PATERSON GROUP

Environmental Noise Control Study

Proposed Residential Development

83 – 91 Sweetland Avenue
Ottawa, Ontario

Prepared for Upscale Homes

Report PG7101-1 - Dated June 13, 2024

Table of Contents

Appendices

1.0 Introduction

Paterson Group (Paterson) was commissioned by Upscale Homes to conduct an environmental noise control study for the proposed residential development to be located at 83 – 91 Sweetland 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 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 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 parking areas, landscaped areas and outdoor living areas are also anticipated as a part of the proposed residential development.

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 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 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 below 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
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 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
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 development.

However, if exterior noise-generating equipment is required for the proposed residential development, a stationary noise study will be required. If required, the stationary noise study with respect to these new noise sources will be completed under a separate cover.

Aircraft/Airport Noise

The subject site is not located within the Airport Vicinity Development Zone. Therefore this project will not require an aircraft/airport noise analysis. No warning clauses regarding aircraft or airport noise will be required.

4.0 Analysis

Surface Transportation Noise

The subject site consists of 5 property parcels, each occupied by an existing 2-storey residential dwelling. Sweetland Aveneue borders the subject site to the west, Osgoode Street to the north, and Somerset Street East to the South. An existing Ottawa transit bus route, Somerset Street East, Sweetland Avenue, and Russel Avenue were identified within the 100 m radius of the proposed residential development.

Based on the new City of Ottawa Official Plan, Schedule F, Somerset Street East is considered a 2-Lane Urban Collector (2-UCU). 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 PG7101-1-Site Geometry located in Appendix 1.

The noise levels from road traffic are provided by the City of Ottawa which takes 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. The parameters to be used for sound-level predictions can be found below. Based on City of Ottawa transit schedules the bus route along Somerset Street East will have approximately 100 buses daily. However, the modelling software does not allow for an AADT lower than 4100. Therefore, to complete the study an AADT of 4100 was used.

Table 4 - Traffic and Road Parameters

Road	Implied Roadway	AADT (Veh/day)	Posted Speed (km/h)	Day/Night Split %	Medium Truck %	Heavy Truck %
Somerset Street East	2-UCU	8000	40	92/8	7	5
Ottawa Transit Bus Route # 16	n/a	4100	40	92/8	90	10
Data obtained from the City of Ottawa document ENCG or City of Ottawa Officials						

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 5 - Elevation of Reception Points			
Floor Number	**Elevation at the Centre of Window / Ground Surface (m)**	**Floor Use**	**Daytime/Nighttime Analysis**
Ground Surface	1.5	Outdoor Living Area	-
Ground Floor	1.5	Living Area/Bedroom	Daytime/nighttime
Fourth Floor	10.5	Living Area/Bedroom	Daytime/nighttime

For this analysis, a reception point was taken at the centre of each floor at the ground floor and fourth floor of the structures. Additionally, receptor points for the outdoor living areas were taken at 1.5 m above either the ground floor or 1.5 m above the elevation of the terrace. Reception points are detailed in Drawing PG7101-2-Receptor Locations 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 100 m buffer zone, which is reflected in the local angles described in Paterson Drawings PG7101-3A to 3D-Site Geometry in Appendix 1.

Table 7 - 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 ENCG. It should be noted that one receptor is assigned to the side of the building affected by noise. The noise source for the proposed residential development is Somerset Street East: The anticipated noise at each receptor represents the worst-case scenario.

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.

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

5.0 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, and the summary of the results is noted in Table 6 below.

Table 6 – Proposed Noise Levels

Reception Point	Description	OLA (dBA)	Daytime at Facade $L_{eq(16)}$ (dBA)	Nighttime at Facade $L_{eq(8)}$ (dBA)
REC 1-1	1st Floor – Western Elevation	-	43.73	36.15
REC 1-4	4th Floor – Western Elevation	-	40.53	32.94
REC 2-1	1st Floor – Southern Elevation	-	46.43	38.84
REC 2-4	4th Floor – Southern Elevation	-	48.36	40.77
REC 3-1	1st Floor – Eastern Elevation	-	37.35	29.76
REC 3-4	4th Floor – Eastern Elevation	-	39.52	31.92
REC 4	Outdoor Living Area	44.11	-	-

6.0 Discussion and Recommendations

6.1 Outdoor Living Areas

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 will be 44.11 dBA. This value is below the 55 dBA limit that was specified in Table 1 therefore noise attenuation features will be required.

6.2 Indoor Living Areas and Ventilation

The results of the STAMSON modelling for the receptors located at the centre of each floor at the ground floor and fourth floor of the proposed residential building indicate that the $L_{eq(16)}$ ranges between 37.35 dBA and 48.36 dBA. These values are below the 55 dBA limit that was specified in Table 1 therefore no noise mitigation measures will be required for the proposed residential development.

7.0 Summary of Findings

The subject site is located at 83 - 91 SweetInd Avenue in the City of Ottawa. It is understood that the proposed residential development will consist of one multi-storey residential building. The associated analysis identified one surface transportation noise source: Somerset Street East.

Several reception points were selected for the analysis, consisting of panes of glass reception points on both the first, top levels, and outdoor living areas.

All anticipated noise levels from the proposed residential building are below 55 dBA and no additional noise mitigation measures are required.

Further analysis of the outdoor living area was performed consisting of the at-grade outdoor living area located at the rear the proposed residential building. All anticipated noise levels from the outdoor living area was below 55 dBA and no additional noise attenuation features will be required.

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 Upscale Homes, or their agents, is not authorized without review by this firm for the applicability of our recommendations to the altered use of the report.

Paterson Group Inc.

Otillia McLaughlin, B.Eng.

Scott S. Dennis, P.Eng.

Report Distribution:

- ❑ Upscale Homes
- ❑ Paterson Group

APPENDIX 1

TABLE 7 – SUMMARY OF RECEPTION POINTS AND GEOMETRY

DRAWING PG7101-1 – SITE PLAN

DRAWING PG7101-2 – RECEPTOR LOCATION PLAN

DRAWING PG7101-3 – SITE GEOMETRY (BUILDING A)

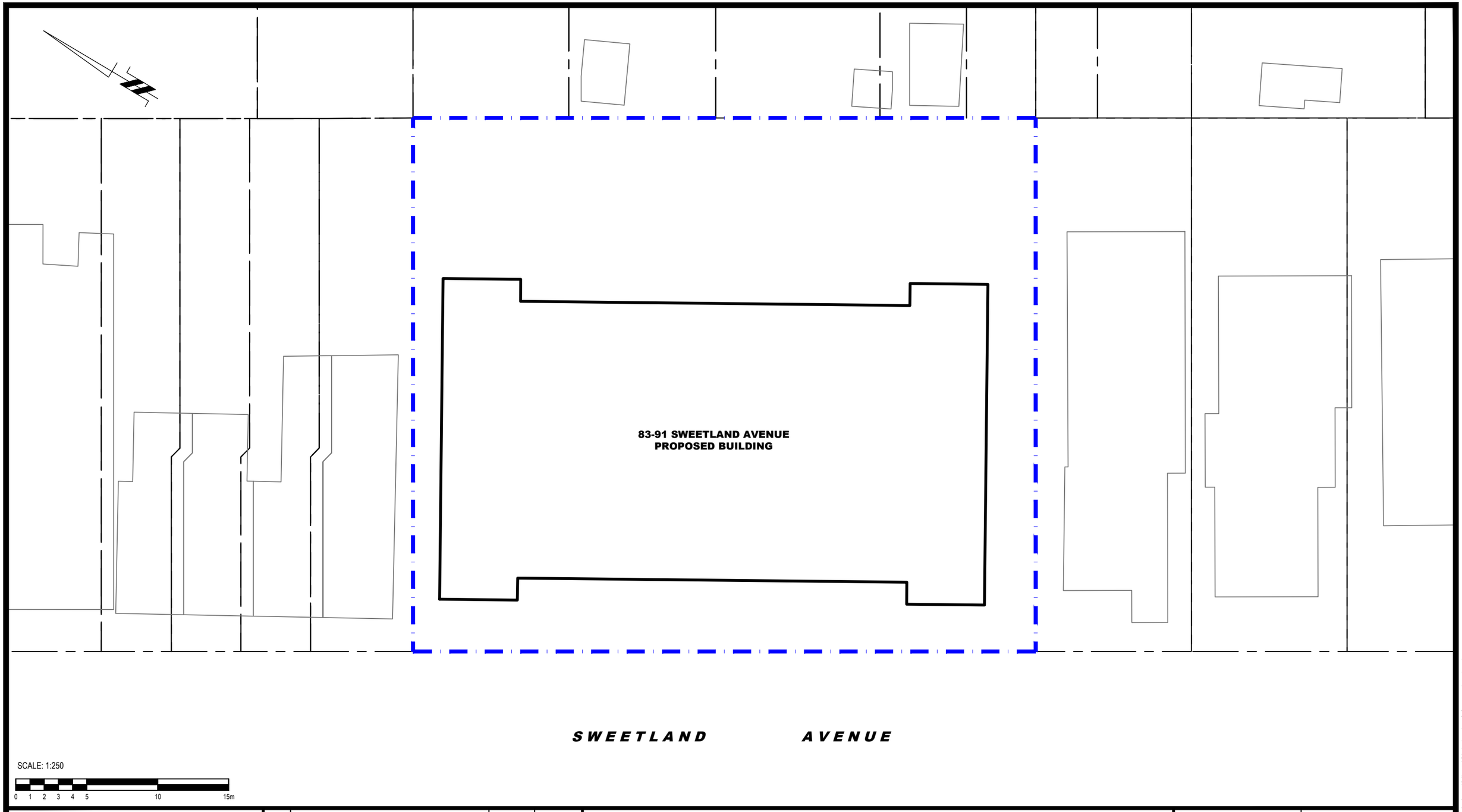
DRAWING PG7101-3A- SITE GEOMETRY (REC1-1 and REC1-4)

DRAWING PG7101-3B- SITE GEOMETRY (REC2-1 and REC2-4)

DRAWING PG7101-3C- SITE GEOMETRY (REC3-1 and REC3-4)

DRAWING PG7101-3D- SITE GEOMETRY (REC 4)

Table 7 - Summary of Reception Points and Geometry											
Proposed Residential Development - 83 - 91 Sweetland Avenue											
Point of Reception	Location	Total Leq Day (dBA)	Total Leq Night (dBA)	Queen Elizabeth Driveway							
				Horizontal (m)	Vertical (m)	Total (m)	Local Angle (degree)	Number of Rows of Houses	Density (%)	Barrier Height (m)	Barrier Distance (m)
REC 1-1	1st Floor - Western Elevation	43.73	36.15	95	1.5	95.01	0, 18	5	20	n/a	n/a
REC 1-4	4th Floor - Western Elevation	40.53	32.94	95	10.5	95.58	0, 18	5	20	n/a	n/a
REC 2-1	1st Floor - Southern Elevation	46.43	38.84	72	1.5	72.02	-37, 39	5	20	n/a	n/a
REC 2-4	4th Floor - Southern Elevation	48.36	40.77	72	10.5	72.76	-37, 39	5	20	n/a	n/a
REC 3-1	1st Floor - Eastern Elevation	37.35	29.76	94	1.5	94.01	-14, 0	5	20	n/a	n/a
REC 3-4	4th Floor - Eastern Elevation	39.52	31.92	94	10.5	94.58	-14, 0	5	20	n/a	n/a
REC 4	Outdoor Living Area	44.11	-	95	1.5	95.01	-20, 27	5	20	n/a	n/a



SCALE: 1:250

0 1 2 3 4 5 10 15m

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

NO.	REVISIONS	DATE	INITIAL

UPSCALE HOMES
NOISE ATTENUATION STUDY
PROPOSED DEVELOPMENT
83 - 91 SWEETLAND AVENUE
OTTAWA, ONTARIO

Title:

SITE PLAN

Scale:	1:250	Date:	04/2024
Drawn by:	AH	Report No.:	PG7101-1
Checked by:	OM	Dwg. No.:	PG7101-1
Approved by:	SB	Revision No.:	

11x17

p:\autocad drawings\geotechnical\pg71xx\pg7101\pg7101-1-site plan & 2-recept loc plan.dwg

REC 4

REC 3-1
REC 3-4

83-91 SWEETLAND AVENUE
PROPOSED BUILDING

REC 2-1
REC 2-4

REC 1-1
REC 1-4

SWEETLAND AVENUE

LEGEND:

RECEPTOR LOCATION

SCALE: 1:250

0 1 2 3 4 5 10 15m

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

NO.	REVISIONS	DATE	INITIAL

UPSCALE HOMES
NOISE ATTENUATION STUDY
PROPOSED DEVELOPMENT
83 - 91 SWEETLAND AVENUE
OTTAWA, ONTARIO

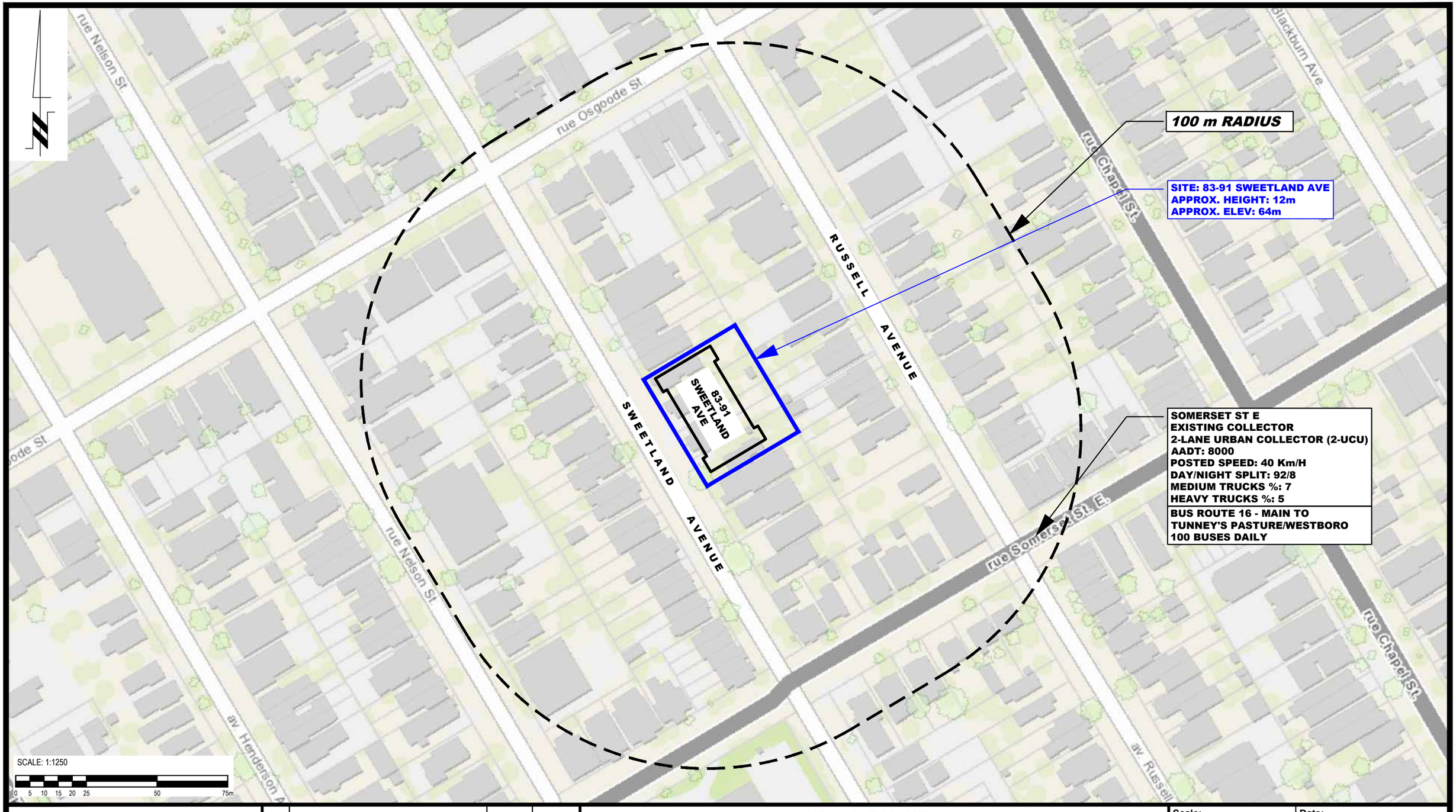
Title:

RECEPTOR LOCATION PLAN

Scale:	1:250	Date:	04/2024
Drawn by:	AH	Report No.:	PG7101-1
Checked by:	OM	Dwg. No.:	PG7101-2
Approved by:	SB	Revision No.:	

11x17

p:\autocad drawings\geotechnical\pg71xx\pg7101\pg7101-1-site plan & 2-recept loc plan.dwg



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

NO.	REVISIONS	DATE	INITIAL

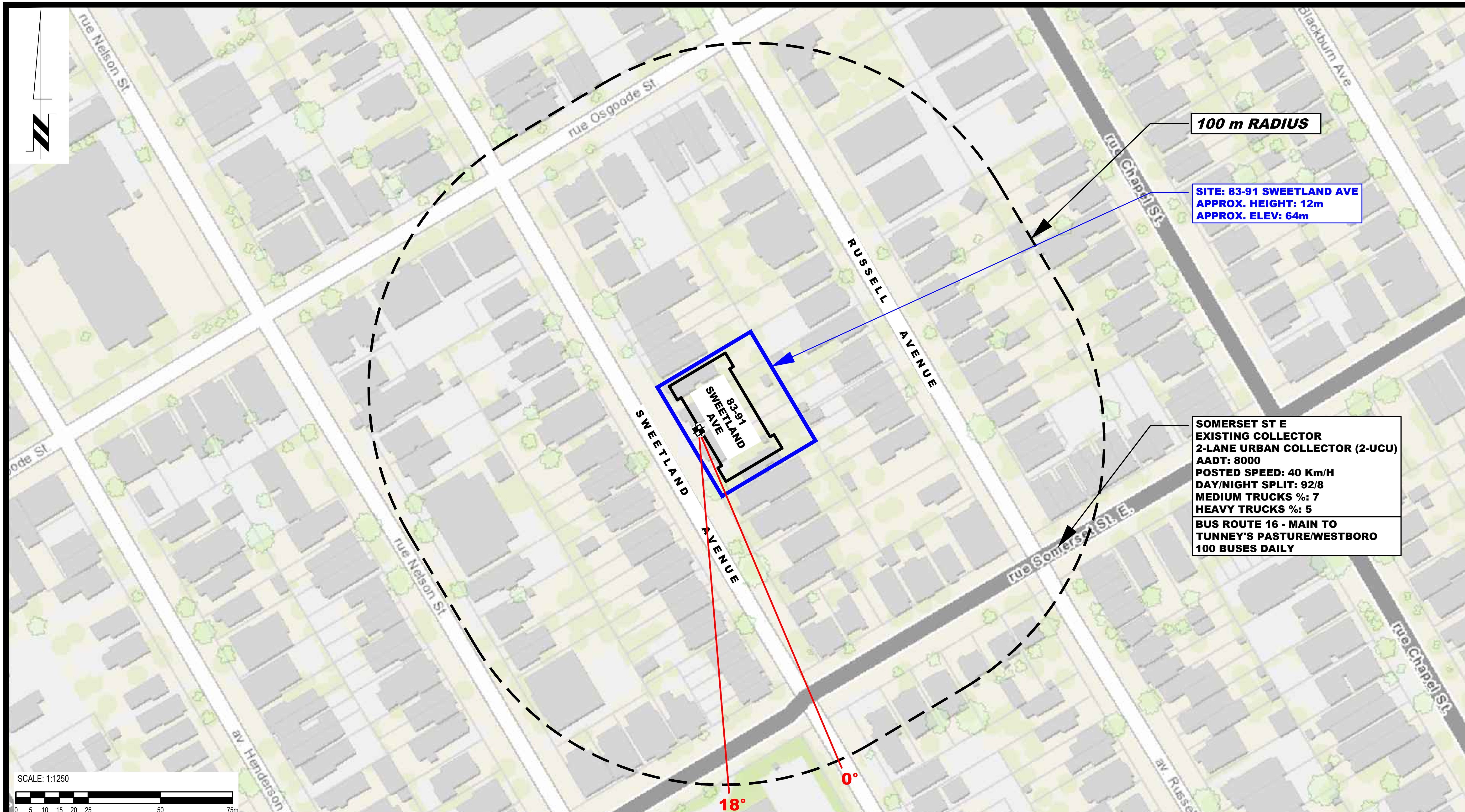
UPSCALE HOMES
NOISE ATTENUATION STUDY
PROPOSED RESIDENTIAL DEVELOPMENT
83 - 91 SWEETLAND AVENUE
OTTAWA, ONTARIO

Title:
SITE GEOMETRY

Scale:	1:1250	Date:	04/2024
Drawn by:	AH	Report No.:	PG7101-1
Checked by:	OM	Dwg. No.:	PG7101-3
Approved by:	SB	Revision No.:	

p:\autocad drawings\geotechnical\pg71xx\pg7101\pg7101-3-site geometry.dwg

11x17



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

NO.	REVISIONS	DATE	INITIAL

UPSCALE HOMES
NOISE ATTENUATION STUDY
PROPOSED RESIDENTIAL DEVELOPMENT
83 - 91 SWEETLAND AVENUE

OTTAWA, ONTARIO

Title:

SITE GEOMETRY - REC 1-1 & 1-4

Scale:	1:1250	Date:	04/2024
Drawn by:	AH	Report No.:	PG7101-1
Checked by:	OM	Dwg. No.:	PG7101-3A
Approved by:	SB	Revision No.:	

p:\autocad drawings\geotechnical\pg71xx\pg7101\pg7101-3-site geometry.dwg

11x17

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

NO.	REVISIONS	DATE	INITIAL

UPSCALE HOMES
NOISE ATTENUATION STUDY
PROPOSED RESIDENTIAL DEVELOPMENT
83 - 91 SWEETLAND AVENUE
OTTAWA, ONTARIO

Title:
SITE GEOMETRY - REC 2-1 & 2-4

Scale:	1:1250	Date:	04/2024
Drawn by:	AH	Report No.:	PG7101-1
Checked by:	OM	Dwg. No.:	PG7101-3B
Approved by:	SB	Revision No.:	

11x17

p:\autocad drawings\geotechnical\pg7\xx\pg7101\pg7101-3-site geometry.dwg

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

NO.	REVISIONS	DATE	INITIAL

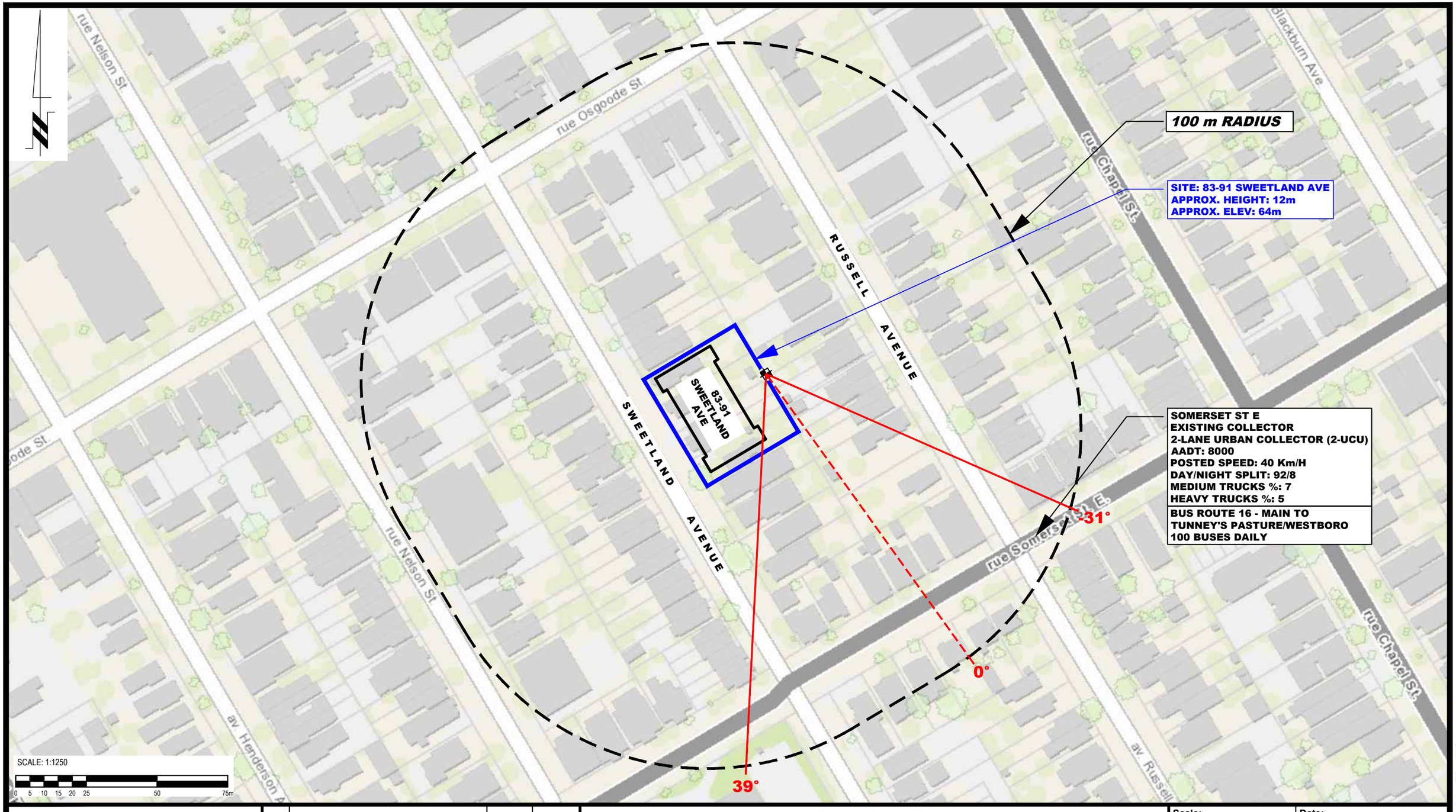
UPSCALE HOMES
NOISE ATTENUATION STUDY
PROPOSED RESIDENTIAL DEVELOPMENT
83 - 91 SWEETLAND AVENUE
OTTAWA, ONTARIO

Title:
SITE GEOMETRY - REC 3-1 & 3-4

Scale:	1:1250	Date:	04/2024
Drawn by:	AH	Report No.:	PG7101-1
Checked by:	OM	Dwg. No.:	PG7101-3C
Approved by:	SB	Revision No.:	

p:\autocad drawings\geotechnical\pg7101\dwg\pg7101-3-site geometry.dwg

11x17



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

NO.	REVISIONS	DATE	INITIAL

UPSCALE HOMES
NOISE ATTENUATION STUDY
PROPOSED RESIDENTIAL DEVELOPMENT
83 - 91 SWEETLAND AVENUE
OTTAWA, ONTARIO

Title:
SITE GEOMETRY - REC 4

Scale:	1:1250	Date:	04/2024
Drawn by:	AH	Report No.:	PG7101-1
Checked by:	OM	Dwg. No.:	PG7101-3D
Approved by:	SB	Revision No.:	

11x17

p:\autocad drawings\geotechnical\pg7101xx\pg7101\pg7101-3-site geometry.dwg

APPENDIX 2

STAMSON RESULTS

STAMSON 5.0 NORMAL REPORT Date: 17-04-2024 15:39:40
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec11.te Time Period: Day/Night 16/8 hours
Description: REC 1-1 Western Elevation

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

Car traffic volume : 6477/563 veh/TimePeriod *
Medium truck volume : 515/45 veh/TimePeriod *
Heavy truck volume : 368/32 veh/TimePeriod *
Posted speed limit : 40 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

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

Data for Segment # 1: Sweetland (day/night)

Angle1 Angle2 : -77.00 deg 0.00 deg
Wood depth : 0 (No woods.)
No of house rows : 5 / 5
House density : 20 %
Surface : 1 (Absorptive ground surface)
Receiver source distance : 95.00 / 95.00 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: Bus Route 16 (day/night)

Car traffic volume : 0/0 veh/TimePeriod *
Medium truck volume : 3395/295 veh/TimePeriod *
Heavy truck volume : 377/33 veh/TimePeriod *
Posted speed limit : 40 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): 4100
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 90.00
Heavy Truck % of Total Volume : 10.00

```
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: Bus Route 16 (day/night)
------------------------------------------
Angle1   Angle2           : -77.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      5 / 5
House density             :     20 %
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  95.00 / 95.00  m
Receiver height           :   1.50 / 1.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

↟

```
Results segment # 1: Sweetland (day)
-----------------------------------

Source height = 1.50 m

ROAD (0.00 + 39.08 + 0.00) = 39.08 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -77      0   0.66  63.96   0.00 -13.31  -4.67   0.00  -6.90   0.00  39.08
-------------------------------------------------------------------------------

Segment Leq : 39.08 dBA
```

↟

```
Results segment # 2: Bus Route 16 (day)
--------------------------------------

Source height = 1.78 m

ROAD (0.00 + 41.91 + 0.00) = 41.91 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -77      0   0.65  66.71   0.00 -13.24  -4.66   0.00  -6.90   0.00  41.91
-------------------------------------------------------------------------------

Segment Leq : 41.91 dBA

Total Leq All Segments: 43.73 dBA
```

↟

```
Results segment # 1: Sweetland (night)
-------------------------------------

Source height = 1.50 m

ROAD (0.00 + 31.49 + 0.00) = 31.49 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -77      0   0.66  56.36   0.00 -13.31  -4.67   0.00  -6.90   0.00  31.49
```

Segment Leq : 31.49 dBA

↟
Results segment # 2: Bus Route 16 (night)

Source height = 1.78 m

ROAD (0.00 + 34.33 + 0.00) = 34.33 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-77	0	0.65	59.12	0.00	-13.24	-4.66	0.00	-6.90	0.00	34.33

Segment Leq : 34.33 dBA

Total Leq All Segments: 36.15 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 43.73
(NIGHT): 36.15

↟
↟

STAMSON 5.0 NORMAL REPORT Date: 17-04-2024 15:40:18
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec14.te Time Period: Day/Night 16/8 hours
Description: REC 1-4 Western Elevation

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

Car traffic volume : 6477/563 veh/TimePeriod *
Medium truck volume : 515/45 veh/TimePeriod *
Heavy truck volume : 368/32 veh/TimePeriod *
Posted speed limit : 40 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

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

Data for Segment # 1: Sweetland (day/night)

Angle1 Angle2 : 0.00 deg 18.00 deg
Wood depth : 0 (No woods.)
No of house rows : 5 / 5
House density : 20 %
Surface : 1 (Absorptive ground surface)
Receiver source distance : 95.00 / 95.00 m
Receiver height : 10.50 / 10.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

↑
Road data, segment # 2: Bus Route 16 (day/night)

Car traffic volume : 0/0 veh/TimePeriod *
Medium truck volume : 3395/295 veh/TimePeriod *
Heavy truck volume : 377/33 veh/TimePeriod *
Posted speed limit : 40 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): 4100

```
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :  90.00
    Heavy Truck  % of Total Volume     :  10.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: Bus Route 16 (day/night)
-----------------------------------------------
Angle1   Angle2           :   0.00 deg   18.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      5 / 5
House density             :     20 %
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  95.00 / 95.00  m
Receiver height           :  10.50 / 10.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

↟
Results segment # 1: Sweetland (day)
-----------------------------------

Source height = 1.50 m

ROAD (0.00 + 35.88 + 0.00) = 35.88 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0     18   0.39  63.96   0.00 -11.14 -10.03   0.00  -6.90   0.00  35.88
-------------------------------------------------------------------------------

Segment Leq : 35.88 dBA

↟
Results segment # 2: Bus Route 16 (day)
---------------------------------------

Source height = 1.78 m

ROAD (0.00 + 38.71 + 0.00) = 38.71 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0     18   0.38  66.71   0.00 -11.08 -10.03   0.00  -6.90   0.00  38.71
-------------------------------------------------------------------------------

Segment Leq : 38.71 dBA

Total Leq All Segments: 40.53 dBA

↟
Results segment # 1: Sweetland (night)
```

Source height = 1.50 m

ROAD (0.00 + 28.29 + 0.00) = 28.29 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	18	0.39	56.36	0.00	-11.14	-10.03	0.00	-6.90	0.00	28.29

Segment Leq : 28.29 dBA

↟

Results segment # 2: Bus Route 16 (night)

Source height = 1.78 m

ROAD (0.00 + 31.12 + 0.00) = 31.12 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	18	0.38	59.12	0.00	-11.08	-10.03	0.00	-6.90	0.00	31.12

Segment Leq : 31.12 dBA

Total Leq All Segments: 32.94 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 40.53
(NIGHT): 32.94

↟

↟

STAMSON 5.0 NORMAL REPORT Date: 17-04-2024 15:41:25
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec21.te Time Period: Day/Night 16/8 hours
Description: REC 2-1 Southern Elevation

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

Car traffic volume : 6477/563 veh/TimePeriod *
Medium truck volume : 515/45 veh/TimePeriod *
Heavy truck volume : 368/32 veh/TimePeriod *
Posted speed limit : 40 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

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

Data for Segment # 1: Sweetland (day/night)

Angle1 Angle2 : -37.00 deg 39.00 deg
Wood depth : 0 (No woods.)
No of house rows : 5 / 5
House density : 20 %
Surface : 1 (Absorptive ground surface)
Receiver source distance : 72.00 / 72.00 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

↑
Road data, segment # 2: Bus Route 16 (day/night)

Car traffic volume : 0/0 veh/TimePeriod *
Medium truck volume : 3395/295 veh/TimePeriod *
Heavy truck volume : 377/33 veh/TimePeriod *
Posted speed limit : 40 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): 4100

```
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :  90.00
    Heavy Truck  % of Total Volume     :  10.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: Bus Route 16 (day/night)
-----------------------------------------------
Angle1   Angle2           : -37.00 deg   39.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      5 / 5
House density             :     20 %
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  72.00 / 72.00  m
Receiver height           :   1.50 / 1.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

↟
Results segment # 1: Sweetland (day)
-----------------------------------

Source height = 1.50 m

ROAD (0.00 + 41.79 + 0.00) = 41.79 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -37     39   0.66  63.96   0.00 -11.31  -3.96   0.00  -6.90   0.00  41.79
-------------------------------------------------------------------------------

Segment Leq : 41.79 dBA

↟
Results segment # 2: Bus Route 16 (day)
---------------------------------------

Source height = 1.78 m

ROAD (0.00 + 44.60 + 0.00) = 44.60 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -37     39   0.65  66.71   0.00 -11.25  -3.96   0.00  -6.90   0.00  44.60
-------------------------------------------------------------------------------

Segment Leq : 44.60 dBA

Total Leq All Segments: 46.43 dBA

↟
Results segment # 1: Sweetland (night)
```

Source height = 1.50 m

ROAD (0.00 + 34.19 + 0.00) = 34.19 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-37	39	0.66	56.36	0.00	-11.31	-3.96	0.00	-6.90	0.00	34.19

Segment Leq : 34.19 dBA

↟

Results segment # 2: Bus Route 16 (night)

Source height = 1.78 m

ROAD (0.00 + 37.01 + 0.00) = 37.01 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-37	39	0.65	59.12	0.00	-11.25	-3.96	0.00	-6.90	0.00	37.01

Segment Leq : 37.01 dBA

Total Leq All Segments: 38.84 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 46.43
(NIGHT): 38.84

↟

↟

STAMSON 5.0 NORMAL REPORT Date: 17-04-2024 15:41:56
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec24.te Time Period: Day/Night 16/8 hours
Description: REC 2-4 Southern Elevation

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

Car traffic volume : 6477/563 veh/TimePeriod *
Medium truck volume : 515/45 veh/TimePeriod *
Heavy truck volume : 368/32 veh/TimePeriod *
Posted speed limit : 40 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

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

Data for Segment # 1: Sweetland (day/night)

Angle1 Angle2 : -37.00 deg 39.00 deg
Wood depth : 0 (No woods.)
No of house rows : 5 / 5
House density : 20 %
Surface : 1 (Absorptive ground surface)
Receiver source distance : 72.00 / 72.00 m
Receiver height : 10.50 / 10.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

↑
Road data, segment # 2: Bus Route 16 (day/night)

Car traffic volume : 0/0 veh/TimePeriod *
Medium truck volume : 3395/295 veh/TimePeriod *
Heavy truck volume : 377/33 veh/TimePeriod *
Posted speed limit : 40 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): 4100

```
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :  90.00
    Heavy Truck  % of Total Volume     :  10.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: Bus Route 16 (day/night)
-----------------------------------------------
Angle1   Angle2           : -37.00 deg   39.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      5 / 5
House density             :     20 %
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  72.00 / 72.00  m
Receiver height           :  10.50 / 10.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

↟
Results segment # 1: Sweetland (day)
-----------------------------------

Source height = 1.50 m

ROAD (0.00 + 43.71 + 0.00) = 43.71 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -37     39   0.39  63.96   0.00  -9.47  -3.87   0.00  -6.90   0.00  43.71
-------------------------------------------------------------------------------

Segment Leq : 43.71 dBA

↟
Results segment # 2: Bus Route 16 (day)
-------------------------------------

Source height = 1.78 m

ROAD (0.00 + 46.53 + 0.00) = 46.53 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -37     39   0.38  66.71   0.00  -9.41  -3.87   0.00  -6.90   0.00  46.53
-------------------------------------------------------------------------------

Segment Leq : 46.53 dBA

Total Leq All Segments: 48.36 dBA

↟
Results segment # 1: Sweetland (night)
```

Source height = 1.50 m

ROAD (0.00 + 36.12 + 0.00) = 36.12 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-37	39	0.39	56.36	0.00	-9.47	-3.87	0.00	-6.90	0.00	36.12

Segment Leq : 36.12 dBA

↟

Results segment # 2: Bus Route 16 (night)

Source height = 1.78 m

ROAD (0.00 + 38.94 + 0.00) = 38.94 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-37	39	0.38	59.12	0.00	-9.41	-3.87	0.00	-6.90	0.00	38.94

Segment Leq : 38.94 dBA

Total Leq All Segments: 40.77 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 48.36
(NIGHT): 40.77

↟

↟

STAMSON 5.0 NORMAL REPORT Date: 17-04-2024 15:46:19
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec31.te Time Period: Day/Night 16/8 hours
Description: REC 3-1 Eastern Elevation

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

Car traffic volume : 6477/563 veh/TimePeriod *
Medium truck volume : 515/45 veh/TimePeriod *
Heavy truck volume : 368/32 veh/TimePeriod *
Posted speed limit : 40 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

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

Data for Segment # 1: Sweetland (day/night)

Angle1 Angle2 : -14.00 deg 0.00 deg
Wood depth : 0 (No woods.)
No of house rows : 5 / 5
House density : 20 %
Surface : 1 (Absorptive ground surface)
Receiver source distance : 94.00 / 94.00 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

↑
Road data, segment # 2: Bus Route 16 (day/night)

Car traffic volume : 0/0 veh/TimePeriod *
Medium truck volume : 3395/295 veh/TimePeriod *
Heavy truck volume : 377/33 veh/TimePeriod *
Posted speed limit : 40 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): 4100

```
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :  90.00
    Heavy Truck  % of Total Volume     :  10.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: Bus Route 16 (day/night)
-----------------------------------------------
Angle1   Angle2           : -14.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      5 / 5
House density             :     20 %
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  94.00 / 94.00  m
Receiver height           :   1.50 / 1.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

↟
Results segment # 1: Sweetland (day)
-----------------------------------

Source height = 1.50 m

ROAD (0.00 + 32.70 + 0.00) = 32.70 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -14      0   0.66  63.96   0.00 -13.23 -11.12   0.00  -6.90   0.00  32.70
-------------------------------------------------------------------------------

Segment Leq : 32.70 dBA

↟
Results segment # 2: Bus Route 16 (day)
---------------------------------------

Source height = 1.78 m

ROAD (0.00 + 35.53 + 0.00) = 35.53 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -14      0   0.65  66.71   0.00 -13.16 -11.12   0.00  -6.90   0.00  35.53
-------------------------------------------------------------------------------

Segment Leq : 35.53 dBA

Total Leq All Segments: 37.35 dBA

↟
Results segment # 1: Sweetland (night)
```

Source height = 1.50 m

ROAD (0.00 + 25.11 + 0.00) = 25.11 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-14	0	0.66	56.36	0.00	-13.23	-11.12	0.00	-6.90	0.00	25.11

Segment Leq : 25.11 dBA

↟

Results segment # 2: Bus Route 16 (night)

Source height = 1.78 m

ROAD (0.00 + 27.94 + 0.00) = 27.94 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-14	0	0.65	59.12	0.00	-13.16	-11.12	0.00	-6.90	0.00	27.94

Segment Leq : 27.94 dBA

Total Leq All Segments: 29.76 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 37.35
(NIGHT): 29.76

↟

↟

STAMSON 5.0 NORMAL REPORT Date: 17-04-2024 15:47:12
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec34.te Time Period: Day/Night 16/8 hours
Description: REC 3-4 Eastern Elevation

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

Car traffic volume : 6477/563 veh/TimePeriod *
Medium truck volume : 515/45 veh/TimePeriod *
Heavy truck volume : 368/32 veh/TimePeriod *
Posted speed limit : 40 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

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

Data for Segment # 1: Sweetland (day/night)

Angle1 Angle2 : -14.00 deg 0.00 deg
Wood depth : 0 (No woods.)
No of house rows : 5 / 5
House density : 20 %
Surface : 1 (Absorptive ground surface)
Receiver source distance : 94.00 / 94.00 m
Receiver height : 10.50 / 10.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

↟
Road data, segment # 2: Bus Route 16 (day/night)

Car traffic volume : 0/0 veh/TimePeriod *
Medium truck volume : 3395/295 veh/TimePeriod *
Heavy truck volume : 377/33 veh/TimePeriod *
Posted speed limit : 40 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): 4100

```
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :  90.00
    Heavy Truck  % of Total Volume     :  10.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: Bus Route 16 (day/night)
-----------------------------------------------
Angle1   Angle2           : -14.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      5 / 5
House density             :     20 %
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  94.00 / 94.00  m
Receiver height           :  10.50 / 10.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

↟
Results segment # 1: Sweetland (day)
-----------------------------------

Source height = 1.50 m

ROAD (0.00 + 34.87 + 0.00) = 34.87 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -14      0   0.39  63.96   0.00 -11.08 -11.11   0.00  -6.90   0.00  34.87
-------------------------------------------------------------------------------

Segment Leq : 34.87 dBA

↟
Results segment # 2: Bus Route 16 (day)
---------------------------------------

Source height = 1.78 m

ROAD (0.00 + 37.69 + 0.00) = 37.69 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -14      0   0.38  66.71   0.00 -11.01 -11.11   0.00  -6.90   0.00  37.69
-------------------------------------------------------------------------------

Segment Leq : 37.69 dBA

Total Leq All Segments: 39.52 dBA

↟
Results segment # 1: Sweetland (night)
```

Source height = 1.50 m

ROAD (0.00 + 27.27 + 0.00) = 27.27 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-14	0	0.39	56.36	0.00	-11.08	-11.11	0.00	-6.90	0.00	27.27

Segment Leq : 27.27 dBA

↟

Results segment # 2: Bus Route 16 (night)

Source height = 1.78 m

ROAD (0.00 + 30.10 + 0.00) = 30.10 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-14	0	0.38	59.12	0.00	-11.01	-11.11	0.00	-6.90	0.00	30.10

Segment Leq : 30.10 dBA

Total Leq All Segments: 31.92 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 39.52
(NIGHT): 31.92

↟

↟

STAMSON 5.0 NORMAL REPORT Date: 17-04-2024 15:58:19
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec4.te Time Period: Day/Night 16/8 hours
Description: REC 4 Outdoor Living Area

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

Car traffic volume : 6477/563 veh/TimePeriod *
Medium truck volume : 515/45 veh/TimePeriod *
Heavy truck volume : 368/32 veh/TimePeriod *
Posted speed limit : 40 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

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

Data for Segment # 1: Sweetland (day/night)

Angle1 Angle2 : -39.00 deg 31.00 deg
Wood depth : 0 (No woods.)
No of house rows : 5 / 5
House density : 20 %
Surface : 1 (Absorptive ground surface)
Receiver source distance : 95.00 / 95.00 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

↑
Road data, segment # 2: Bus Route 16 (day/night)

Car traffic volume : 0/0 veh/TimePeriod *
Medium truck volume : 3395/295 veh/TimePeriod *
Heavy truck volume : 377/33 veh/TimePeriod *
Posted speed limit : 40 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): 4100

```
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :  90.00
    Heavy Truck  % of Total Volume     :  10.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: Bus Route 16 (day/night)
-----------------------------------------------
Angle1   Angle2           : -39.00 deg   31.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      5 / 5
House density             :     20 %
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  95.00 / 95.00  m
Receiver height           :   1.50 / 10.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

↟
Results segment # 1: Sweetland (day)
-----------------------------------

Source height = 1.50 m

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
-------------------------------------------------------------------------------
   -39     31   0.66  63.96   0.00 -13.31  -4.29   0.00  -6.90   0.00  39.46
-------------------------------------------------------------------------------

Segment Leq : 39.46 dBA

↟
Results segment # 2: Bus Route 16 (day)
-----------------------------------

Source height = 1.78 m

ROAD (0.00 + 42.28 + 0.00) = 42.28 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -39     31   0.65  66.71   0.00 -13.24  -4.29   0.00  -6.90   0.00  42.28
-------------------------------------------------------------------------------

Segment Leq : 42.28 dBA

Total Leq All Segments: 44.11 dBA

↟
Results segment # 1: Sweetland (night)
```

Source height = 1.50 m

ROAD (0.00 + 31.86 + 0.00) = 31.86 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-39	31	0.66	56.36	0.00	-13.31	-4.29	0.00	-6.90	0.00	31.86

Segment Leq : 31.86 dBA

↟

Results segment # 2: Bus Route 16 (night)

Source height = 1.78 m

ROAD (0.00 + 36.94 + 0.00) = 36.94 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-39	31	0.38	59.12	0.00	-11.08	-4.21	0.00	-6.90	0.00	36.94

Segment Leq : 36.94 dBA

Total Leq All Segments: 38.11 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 44.11
(NIGHT): 38.11

↟

↟