

Environmental Noise Control Study Proposed Residential Development

1001 Noella LeClair Way
Ottawa, Ontario

Prepared for Extendicare

Report PG6671-1 dated May 8, 2023

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1.0 Introduction

Paterson Group (Paterson) was commissioned by Extendicare to conduct an environmental noise control study for the proposed residential development to be located at 1001 Noella LeClair Way, in the City of Ottawa.

The objective of the current study is to:

- Determine the primary noise sources impacting the site and compare the projected sound levels to guidelines set out by the Ministry of Environment and Climate Change (MOECC) and the City of Ottawa.
- Review the projected noise levels and offer recommendations regarding warning classes, construction materials or alternative sound barriers.

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

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

2.0 Proposed Development

It is our understanding that the proposed development will consist of a four-storey long-term care home with a partial basement. A total of 256 beds are anticipated in the building. Associated at-grade walking path, driveways, fire route, loading area, parking areas, landscaped areas, landscaped courtyard, terraces, and secured outdoor patio are also anticipated at the long-term care home.

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

Surface roadway traffic noise, equivalent to sound level energy L_{eq} , provides a measure of the time varying noise level over a period of time. For roadways, the L_{eq} is commonly calculated on the basis of 16-hour (L_{eq16}) daytime (07:00-23:00) and 8-hour (L_{eq8}) nighttime (23:00-7:00) split to assess its impact on residential, commercial and institutional buildings.

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

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

The Environmental Noise Guidelines for Stationary and Transportation Sources – NPC-300 outlines the limitations of noise levels in relation to the location of the receptors. These can be found in the following tables:

Table 1 – Noise Level Limit for Outdoor Living Areas	
Time Period	L_{eq} Level (dBA)
Daytime, 7:00-23:00	55
➤ Standard taken from Table 2.2a; Sound Level Limit for Outdoor Living Areas – Road and Rail	

Table 2 – Noise Level Limits for Indoor Living Areas			
Type of Space	Time Period	L_{eq} Level (dBA)	
		Road	Rail
General offices, reception areas, retail stores, etc.	Daytime 7:00-23:00	50	45
Theatres, places of worship, libraries, individual or semi-private offices, conference rooms, reading rooms, etc.	Daytime 7:00-23:00	45	40
Living/dining/den areas of residences , hospitals, nursing/retirement homes, schools, day-care centres	Daytime 7:00-23:00	45	40
Living/dining/den areas of residences , hospitals, nursing/retirement homes etc. (except schools or day-care centres)	Nighttime 23:00-7:00	45	40
Sleeping quarters of hotels/motels	Nighttime 23:00-7:00	45	40
Sleeping quarters of residences , hospitals, nursing/retirement homes, etc.	Nighttime 23:00-7:00	40	35
➤ Standards taken from Table 2.2b, Sound Level Limit for Indoor Living Areas – Road and Rail and Table 2.2c, Supplementary Sound Level Limits for Indoor Spaces – Road and Rail			

Predicted noise levels at the pane of window dictate the action required to achieve recommended noise levels. It is noted in ENCG that the limits outlined in Table 2 are for the noise levels on the interior of the window glass pane. An open window is considered to provide a 10 dBA noise reduction, while a standard closed window is capable to provide a minimum 20 dBA noise reduction. The noise level limits of residential building are 45 dBA daytime and 40 dBA nighttime. Therefore, where noise levels exceed 55 dBA daytime and 50 dBA nighttime, the ventilation for the building should consider the provision for central air conditioning. Where noise levels exceed 65 dBA daytime and 60 dBA nighttime, central air conditioning will be required, and the building components will require higher levels of sound attenuation.

When the noise levels are equal to or less than the specified criteria, no noise attenuation (control) measures are required.

When the exceedance of the recommended noise level limits is between 1 dBA and 5 dBA for outdoor living areas ($55 \text{ dBA} < L_{eq} \leq 60 \text{ dBA}$), the proposed development can be completed with no noise control measures incorporated into the site, but the prospective purchasers / tenants should be made aware by suitable Warning Clauses. When the exceedance of recommended noise level limits is more than 5 dBA for outdoor living areas ($L_{eq} > 60 \text{ dBA}$), noise control measures are required to reduce L_{eq} to below 60 dBA and as close as 55 dBA as it is technically and economically feasible.

Noise attenuation (control) measures include any or all of the following:

- Noise attenuation barrier
- Provisions for the installation of central air conditioning
- Central air conditioning
- Architectural components designed to provide additional acoustic insulation

In addition to the implementation of noise attenuation features, if required, the following Warning Clauses may be recommended to advise the prospective purchasers / tenants of affected units of potential environmental noise problem:

Table 3 – Warning Clauses for Outdoor Living Areas		
Leq (dBA)	Warning Clause	Description
$55 \text{ dBA} < L_{eq(16)} \leq 60 \text{ dBA}$	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."
$60 \text{ dBA} < L_{eq(16)}$	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."
<ul style="list-style-type: none"> ➤ Clauses taken from section C8 Warning Clauses; Environmental Noise Guidelines for Stationary and Transportation Sources - NPC-300 		

Table 4 – Warning Clauses for Indoor Living Areas		
Leq (dBA)	Warning Clause	Description
$55 \text{ dBA} < L_{\text{eq}(16)} \leq 65 \text{ dBA}$ $50 \text{ dBA} < L_{\text{eq}(8)} \leq 60 \text{ dBA}$	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."
$65 \text{ dBA} < L_{\text{eq}(16)}$ $60 \text{ dBA} < L_{\text{eq}(8)}$	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."
<p>➤ Clauses taken from section C8 Warning Clauses; Environmental Noise Guidelines for Stationary and Transportation Sources - NPC-300</p>		

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 subject site is not in proximity to existing or approved stationary sources of noise. Therefore, a stationary noise analysis will not be required.

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

The subject development is bordered to the north undeveloped grassed area, to the east by commercial buildings, parking lot, and undeveloped open area, to the west by Noella LeClair Way and proposed Noella LeClair Way Extension followed by undeveloped open area, and to the south by proposed Lady Pellatt Street followed by undeveloped open area. Noella LeClair Way is identified within the 100 m radius of proposed development. Noella LeClair Way Extension and Lady Pellatt Street are proposed within 100 m radius of proposed development.

Based on the City of Ottawa Official Plan, Schedule F, the roads within the 100 m radius of the development are not classified as either arterial, collector or major collector roads and are therefore not included in this study. The subject site is not located within 300 m radius of any proposed or existing rail corridor or secondary railway line. Also, the subject site is not located within 500 m radius of any existing 400 series provincial highway, freeway or principle main railway line. Therefore, this project will not require a surface transportation noise analysis.

The subject site is not in proximity to existing or approved stationary sources of noise. Therefore, this project will not require a stationary noise analysis. Also, the subject site is not located within the Airport Vicinity Development Zone. Therefore, this project will not require an aircraft/airport noise analysis.

The subject site location and the 100, 300 and 500 m radius boundaries around the subject site are presented in attached drawings PG6671-1 - Site Plan and PG6671-2 - Site Geometry.

5.0 Summary of Findings

The subject site is located at 1001 Noella LeClair Way, in the City of Ottawa. It is our understanding that the proposed development will consist of a four-storey long-term care home with a partial basement. Associated at-grade walking path, driveways, fire route, loading area, parking areas, landscaped areas, landscaped courtyard, terraces, and secured outdoor patio are also anticipated at the long-term care home.

Based on our review of the surrounding ground surface and stationary noise sources, it was determined that there are no noise sources within the required proximity to require additional studies. It is anticipated that standard building materials will be acceptable for this development.

6.0 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 Extencicare 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.



Yolanda Tang, M.A.Sc



Stephanie A. Boisvenue, P.Eng.

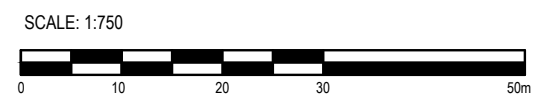
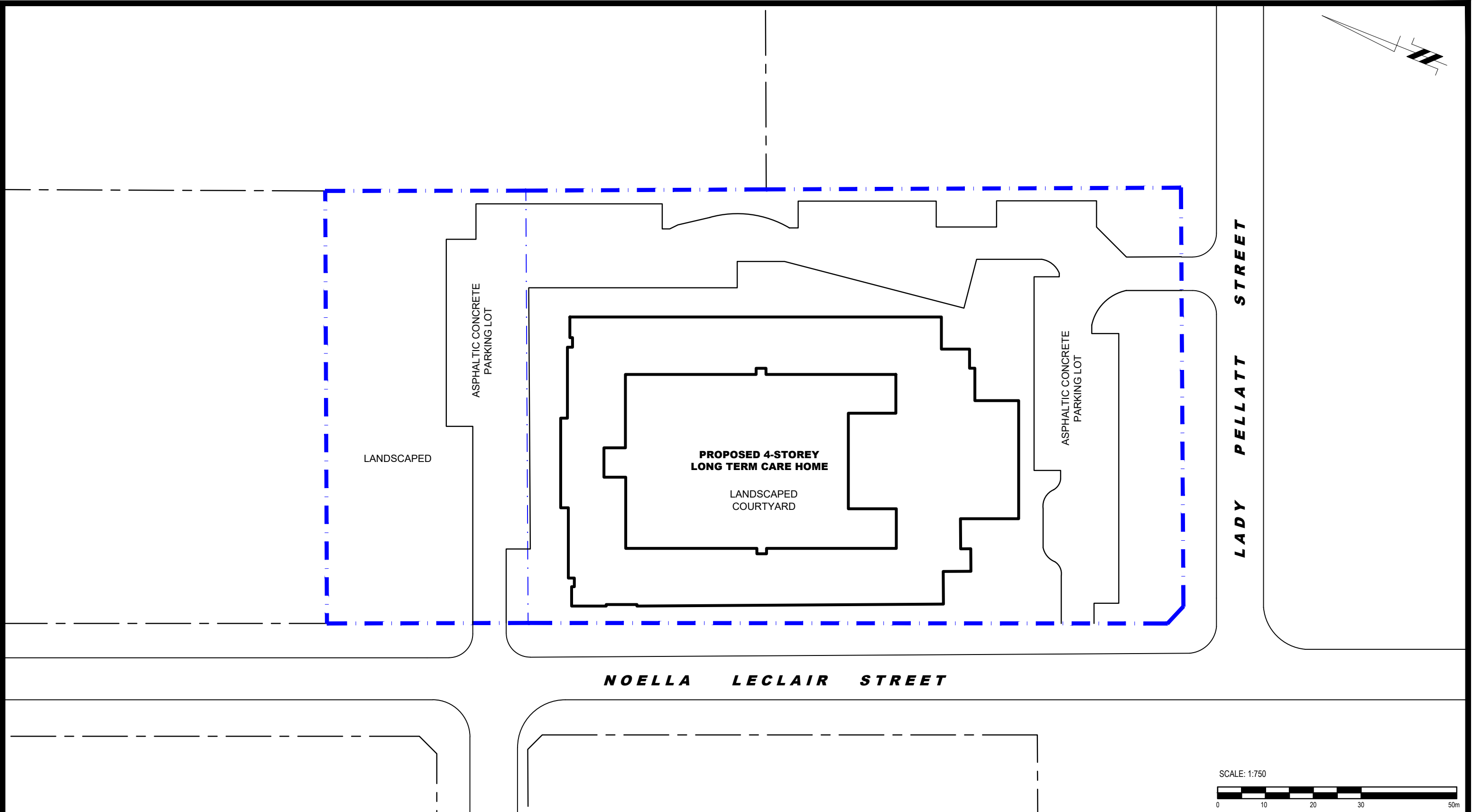
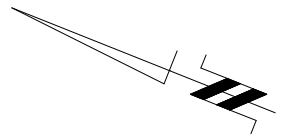
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APPENDIX 1

Drawing PG6671-1 - Site Plan

Drawing PG6671-2 - Site Geometry

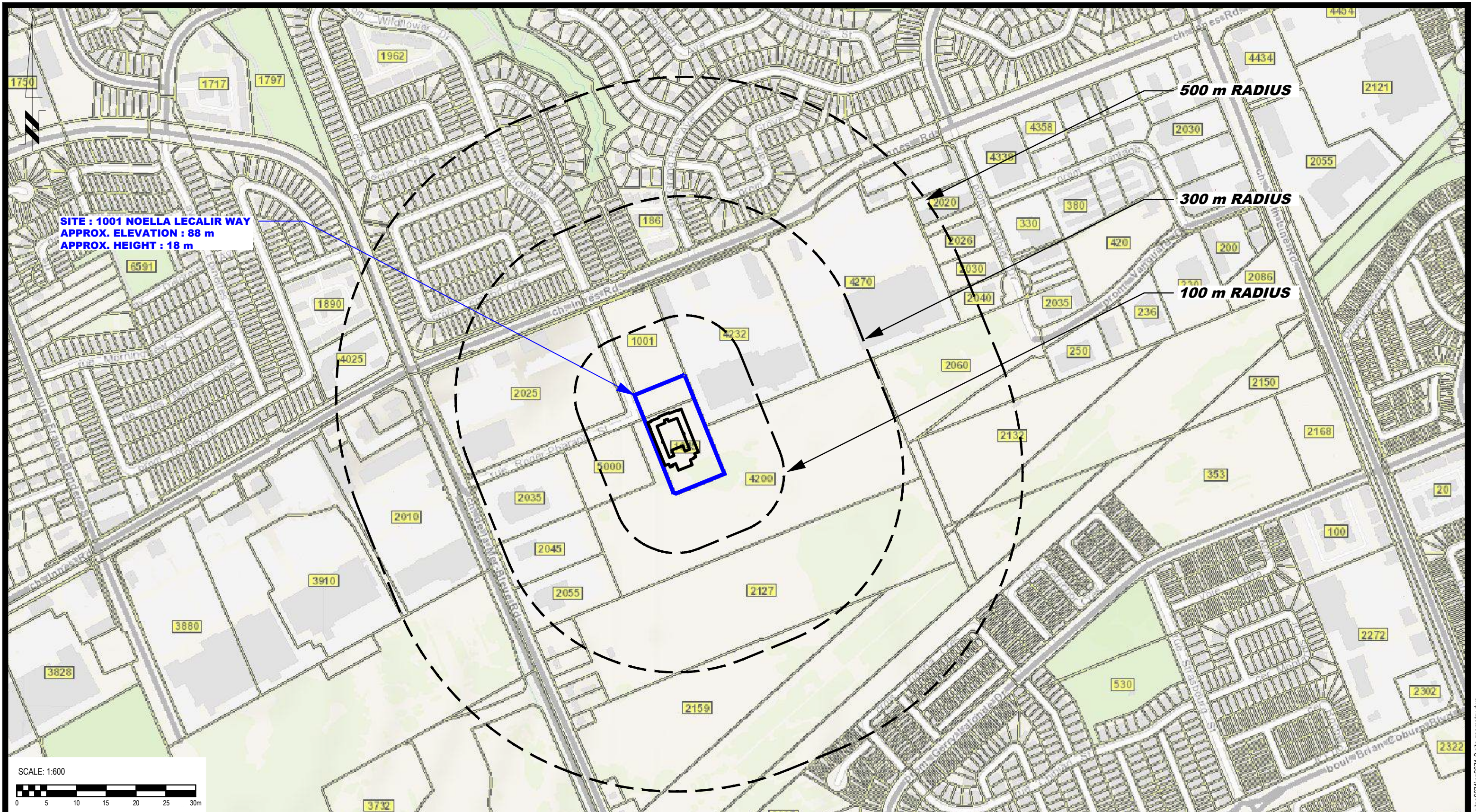


NO.	REVISIONS	DATE	INITIAL

EXTENDICARE
 NOISE ATTENUATION STUDY
 PROPOSED MULTI-STOREY LONG-TERM CARE HOME
 1001 NOELLA LECALIR WAY
 OTTAWA, ONTARIO

Title: **SITE PLAN**

Scale:	1:750	Date:	04/2023
Drawn by:	YA	Report No.:	PG6671-1
Checked by:	YT	Dwg. No.:	PG6671-1
Approved by:	SB	Revision No.:	



NO.	REVISIONS	DATE	INITIAL

OTTAWA,
 Title:

**EXTENDICARE
 NOISE ATTENUATION STUDY
 PROPOSED MULTI-STORY LONG-TERM CARE HOME
 1001 NOELLA LECALIR WAY**

ONTARIO

SITE GEOMETRY

Scale:	1:6000	Date:	04/2023
Drawn by:	YA	Report No.:	PG6671-1
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