0.51	42.52	-6.43	-4.54	0.00	0.00	0.00	31.55
-----	---	------	-------	-------	-------	------	------	------	-------

Segment Leq : 34.01 dBA

Total Leq All Segments: 34.01 dBA

↑

TOTAL Leq FROM ALL SOURCES (DAY): 53.56
(NIGHT): 34.01

↑

↑

STAMSON 5.0 NORMAL REPORT Date: 10-04-2026 10:22:26
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec13r.te Time Period: Day/Night 16/8 hours
Description: REC 1-3 - Western - Road

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

Car traffic volume : 24288/2112 veh/TimePeriod *
Medium truck volume : 1932/168 veh/TimePeriod *
Heavy truck volume : 1380/120 veh/TimePeriod *
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 30000
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: Scott Street (day/night)

Angle1 Angle2 : -89.00 deg 0.00 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 : 9.00 / 9.00 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

↑

Results segment # 1: Scott Street (day)

Source height = 1.50 m

ROAD (0.00 + 67.42 + 0.00) = 67.42 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-89	0	0.44	71.49	0.00	0.00	-4.07	0.00	0.00	0.00	67.42

Segment Leq : 67.42 dBA

Total Leq All Segments: 67.42 dBA

↑

Results segment # 1: Scott Street (night)

Source height = 1.50 m

ROAD (0.00 + 59.82 + 0.00) = 59.82 dBA

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

-89	0	0.44	63.89	0.00	0.00	-4.07	0.00	0.00	0.00	59.82
-----	---	------	-------	------	------	-------	------	------	------	-------

Segment Leq : 59.82 dBA

Total Leq All Segments: 59.82 dBA

↑

TOTAL Leq FROM ALL SOURCES (DAY): 67.42

(NIGHT): 59.82

↑

↑

STAMSON 5.0 NORMAL REPORT Date: 10-04-2026 10:23:16
 MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec13t.te Time Period: Day/Night 16/8 hours
 Description: REC 1-3 - Western - Train

Rail data, segment # 1: OLRT Line 1 (day/night)

Train Type	! Trains	! Speed (km/h)	!# loc /Train	!# Cars /Train	! Eng type	!Cont weld
* 1. OLRT	! 180.0/1.0	! 80.0	! 1.0	! 2.0	! Elec	! Yes

* The identified number of trains have been adjusted for future growth using the following parameters:

Train No	! Name	! Unadj. Trains	! Annual % Increase	! Years of Growth
1.	OLRT	! 180.0/1.0	! 0.00	! 0.00

Data for Segment # 1: OLRT Line 1 (day/night)

Angle1 Angle2 : -75.00 deg 0.00 deg
 Wood depth : 0 (No woods.)
 No of house rows : 0 / 0
 Surface : 1 (Absorptive ground surface)
 Receiver source distance : 40.00 / 40.00 m
 Receiver height : 9.00 / 9.00 m
 Topography : 3 (Elevated; no barrier)
 No Whistle
 Elevation : 6.00 m
 Reference angle : 0.00

↑
 Results segment # 1: OLRT Line 1 (day)

LOCOMOTIVE (0.00 + 51.19 + 0.00) = 51.19 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-75	0	0.18	60.29	-5.03	-4.08	0.00	0.00	0.00	51.19

WHEEL (0.00 + 52.36 + 0.00) = 52.36 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-75	0	0.28	62.06	-5.47	-4.23	0.00	0.00	0.00	52.36

Segment Leq : 54.82 dBA

Total Leq All Segments: 54.82 dBA

↑

Results segment # 1: OLRT Line 1 (night)

LOCOMOTIVE (0.00 + 31.65 + 0.00) = 31.65 dBA

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

-75	0	0.18	40.75	-5.03	-4.08	0.00	0.00	0.00	31.65
-----	---	------	-------	-------	-------	------	------	------	-------

WHEEL (0.00 + 32.82 + 0.00) = 32.82 dBA

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

-75	0	0.28	42.52	-5.47	-4.23	0.00	0.00	0.00	32.82
-----	---	------	-------	-------	-------	------	------	------	-------

Segment Leq : 35.28 dBA

Total Leq All Segments: 35.28 dBA

↑

TOTAL Leq FROM ALL SOURCES (DAY): 54.82

(NIGHT): 35.28

↑

↑

STAMSON 5.0 NORMAL REPORT Date: 10-04-2026 07:47:40
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec21r.te Time Period: Day/Night 16/8 hours
Description: REC 2-1 - Northern - Road

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

Car traffic volume : 24288/2112 veh/TimePeriod *
Medium truck volume : 1932/168 veh/TimePeriod *
Heavy truck volume : 1380/120 veh/TimePeriod *
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 30000
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: Scott Street (day/night)

Angle1 Angle2 : -86.00 deg 86.00 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

↑

Results segment # 1: Scott Street (day)

Source height = 1.50 m

ROAD (0.00 + 70.01 + 0.00) = 70.01 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-86	86	0.66	71.49	0.00	0.00	-1.49	0.00	0.00	0.00	70.01

Segment Leq : 70.01 dBA

Total Leq All Segments: 70.01 dBA

↑

Results segment # 1: Scott Street (night)

Source height = 1.50 m

ROAD (0.00 + 62.41 + 0.00) = 62.41 dBA

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

-86	86	0.66	63.89	0.00	0.00	-1.49	0.00	0.00	0.00	62.41
-----	----	------	-------	------	------	-------	------	------	------	-------

Segment Leq : 62.41 dBA

Total Leq All Segments: 62.41 dBA

↑

TOTAL Leq FROM ALL SOURCES (DAY): 70.01

(NIGHT): 62.41

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STAMSON 5.0 NORMAL REPORT Date: 10-04-2026 07:50:16
 MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec21t.te Time Period: Day/Night 16/8 hours
 Description: REC 2-1 - Northern - Train

Rail data, segment # 1: OLRT Line 1 (day/night)

Train Type	! Trains	! Speed (km/h)	!# loc /Train	!# Cars /Train	! Eng type	!Cont weld
* 1. OLRT	! 180.0/1.0	! 80.0	! 1.0	! 2.0	! Elec	! Yes

* The identified number of trains have been adjusted for future growth using the following parameters:

Train No	! Name	! Unadj. Trains	! Annual % Increase	! Years of Growth
1.	OLRT	! 180.0/1.0	! 0.00	! 0.00

Data for Segment # 1: OLRT Line 1 (day/night)

Angle1 Angle2 : -69.00 deg 69.00 deg
 Wood depth : 0 (No woods.)
 No of house rows : 0 / 0
 Surface : 1 (Absorptive ground surface)
 Receiver source distance : 38.00 / 38.00 m
 Receiver height : 1.50 / 1.50 m
 Topography : 3 (Elevated; no barrier)
 No Whistle
 Elevation : 6.00 m
 Reference angle : 0.00

↑
 Results segment # 1: OLRT Line 1 (day)

LOCOMOTIVE (0.00 + 52.98 + 0.00) = 52.98 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-69	69	0.41	60.29	-5.67	-1.64	0.00	0.00	0.00	52.98

WHEEL (0.00 + 54.21 + 0.00) = 54.21 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-69	69	0.51	62.06	-6.10	-1.76	0.00	0.00	0.00	54.21

Segment Leq : 56.65 dBA

Total Leq All Segments: 56.65 dBA

↑

Results segment # 1: OLRT Line 1 (night)

LOCOMOTIVE (0.00 + 33.44 + 0.00) = 33.44 dBA

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

-69	69	0.41	40.75	-5.67	-1.64	0.00	0.00	0.00	33.44
-----	----	------	-------	-------	-------	------	------	------	-------

WHEEL (0.00 + 34.67 + 0.00) = 34.67 dBA

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

-69	69	0.51	42.52	-6.10	-1.76	0.00	0.00	0.00	34.67
-----	----	------	-------	-------	-------	------	------	------	-------

Segment Leq : 37.11 dBA

Total Leq All Segments: 37.11 dBA

↑

TOTAL Leq FROM ALL SOURCES (DAY): 56.65
(NIGHT): 37.11

↑

↑

STAMSON 5.0 NORMAL REPORT Date: 10-04-2026 10:24:04
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec23r.te Time Period: Day/Night 16/8 hours
Description: REC 2-3 - Northern - Road

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

Car traffic volume : 24288/2112 veh/TimePeriod *
Medium truck volume : 1932/168 veh/TimePeriod *
Heavy truck volume : 1380/120 veh/TimePeriod *
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 30000
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: Scott Street (day/night)

Angle1 Angle2 : -86.00 deg 86.00 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 : 9.00 / 9.00 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

↑

Results segment # 1: Scott Street (day)

Source height = 1.50 m

ROAD (0.00 + 70.38 + 0.00) = 70.38 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-86	86	0.44	71.49	0.00	0.00	-1.11	0.00	0.00	0.00	70.38

Segment Leq : 70.38 dBA

Total Leq All Segments: 70.38 dBA

↑

Results segment # 1: Scott Street (night)

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
--------	--------	-------	--------	-------	-------	-------	-------	-------	-------	--------

-86	86	0.44	63.89	0.00	0.00	-1.11	0.00	0.00	0.00	62.79
-----	----	------	-------	------	------	-------	------	------	------	-------

Segment Leq : 62.79 dBA

Total Leq All Segments: 62.79 dBA

↑

TOTAL Leq FROM ALL SOURCES (DAY): 70.38

(NIGHT): 62.79

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STAMSON 5.0 NORMAL REPORT Date: 10-04-2026 10:25:37
 MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec23t.te Time Period: Day/Night 16/8 hours
 Description: REC 2-3 - Northern - Train

Rail data, segment # 1: OLRT Line 1 (day/night)

Train Type	! Trains	! Speed (km/h)	!# loc /Train	!# Cars /Train	! Eng type	!Cont weld
* 1. OLRT	! 180.0/1.0	! 80.0	! 1.0	! 2.0	! Elec	! Yes

* The identified number of trains have been adjusted for future growth using the following parameters:

Train No	Train Name	! Unadj. Trains	! Annual % Increase	! Years of Growth
1.	OLRT	! 180.0/1.0	! 0.00	! 0.00

Data for Segment # 1: OLRT Line 1 (day/night)

Angle1 Angle2 : -69.00 deg 69.00 deg
 Wood depth : 0 (No woods.)
 No of house rows : 0 / 0
 Surface : 1 (Absorptive ground surface)
 Receiver source distance : 38.00 / 38.00 m
 Receiver height : 9.00 / 9.00 m
 Topography : 3 (Elevated; no barrier)
 No Whistle
 Elevation : 6.00 m
 Reference angle : 0.00

↑
 Results segment # 1: OLRT Line 1 (day)

LOCOMOTIVE (0.00 + 54.15 + 0.00) = 54.15 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-69	69	0.18	60.29	-4.76	-1.38	0.00	0.00	0.00	54.15

WHEEL (0.00 + 55.37 + 0.00) = 55.37 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-69	69	0.28	62.06	-5.19	-1.50	0.00	0.00	0.00	55.37

Segment Leq : 57.81 dBA

Total Leq All Segments: 57.81 dBA

↑

Results segment # 1: OLRT Line 1 (night)

LOCOMOTIVE (0.00 + 34.61 + 0.00) = 34.61 dBA

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

-69	69	0.18	40.75	-4.76	-1.38	0.00	0.00	0.00	34.61
-----	----	------	-------	-------	-------	------	------	------	-------

WHEEL (0.00 + 35.83 + 0.00) = 35.83 dBA

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

-69	69	0.28	42.52	-5.19	-1.50	0.00	0.00	0.00	35.83
-----	----	------	-------	-------	-------	------	------	------	-------

Segment Leq : 38.27 dBA

Total Leq All Segments: 38.27 dBA

↑

TOTAL Leq FROM ALL SOURCES (DAY): 57.81
(NIGHT): 38.27

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↑

STAMSON 5.0 NORMAL REPORT Date: 10-04-2026 07:57:34
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec31r.te Time Period: Day/Night 16/8 hours
Description: REC 3-1 - Northern - Road

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

Car traffic volume : 24288/2112 veh/TimePeriod *
Medium truck volume : 1932/168 veh/TimePeriod *
Heavy truck volume : 1380/120 veh/TimePeriod *
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 30000
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: Scott Street (day/night)

Angle1 Angle2 : -85.00 deg 85.00 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

↑

Results segment # 1: Scott Street (day)

Source height = 1.50 m

ROAD (0.00 + 69.99 + 0.00) = 69.99 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-85	85	0.66	71.49	0.00	0.00	-1.50	0.00	0.00	0.00	69.99

Segment Leq : 69.99 dBA

Total Leq All Segments: 69.99 dBA

↑

Results segment # 1: Scott Street (night)

Source height = 1.50 m

ROAD (0.00 + 62.40 + 0.00) = 62.40 dBA

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

-85	85	0.66	63.89	0.00	0.00	-1.50	0.00	0.00	0.00	62.40
-----	----	------	-------	------	------	-------	------	------	------	-------

Segment Leq : 62.40 dBA

Total Leq All Segments: 62.40 dBA

↑

TOTAL Leq FROM ALL SOURCES (DAY): 69.99

(NIGHT): 62.40

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↑

STAMSON 5.0 NORMAL REPORT Date: 10-04-2026 07:59:00
 MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec31t.te Time Period: Day/Night 16/8 hours
 Description: REC 3-1 - Northern - Train

Rail data, segment # 1: OLRT Line 1 (day/night)

Train Type	! Trains	! Speed (km/h)	!# loc /Train	!# Cars /Train	! Eng type	!Cont weld
* 1. OLRT	! 180.0/1.0	! 80.0	! 1.0	! 2.0	! Elec	! Yes

* The identified number of trains have been adjusted for future growth using the following parameters:

Train No	! Name	! Unadj. Trains	! Annual % Increase	! Years of Growth
1.	OLRT	! 180.0/1.0	! 0.00	! 0.00

Data for Segment # 1: OLRT Line 1 (day/night)

Angle1 Angle2 : -69.00 deg 69.00 deg
 Wood depth : 0 (No woods.)
 No of house rows : 0 / 0
 Surface : 1 (Absorptive ground surface)
 Receiver source distance : 38.00 / 38.00 m
 Receiver height : 1.50 / 1.50 m
 Topography : 3 (Elevated; no barrier)
 No Whistle
 Elevation : 6.00 m
 Reference angle : 0.00

↑
 Results segment # 1: OLRT Line 1 (day)

LOCOMOTIVE (0.00 + 52.98 + 0.00) = 52.98 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-69	69	0.41	60.29	-5.67	-1.64	0.00	0.00	0.00	52.98

WHEEL (0.00 + 54.21 + 0.00) = 54.21 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-69	69	0.51	62.06	-6.10	-1.76	0.00	0.00	0.00	54.21

Segment Leq : 56.65 dBA

Total Leq All Segments: 56.65 dBA

↑

Results segment # 1: OLRT Line 1 (night)

LOCOMOTIVE (0.00 + 33.44 + 0.00) = 33.44 dBA

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

-69	69	0.41	40.75	-5.67	-1.64	0.00	0.00	0.00	33.44
-----	----	------	-------	-------	-------	------	------	------	-------

WHEEL (0.00 + 34.67 + 0.00) = 34.67 dBA

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

-69	69	0.51	42.52	-6.10	-1.76	0.00	0.00	0.00	34.67
-----	----	------	-------	-------	-------	------	------	------	-------

Segment Leq : 37.11 dBA

Total Leq All Segments: 37.11 dBA

↑

TOTAL Leq FROM ALL SOURCES (DAY): 56.65
(NIGHT): 37.11

↑

↑

STAMSON 5.0 NORMAL REPORT Date: 10-04-2026 10:26:24
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec33r.te Time Period: Day/Night 16/8 hours
Description: REC 3-3 - Northern - Road

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

Car traffic volume : 24288/2112 veh/TimePeriod *
Medium truck volume : 1932/168 veh/TimePeriod *
Heavy truck volume : 1380/120 veh/TimePeriod *
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 30000
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: Scott Street (day/night)

Angle1 Angle2 : -85.00 deg 85.00 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 : 9.00 / 9.00 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

↑

Results segment # 1: Scott Street (day)

Source height = 1.50 m

ROAD (0.00 + 70.36 + 0.00) = 70.36 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-85	85	0.44	71.49	0.00	0.00	-1.13	0.00	0.00	0.00	70.36

Segment Leq : 70.36 dBA

Total Leq All Segments: 70.36 dBA

↑

Results segment # 1: Scott Street (night)

Source height = 1.50 m

ROAD (0.00 + 62.77 + 0.00) = 62.77 dBA

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

-85	85	0.44	63.89	0.00	0.00	-1.13	0.00	0.00	0.00	62.77
-----	----	------	-------	------	------	-------	------	------	------	-------

Segment Leq : 62.77 dBA

Total Leq All Segments: 62.77 dBA

↑

TOTAL Leq FROM ALL SOURCES (DAY): 70.36

(NIGHT): 62.77

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↑

STAMSON 5.0 NORMAL REPORT Date: 10-04-2026 10:26:54
 MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec33t.te Time Period: Day/Night 16/8 hours
 Description: REC 3-3 - Northern - Train

Rail data, segment # 1: OLRT Line 1 (day/night)

Train Type	! Trains	! Speed (km/h)	!# loc /Train	!# Cars /Train	! Eng type	!Cont weld
* 1. OLRT	! 180.0/1.0	! 80.0	! 1.0	! 2.0	! Elec	! Yes

* The identified number of trains have been adjusted for future growth using the following parameters:

Train No	! Name	! Unadj. Trains	! Annual % Increase	! Years of Growth
1.	OLRT	! 180.0/1.0	! 0.00	! 0.00

Data for Segment # 1: OLRT Line 1 (day/night)

Angle1 Angle2 : -69.00 deg 69.00 deg
 Wood depth : 0 (No woods.)
 No of house rows : 0 / 0
 Surface : 1 (Absorptive ground surface)
 Receiver source distance : 38.00 / 38.00 m
 Receiver height : 9.00 / 9.00 m
 Topography : 3 (Elevated; no barrier)
 No Whistle
 Elevation : 6.00 m
 Reference angle : 0.00

↑
 Results segment # 1: OLRT Line 1 (day)

LOCOMOTIVE (0.00 + 54.15 + 0.00) = 54.15 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-69	69	0.18	60.29	-4.76	-1.38	0.00	0.00	0.00	54.15

WHEEL (0.00 + 55.37 + 0.00) = 55.37 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-69	69	0.28	62.06	-5.19	-1.50	0.00	0.00	0.00	55.37

Segment Leq : 57.81 dBA

Total Leq All Segments: 57.81 dBA

↑

Results segment # 1: OLRT Line 1 (night)

LOCOMOTIVE (0.00 + 34.61 + 0.00) = 34.61 dBA

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

-69	69	0.18	40.75	-4.76	-1.38	0.00	0.00	0.00	34.61
-----	----	------	-------	-------	-------	------	------	------	-------

WHEEL (0.00 + 35.83 + 0.00) = 35.83 dBA

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

-69	69	0.28	42.52	-5.19	-1.50	0.00	0.00	0.00	35.83
-----	----	------	-------	-------	-------	------	------	------	-------

Segment Leq : 38.27 dBA

Total Leq All Segments: 38.27 dBA

↑

TOTAL Leq FROM ALL SOURCES (DAY): 57.81
(NIGHT): 38.27

↑

↑

STAMSON 5.0 NORMAL REPORT Date: 10-04-2026 08:01:39
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec41r.te Time Period: Day/Night 16/8 hours
Description: REC 4-1 - Eastern - Road

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

Car traffic volume : 24288/2112 veh/TimePeriod *
Medium truck volume : 1932/168 veh/TimePeriod *
Heavy truck volume : 1380/120 veh/TimePeriod *
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 30000
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: Scott Street (day/night)

Angle1 Angle2 : 0.00 deg 76.00 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

↑

Results segment # 1: Scott Street (day)

Source height = 1.50 m

ROAD (0.00 + 66.79 + 0.00) = 66.79 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	76	0.66	71.49	0.00	0.00	-4.70	0.00	0.00	0.00	66.79

Segment Leq : 66.79 dBA

Total Leq All Segments: 66.79 dBA

↑

Results segment # 1: Scott Street (night)

Source height = 1.50 m

ROAD (0.00 + 59.20 + 0.00) = 59.20 dBA

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

0	76	0.66	63.89	0.00	0.00	-4.70	0.00	0.00	0.00	59.20
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Segment Leq : 59.20 dBA

Total Leq All Segments: 59.20 dBA

↑

TOTAL Leq FROM ALL SOURCES (DAY): 66.79

(NIGHT): 59.20

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↑

STAMSON 5.0 NORMAL REPORT Date: 10-04-2026 08:03:19
 MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec41t.te Time Period: Day/Night 16/8 hours
 Description: REC 4-1 - Eastern - Train

Rail data, segment # 1: OLRT Line 1 (day/night)

Train Type	! Trains	! Speed (km/h)	!# loc /Train	!# Cars /Train	! Eng type	!Cont weld
* 1. OLRT	! 180.0/1.0	! 80.0	! 1.0	! 2.0	! Elec	! Yes

* The identified number of trains have been adjusted for future growth using the following parameters:

Train No	Train Name	! Unadj. Trains	! Annual % Increase	! Years of Growth
1.	OLRT	! 180.0/1.0	! 0.00	! 0.00

Data for Segment # 1: OLRT Line 1 (day/night)

Angle1 Angle2 : 0.00 deg 76.00 deg
 Wood depth : 0 (No woods.)
 No of house rows : 0 / 0
 Surface : 1 (Absorptive ground surface)
 Receiver source distance : 42.00 / 42.00 m
 Receiver height : 1.50 / 1.50 m
 Topography : 3 (Elevated; no barrier)
 No Whistle
 Elevation : 6.00 m
 Reference angle : 0.00

↑
 Results segment # 1: OLRT Line 1 (day)

LOCOMOTIVE (0.00 + 49.65 + 0.00) = 49.65 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	76	0.41	60.29	-6.28	-4.36	0.00	0.00	0.00	49.65

WHEEL (0.00 + 50.81 + 0.00) = 50.81 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	76	0.51	62.06	-6.75	-4.50	0.00	0.00	0.00	50.81

Segment Leq : 53.28 dBA

Total Leq All Segments: 53.28 dBA

↑

Results segment # 1: OLRT Line 1 (night)

LOCOMOTIVE (0.00 + 30.11 + 0.00) = 30.11 dBA

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

0	76	0.41	40.75	-6.28	-4.36	0.00	0.00	0.00	30.11
---	----	------	-------	-------	-------	------	------	------	-------

WHEEL (0.00 + 31.27 + 0.00) = 31.27 dBA

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

0	76	0.51	42.52	-6.75	-4.50	0.00	0.00	0.00	31.27
---	----	------	-------	-------	-------	------	------	------	-------

Segment Leq : 33.74 dBA

Total Leq All Segments: 33.74 dBA

↑

TOTAL Leq FROM ALL SOURCES (DAY): 53.28

(NIGHT): 33.74

↑

↑

STAMSON 5.0 NORMAL REPORT Date: 10-04-2026 10:27:38
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec43r.te Time Period: Day/Night 16/8 hours
Description: REC 4-3 - Eastern - Road

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

Car traffic volume : 24288/2112 veh/TimePeriod *
Medium truck volume : 1932/168 veh/TimePeriod *
Heavy truck volume : 1380/120 veh/TimePeriod *
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 30000
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: Scott Street (day/night)

Angle1 Angle2 : 0.00 deg 76.00 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 : 9.00 / 9.00 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

↑

Results segment # 1: Scott Street (day)

Source height = 1.50 m

ROAD (0.00 + 67.09 + 0.00) = 67.09 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	76	0.44	71.49	0.00	0.00	-4.40	0.00	0.00	0.00	67.09

Segment Leq : 67.09 dBA

Total Leq All Segments: 67.09 dBA

↑

Results segment # 1: Scott Street (night)

Source height = 1.50 m

ROAD (0.00 + 59.49 + 0.00) = 59.49 dBA

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

0	76	0.44	63.89	0.00	0.00	-4.40	0.00	0.00	0.00	59.49
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Segment Leq : 59.49 dBA

Total Leq All Segments: 59.49 dBA

↑

TOTAL Leq FROM ALL SOURCES (DAY): 67.09

(NIGHT): 59.49

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STAMSON 5.0 NORMAL REPORT Date: 10-04-2026 10:28:18
 MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec43t.te Time Period: Day/Night 16/8 hours
 Description: REC 4-3 - Eastern - Train

Rail data, segment # 1: OLRT Line 1 (day/night)

Train Type	! Trains	! Speed (km/h)	!# loc /Train	!# Cars /Train	! Eng type	!Cont weld
* 1. OLRT	! 180.0/1.0	! 80.0	! 1.0	! 2.0	! Elec	! Yes

* The identified number of trains have been adjusted for future growth using the following parameters:

Train No	! Name	! Unadj. Trains	! Annual % Increase	! Years of Growth
1.	OLRT	! 180.0/1.0	! 0.00	! 0.00

Data for Segment # 1: OLRT Line 1 (day/night)

Angle1 Angle2 : 0.00 deg 76.00 deg
 Wood depth : 0 (No woods.)
 No of house rows : 0 / 0
 Surface : 1 (Absorptive ground surface)
 Receiver source distance : 42.00 / 42.00 m
 Receiver height : 9.00 / 9.00 m
 Topography : 3 (Elevated; no barrier)
 No Whistle
 Elevation : 6.00 m
 Reference angle : 0.00

↑
 Results segment # 1: OLRT Line 1 (day)

LOCOMOTIVE (0.00 + 50.99 + 0.00) = 50.99 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	76	0.18	60.29	-5.28	-4.03	0.00	0.00	0.00	50.99

WHEEL (0.00 + 52.13 + 0.00) = 52.13 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	76	0.28	62.06	-5.75	-4.19	0.00	0.00	0.00	52.13

Segment Leq : 54.61 dBA

Total Leq All Segments: 54.61 dBA

↑

Results segment # 1: OLRT Line 1 (night)

LOCOMOTIVE (0.00 + 31.44 + 0.00) = 31.44 dBA

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

0	76	0.18	40.75	-5.28	-4.03	0.00	0.00	0.00	31.44
---	----	------	-------	-------	-------	------	------	------	-------

WHEEL (0.00 + 32.59 + 0.00) = 32.59 dBA

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

0	76	0.28	42.52	-5.75	-4.19	0.00	0.00	0.00	32.59
---	----	------	-------	-------	-------	------	------	------	-------

Segment Leq : 35.06 dBA

Total Leq All Segments: 35.06 dBA

↑

TOTAL Leq FROM ALL SOURCES (DAY): 54.61

(NIGHT): 35.06

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↑

STAMSON 5.0 NORMAL REPORT Date: 10-04-2026 10:55:37
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec5r.te Time Period: Day/Night 16/8 hours
Description: REC 5 - Terrace - Road

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

Car traffic volume : 24288/2112 veh/TimePeriod *
Medium truck volume : 1932/168 veh/TimePeriod *
Heavy truck volume : 1380/120 veh/TimePeriod *
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 30000
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: Scott Street (day/night)

Angle1 Angle2 : -89.00 deg 76.00 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 : 5.00 / 5.00 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

↑

Results segment # 1: Scott Street (day)

Source height = 1.50 m

ROAD (0.00 + 70.08 + 0.00) = 70.08 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-89	76	0.56	71.49	0.00	0.00	-1.41	0.00	0.00	0.00	70.08

Segment Leq : 70.08 dBA

Total Leq All Segments: 70.08 dBA

↑

Results segment # 1: Scott Street (night)

Source height = 1.50 m

ROAD (0.00 + 62.48 + 0.00) = 62.48 dBA

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

-89	76	0.56	63.89	0.00	0.00	-1.41	0.00	0.00	0.00	62.48
-----	----	------	-------	------	------	-------	------	------	------	-------

Segment Leq : 62.48 dBA

Total Leq All Segments: 62.48 dBA

↑

TOTAL Leq FROM ALL SOURCES (DAY): 70.08

(NIGHT): 62.48

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↑

STAMSON 5.0 NORMAL REPORT Date: 10-04-2026 10:56:17
 MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec5t.te Time Period: Day/Night 16/8 hours
 Description: REC 5 - Terrace - Train

Rail data, segment # 1: OLRT Line 1 (day/night)

Train Type	! Trains	! Speed (km/h)	!# loc /Train	!# Cars /Train	! Eng type	!Cont weld
* 1. OLRT	! 180.0/1.0	! 80.0	! 1.0	! 2.0	! Elec	! Yes

* The identified number of trains have been adjusted for future growth using the following parameters:

Train No	! Name	! Unadj. Trains	! Annual % Increase	! Years of Growth
1.	OLRT	! 180.0/1.0	! 0.00	! 0.00

Data for Segment # 1: OLRT Line 1 (day/night)

Angle1 Angle2 : -76.00 deg 59.00 deg
 Wood depth : 0 (No woods.)
 No of house rows : 0 / 0
 Surface : 1 (Absorptive ground surface)
 Receiver source distance : 41.00 / 41.00 m
 Receiver height : 5.00 / 5.00 m
 Topography : 3 (Elevated; no barrier)
 No Whistle
 Elevation : 6.00 m
 Reference angle : 0.00

↑
 Results segment # 1: OLRT Line 1 (day)

LOCOMOTIVE (0.00 + 53.00 + 0.00) = 53.00 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-76	59	0.30	60.29	-5.68	-1.62	0.00	0.00	0.00	53.00

WHEEL (0.00 + 54.19 + 0.00) = 54.19 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-76	59	0.41	62.06	-6.14	-1.74	0.00	0.00	0.00	54.19

Segment Leq : 56.65 dBA

Total Leq All Segments: 56.65 dBA

↑

Results segment # 1: OLRT Line 1 (night)

LOCOMOTIVE (0.00 + 33.45 + 0.00) = 33.45 dBA

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

-76	59	0.30	40.75	-5.68	-1.62	0.00	0.00	0.00	33.45
-----	----	------	-------	-------	-------	------	------	------	-------

WHEEL (0.00 + 34.64 + 0.00) = 34.64 dBA

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

-76	59	0.41	42.52	-6.14	-1.74	0.00	0.00	0.00	34.64
-----	----	------	-------	-------	-------	------	------	------	-------

Segment Leq : 37.10 dBA

Total Leq All Segments: 37.10 dBA

↑

TOTAL Leq FROM ALL SOURCES (DAY): 56.65

(NIGHT): 37.10

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STAMSON 5.0 NORMAL REPORT Date: 10-04-2026 10:52:46
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec5r1.te Time Period: Day/Night 16/8 hours
Description: REC 5 - Terrace - Road - 2.4 m

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

Car traffic volume : 24288/2112 veh/TimePeriod *
Medium truck volume : 1932/168 veh/TimePeriod *
Heavy truck volume : 1380/120 veh/TimePeriod *
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 30000
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: Scott Street (day/night)

Angle1 Angle2 : -89.00 deg -41.00 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 : 5.00 / 5.00 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -89.00 deg Angle2 : -41.00 deg
Barrier height : 7.00 m
Barrier receiver distance : 2.00 / 2.00 m
Source elevation : 62.00 m
Receiver elevation : 62.00 m
Barrier elevation : 65.50 m
Reference angle : 0.00

↑

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

Car traffic volume : 24288/2112 veh/TimePeriod *
Medium truck volume : 1932/168 veh/TimePeriod *
Heavy truck volume : 1380/120 veh/TimePeriod *
Posted speed limit : 50 km/h
Road gradient : 0 %

Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 30000
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: Scott Street (day/night)

Angle1 Angle2 : -41.00 deg 39.00 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 : 5.00 / 5.00 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -41.00 deg Angle2 : 39.00 deg
Barrier height : 2.40 m
Barrier receiver distance : 2.50 / 2.50 m
Source elevation : 62.00 m
Receiver elevation : 62.00 m
Barrier elevation : 65.50 m
Reference angle : 0.00

↑

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

Car traffic volume : 24288/2112 veh/TimePeriod *
Medium truck volume : 1932/168 veh/TimePeriod *
Heavy truck volume : 1380/120 veh/TimePeriod *
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 30000
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: Scott Street (day/night)

Angle1 Angle2 : 39.00 deg 76.00 deg

Barrier height for grazing incidence

$$\text{ROAD } (0.00 + 47.05 + 0.00) = 47.05 \text{ dBA}$$

Segment Leq : 47.05 dBA

.....

Barrier height for grazing incidence

$$\text{ROAD } (0.00 + 53.48 + 0.00) = 53.48 \text{ dBA}$$

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

-41	39	0.41	71.49	0.00	0.00	-3.67	0.00	0.00	-14.34	53.48
-----	----	------	-------	------	------	-------	------	------	--------	-------

Segment Leq : 53.48 dBA



Results segment # 3: Scott Street (day)

Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50	5.00	1.03	66.53

ROAD (0.00 + 44.24 + 0.00) = 44.24 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
39	76	0.14	71.49	0.00	0.00	-7.27	0.00	0.00	-19.98	44.24

Segment Leq : 44.24 dBA

Total Leq All Segments: 54.77 dBA



Results segment # 1: Scott Street (night)

Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50	5.00	1.03	66.53

ROAD (0.00 + 39.46 + 0.00) = 39.46 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-89	-41	0.14	63.89	0.00	0.00	-6.37	0.00	0.00	-18.06	39.46

Segment Leq : 39.46 dBA



Results segment # 2: Scott Street (night)

Source height = 1.50 m

Barrier height for grazing incidence

Source	!	Receiver	!	Barrier	!	Elevation of
Height	(m)	Height	(m)	Height	(m)	Barrier Top (m)
-----+-----+-----+-----						
1.50	!	5.00	!	0.92	!	66.42

ROAD (0.00 + 45.88 + 0.00) = 45.88 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-41	39	0.41	63.89	0.00	0.00	-3.67	0.00	0.00	-14.34	45.88

Segment Leq : 45.88 dBA



Results segment # 3: Scott Street (night)

Source height = 1.50 m

Barrier height for grazing incidence

Source	!	Receiver	!	Barrier	!	Elevation of
Height	(m)	Height	(m)	Height	(m)	Barrier Top
1.50	!	5.00	!	1.03	!	66.53

ROAD (0.00 + 36.64 + 0.00) = 36.64 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
39	76	0.14	63.89	0.00	0.00	-7.27	0.00	0.00	-19.98	36.64

Segment Leq : 36.64 dBA

Total Leq All Segments: 47.17 dBA



TOTAL Leq FROM ALL SOURCES (DAY): 54.77
(NIGHT): 47.17



STAMSON 5.0 NORMAL REPORT Date: 10-04-2026 10:54:36
 MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec5t1.te Time Period: Day/Night 16/8 hours
 Description: REC 5 - Terrace - Train - 2.4 m

Rail data, segment # 1: OLRT Line 1 (day/night)

Train Type	! Trains	! Speed (km/h)	!# loc /Train	!# Cars /Train	! Eng type	!Cont weld
* 1. OLRT	! 180.0/1.0	! 80.0	! 1.0	! 2.0	! Elec	! Yes

* The identified number of trains have been adjusted for future growth using the following parameters:

Train No	! Name	! Unadj. Trains	! Annual % Increase	! Years of Growth
1.	OLRT	! 180.0/1.0	! 0.00	! 0.00

Data for Segment # 1: OLRT Line 1 (day/night)

Angle1 Angle2 : -76.00 deg -41.00 deg
 Wood depth : 0 (No woods.)
 No of house rows : 0 / 0
 Surface : 1 (Absorptive ground surface)
 Receiver source distance : 41.00 / 41.00 m
 Receiver height : 5.00 / 5.00 m
 Topography : 4 (Elevated; with barrier)
 No Whistle
 Barrier angle1 : -76.00 deg Angle2 : -41.00 deg
 Barrier height : 7.00 m
 Elevation : 6.00 m
 Barrier receiver distance : 2.00 / 2.00 m
 Source elevation : 56.00 m
 Receiver elevation : 62.00 m
 Barrier elevation : 65.50 m
 Reference angle : 0.00

↑

Rail data, segment # 2: OLRT Line 1 (day/night)

Train Type	! Trains	! Speed (km/h)	!# loc /Train	!# Cars /Train	! Eng type	!Cont weld
1. OLRT	! 180.0/1.0	! 80.0	! 1.0	! 2.0	! Elec	! Yes

Data for Segment # 2: OLRT Line 1 (day/night)

```

-----
Angle1   Angle2           : -41.00 deg   39.00 deg
Wood depth           :      0      (No woods.)
No of house rows     :      0 / 0
Surface              :      1      (Absorptive ground surface)
Receiver source distance : 41.00 / 41.00 m
Receiver height       :  5.00 / 5.00 m
Topography           :      4      (Elevated; with barrier)
No Whistle
Barrier angle1       : -41.00 deg   Angle2 : 39.00 deg
Barrier height        :  2.40 m
Elevation             :  6.00 m
Barrier receiver distance : 2.50 / 2.50 m
Source elevation      : 56.00 m
Receiver elevation     : 62.00 m
Barrier elevation      : 65.50 m
Reference angle       :  0.00

```

↑

Rail data, segment # 3: OLRT Line 1 (day/night)

```

-----
Train          ! Trains      ! Speed !# loc !# Cars! Eng  !Cont
Type           !              !(km/h) !/Train!/Train! type !weld
-----+-----+-----+-----+-----+-----+-----
  1. OLRT      ! 180.0/1.0   !  80.0 !  1.0 !  2.0 ! Elec! Yes

```

Data for Segment # 3: OLRT Line 1 (day/night)

```

-----
Angle1   Angle2           :  39.00 deg   59.00 deg
Wood depth           :      0      (No woods.)
No of house rows     :      0 / 0
Surface              :      1      (Absorptive ground surface)
Receiver source distance : 41.00 / 41.00 m
Receiver height       :  5.00 / 5.00 m
Topography           :      4      (Elevated; with barrier)
No Whistle
Barrier angle1       :  39.00 deg   Angle2 : 59.00 deg
Barrier height        :  7.00 m
Elevation             :  6.00 m
Barrier receiver distance : 2.00 / 2.00 m
Source elevation      : 56.00 m
Receiver elevation     : 62.00 m
Barrier elevation      : 65.50 m
Reference angle       :  0.00

```

↑

Results segment # 1: OLRT Line 1 (day)

Barrier height for grazing incidence

Source Height (m)	! Receiver Height (m)	! Barrier Height (m)	! Elevation of Barrier Top (m)
4.00 !	5.00 !	1.16 !	66.66
0.50 !	5.00 !	0.99 !	66.49

LOCOMOTIVE (0.00 + 28.92 + 0.00) = 28.92 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-76	-41	0.00	60.29	-4.37	-7.11	0.00	0.00	-19.89	28.92

WHEEL (0.00 + 30.64 + 0.00) = 30.64 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-76	-41	0.00	62.06	-4.37	-7.11	0.00	0.00	-19.95	30.64

Segment Leq : 32.87 dBA



Results segment # 2: OLRT Line 1 (day)

Barrier height for grazing incidence

Source Height (m)	! Receiver Height (m)	! Barrier Height (m)	! Elevation of Barrier Top (m)
4.00 !	5.00 !	1.07 !	66.57
0.50 !	5.00 !	0.86 !	66.36

LOCOMOTIVE (0.00 + 38.66 + 0.00) = 38.66 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-41	39	0.16	60.29	-5.05	-3.58	0.00	0.00	-13.00	38.66

WHEEL (0.00 + 38.77 + 0.00) = 38.77 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-41	39	0.26	62.06	-5.51	-3.62	0.00	0.00	-14.17	38.77

Segment Leq : 41.73 dBA



Results segment # 3: OLRT Line 1 (day)

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
4.00 !	5.00 !	1.16 !	66.66
0.50 !	5.00 !	0.99 !	66.49

LOCOMOTIVE (0.00 + 26.38 + 0.00) = 26.38 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
39	59	0.00	60.29	-4.37	-9.54	0.00	0.00	-20.00	26.38

WHEEL (0.00 + 28.15 + 0.00) = 28.15 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
39	59	0.00	62.06	-4.37	-9.54	0.00	0.00	-20.00	28.15

Segment Leq : 30.36 dBA

Total Leq All Segments: 42.53 dBA

↑

Results segment # 1: OLRT Line 1 (night)

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
4.00 !	5.00 !	1.16 !	66.66
0.50 !	5.00 !	0.99 !	66.49

LOCOMOTIVE (0.00 + 9.38 + 0.00) = 9.38 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-76	-41	0.00	40.75	-4.37	-7.11	0.00	0.00	-19.89	9.38

WHEEL (0.00 + 11.10 + 0.00) = 11.10 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-76	-41	0.00	42.52	-4.37	-7.11	0.00	0.00	-19.95	11.10

Segment Leq : 13.33 dBA



Results segment # 2: OLRT Line 1 (night)

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
4.00	5.00	1.07	66.57
0.50	5.00	0.86	66.36

LOCOMOTIVE (0.00 + 19.12 + 0.00) = 19.12 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-41	39	0.16	40.75	-5.05	-3.58	0.00	0.00	-13.00	19.12

WHEEL (0.00 + 19.23 + 0.00) = 19.23 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-41	39	0.26	42.52	-5.51	-3.62	0.00	0.00	-14.17	19.23

Segment Leq : 22.19 dBA



Results segment # 3: OLRT Line 1 (night)

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
4.00	5.00	1.16	66.66
0.50	5.00	0.99	66.49

LOCOMOTIVE (0.00 + 6.84 + 0.00) = 6.84 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
39	59	0.00	40.75	-4.37	-9.54	0.00	0.00	-20.00	6.84

WHEEL (0.00 + 8.61 + 0.00) = 8.61 dBA

Angle1	Angle2	Alpha	RefLeq	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
39	59	0.00	42.52	-4.37	-9.54	0.00	0.00	-20.00	8.61

Segment Leq : 10.82 dBA

Total Leq All Segments: 22.99 dBA



TOTAL Leq FROM ALL SOURCES (DAY): 42.53
(NIGHT): 22.99

