



**Noise Assessment Report
1350 Wharncliffe Road South
London ON**

November 14, 2022

Prepared for:

2847012 Ontario Incorporated

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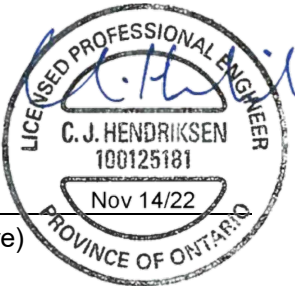


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Introduction

1.0 INTRODUCTION

1.1 PURPOSE OF REPORT

Stantec Consulting Ltd. has been retained by 2847012 Ontario Incorporated to prepare an environmental noise assessment for a site located in the City of London (City). The site is located along the south side of Wharncliffe Road South and west of the future Bradley Avenue extension, as shown in Figure 1. A Noise Assessment Study is required to address City policies regarding residential development adjacent to arterial roads.

The purpose of this report is to:

- Outline the Ministry's guidelines and criteria for noise levels and residential land use;
- Apply the noise level standards of the Ministry of the Environment, Conservation and Parks (MECP) to the site;
- Determine the extent to which noise levels will be of concern to future residents of the proposed development, using the computerized version (STAMSON 5.03) of the MECP noise model;
- Outline recommendations for noise attenuation, as necessary, to achieve acceptable noise levels for future residents of the proposed development.

1.2 LOCATION

The site will consist of a mix of single family and multi-family residential. This report will focus solely on medium density residential lots. The future multi-family block (Block 40) within the subject area will require a Noise Assessment Study during the site plan approval stage.

Surrounding land uses are as follows:

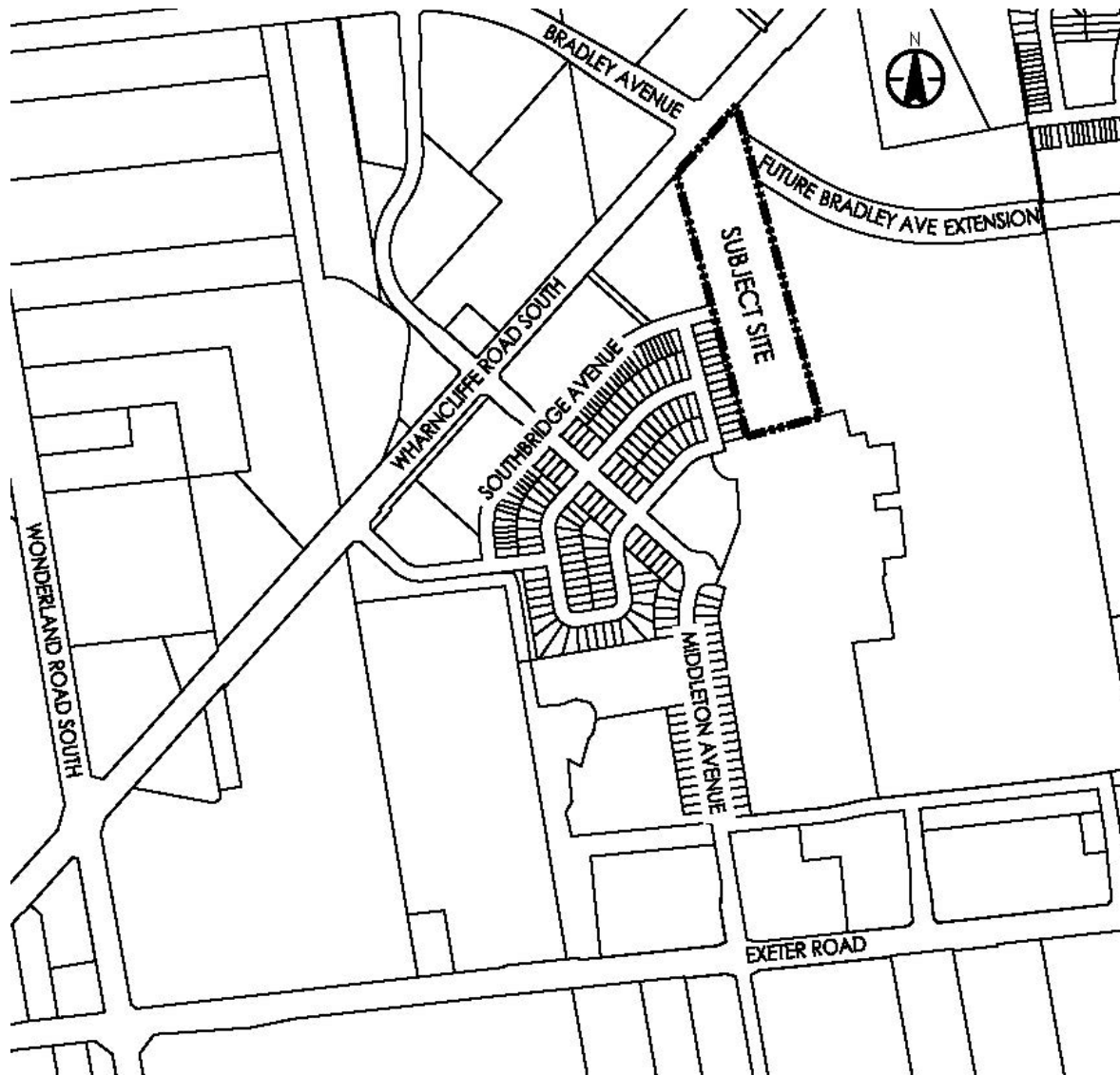
- North – vacant land & commercial;
- East – future residential;
- South – existing & future residential;
- West – existing & future residential.

The main potential noise source that may impact the subject site is vehicular traffic on Wharncliffe Road South and the future Bradley Avenue extension. Traffic volumes for these road segments are based on a 20-year assumed projection in accordance with the City of London Transportation Master Plan and total a maximum of 36,000 vehicles per day.



Introduction

Figure 1-1 – Key Plan



Noise Level Criteria

2.0 NOISE LEVEL CRITERIA

2.1 GUIDELINES

The MECP has produced guidelines for noise levels for use in noise assessment and land use planning. Noise level criteria for residential land use are summarized in Table 2.1 below.

Table 2-1 Noise Criteria for Residential Land Use

Location	7a.m.-11 p.m.	11 p.m.-7 a.m.
Outdoor Living Areas	55 dBA	n/a
Indoor Living Areas	55 dBA at plane of living room windows	50 dBA at plane of bedroom windows

Noise levels in excess of the guidelines presented in Table 2.1 are acceptable under certain conditions and with certain provisions. Tables 2.2 and 2.3 set out noise levels in excess of the criteria and the required provisions to allow residential activity in locations where noise level criteria are exceeded.

The MECP also specifies building component requirements when indoor noise levels exceed the criteria by certain levels. These requirements are summarized in Table 2.4.

Table 2-2: Combination of Road Noise, Day-Time Outdoor, Ventilation and Warning Clause Requirements

Location	Leq (16 hr) (dBA)	Ventilation Requirements	Outdoor Control Measures	Warning Clause
Outdoor Living Area	Less than or equal to 55 dBA	n/a	None required	Not required
	Greater than 55 dBA to less than or equal to 60 dBA	n/a	Control measures (barriers) not required but should be considered	Required if resultant Leq exceeds 55 dBA Type A
	Greater than 60 dBA	n/a	Control measures (barriers) required to reduce the Leq to below 60 dBA and as close to 55 dBA as technically, economically and administratively feasible	Required if resultant Leq exceeds 55 dBA Type B



Noise Level Criteria

Location	Leq (16 hr) (dBA)	Ventilation Requirements	Outdoor Control Measures	Warning Clause
Plane of Living Room Window	Greater than 50 dBA to less than or equal to 55 dBA	None required	n/a	Not required
	Greater than 55 dBA to less than or equal to 65 dBA	Forced air heating with provision for central air condition	n/a	Required Type C
	Greater than 65 dBA	Central air conditioning	n/a	Required Type D

(Source: Ministry of the Environment, Environmental Noise Guidelines, Stationary and Transportation Sources-Approval and Planning, Publication NPC-300)

Table 2-3: Combination of Road Noise, Nighttime Ventilation and Warning Clause Requirements

Location	Leq (8 hr) (dBA)	Ventilation Requirements	Warning Clause
Plane of Bedroom Window	Greater than 50 dBA to less or equal to 60 dBA	Forced air heating with provision for central air conditioning	Required Type C
	Greater than 60 dBA	Central air conditioning	Required Type D

(Source: Ministry of the Environment, Environmental Noise Guideline, Stationary and Transportation Sources-Approval and Planning, Publication NPC-300)



Noise Level Criteria

Table 2-4: Road Noise - Building Component Requirements

Location		Leq (16 hr) (dBA)	Building Component Requirements
Plane of Living Room Window – Daytime	Road	Less than or equal to 65 dBA	Building compliant with the Ontario Building Code
		Greater than 65 dBA	Building components (walls, windows, etc.) must be designed to achieve indoor sound level criteria
Location		Leq (8 hr) (dBA)	Building Component Requirements
Plane of Bedroom Window – Nighttime	Road	Less than or equal to 60 dBA	Building compliant with the Ontario Building Code
		Greater than 60 dBA	Building components (walls, windows, etc.) must be designed to achieve indoor sound level criteria

(Source: Ministry of the Environment, Environmental Noise Guideline, Stationary and Transportation Sources-Approval and Planning, Publication NPC-300)



3.0 OBSERVATIONS AND CALCULATIONS

3.1 NOISE LEVEL PREDICTIONS

Noise predictions in this report were completed using the computerized version (STAMSON 5.03) of the MECP noise model, ORNAMENT to calculate noise levels from various sources. The program accepts variables related to noise sources and receivers, road traffic volumes and the nature and extent of noise attenuation barriers, if required.

3.2 ROAD TRAFFIC VOLUMES

Traffic volume data for these sections of Wharncliffe Road South and the Bradley Avenue extension were provided by the City and indicates that the average annual daily traffic volume will be 36,000 vehicles at full capacity. Additional information obtained from the City regarding applicable assumptions and ratios for day/night traffic and car/ truck traffic is summarized as follows:

- Combined medium and heavy truck traffic for these sections of Wharncliffe Road South and the Bradley Avenue extension are estimated to be 3% of the total traffic volume; the remainder is assumed to be car traffic;
- Speed limit for this section of Wharncliffe Road South is 60 km/hour.
- Speed limit for this section of the Bradley Avenue extensions is expected to be 50 km/hour.
- Daytime (7 am – 11 pm) traffic is assumed to be 90%, with the remaining 10% at night (11 pm – 7 am);

To comply with City guidelines, the maximum traffic volumes shown are assumed to reflect the increase in use over a 20-year time period in accordance with the Transportation Master Plan.

Table 3.1 summarizes the projected traffic volumes used for calculations in this report.



Observations and Calculations

Table 3-1: Projected Traffic Volumes – Wharncliffe Road South & Bradley Avenue Extension

	20 Year Projected – Wharncliffe Road South		
	Day	Night	Total
Car	31,428	3,492	34,920
Truck	972	108	1,080
Total	32,400	3,600	36,000
Speed Limit	60 km/hr		
Gradient	0%		
Surface	Asphalt		
	20 Year Projected – Bradley Avenue Extension		
	Day	Night	Total
Car	31,428	3,492	34,920
Truck	972	108	1,080
Total	32,400	3,600	36,000
Speed Limit	50 km/hr		
Gradient	0%		
Surface	Asphalt		



Observations and Calculations

3.3 PROJECTED NOISE LEVELS

Using the MECP noise model, ORNAMENT, unattenuated noise levels were calculated for indoor living area (ILA) and outdoor living area (OLA) conditions at the point representing the anticipated building locations based on the draft plan of subdivision prepared by Stantec Consulting, as shown in Figure 2. The locations chosen represent the worst case scenario in regards to setback and exposure to Wharncliffe Road South and the Bradley Avenue extension.

Table 3-2: Summary of Projected Unattenuated Noise Levels

The resulting noise level calculations are summarized below. Calculations are provided in Appendix A

Location (lot)	Daytime building face ILA (dBA)	Nighttime building face ILA (dBA)	Daytime OLA (dBA)
29	53.03	47.49	53.05
39	53.81	48.16	53.79

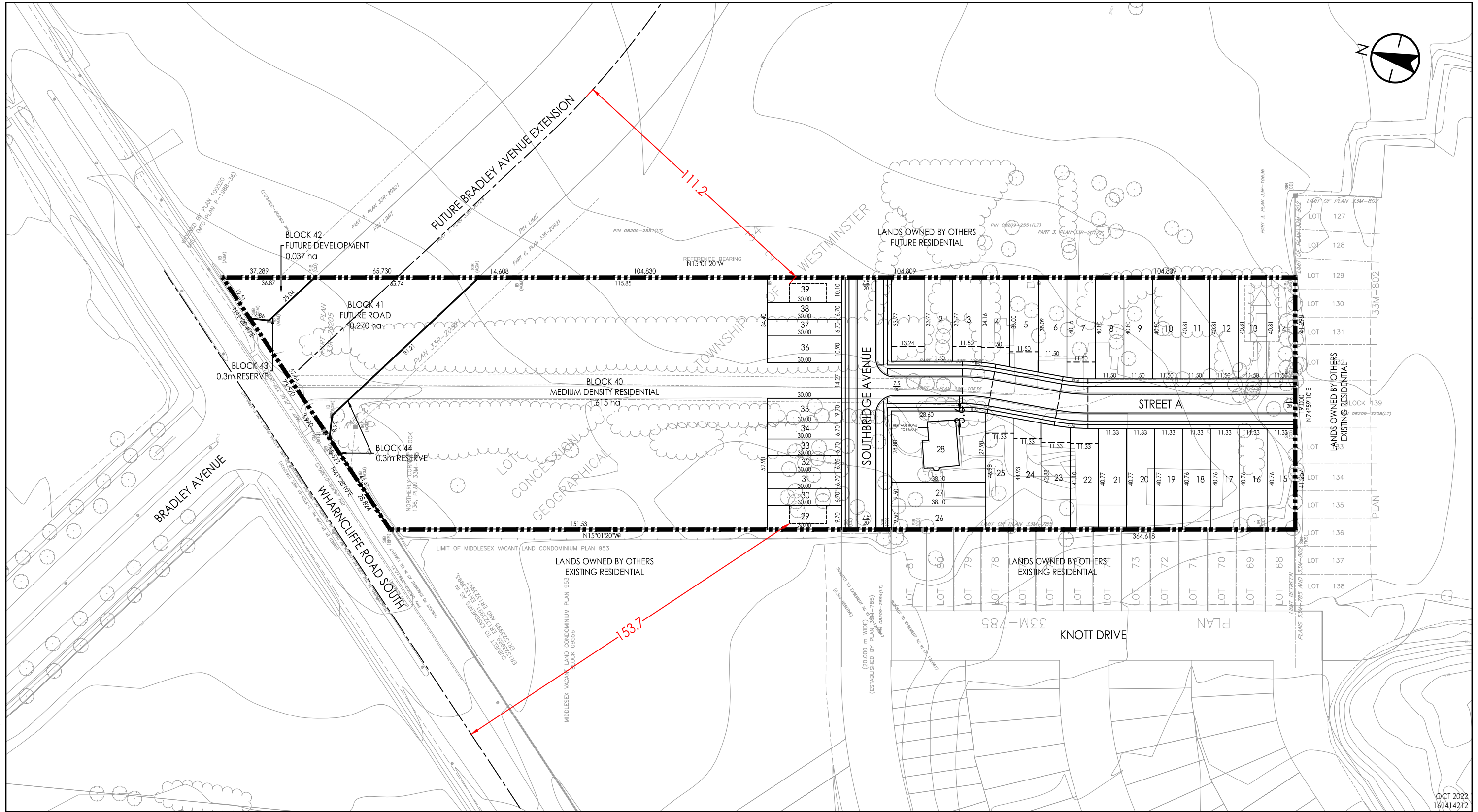


Observations and Calculations

Figure 3-1 - Noise Assessment Plan



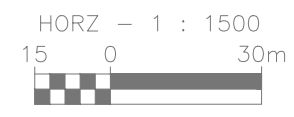
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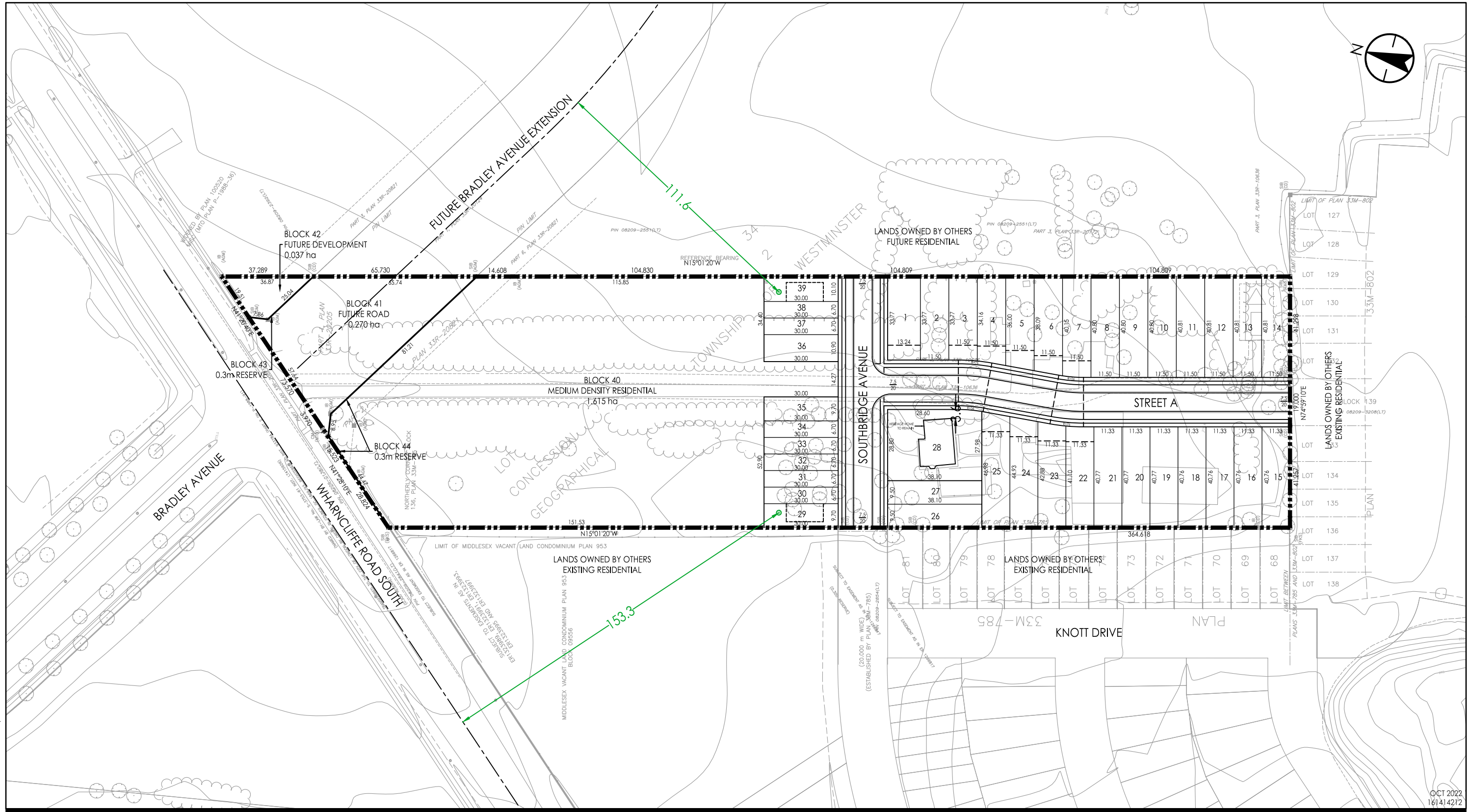


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 London, ON Canada

Figure No.
 2

Title
 NOISE ASSESSMENT PLAN
 INDOOR LIVING AREA

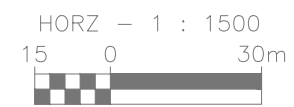
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Figure No.
3

Title
NOISE ASSESSMENT PLAN
OUTDOOR LIVING AREA

4.0 CONCLUSIONS AND RECOMMENDATIONS

4.1 CONCLUSIONS

Predicted noise levels are below MECP criteria at the daytime and nighttime indoor living areas and the outdoor living area for units with exposure to Wharncliffe Road South and the future Bradley Avenue extension.

Block 40 will require a subsequent noise study to be completed once the site plan for this block has been finalized.

No further measures are required to allow the residential development to proceed in accordance with MECP criteria with respect to environmental noise.



Appendix A NOISE LEVEL CALCULATIONS



Filename: 1350 Wharncliffe Road Time Period: 16 hours
Description: Lot 29 - daytime indoor living area

Road data, segment # 1: Wharncliffe

Car traffic volume : 31428 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 972 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: Wharncliffe

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 153.70 m
Receiver height : 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: Wharncliffe

Source height = 1.32 m

ROAD (0.00 + 53.03 + 0.00) = 53.03 dBA

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

SubLeq									

-90	90	0.66	71.26	0.00	-16.78	-1.46	0.00	0.00	0.00
53.03									

Segment Leq : 53.03 dBA

Total Leq All Segments: 53.03 dBA

TOTAL Leq FROM ALL SOURCES: 53.03

Filename: 1350 Wharncliffe Road Time Period: 16 hours
 Description: Lot 39 - daytime indoor living area

Road data, segment # 1: Bradley

```
-----
Car traffic volume : 31428 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 972 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)
```

Data for Segment # 1: Bradley

```
-----
Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 111.20 m
Receiver height : 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00
```

Results segment # 1: Bradley

Source height = 1.32 m

ROAD (0.00 + 53.81 + 0.00) = 53.81 dBA
 Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj
 SubLeq

```
-----
---
-90 90 0.66 69.71 0.00 -14.44 -1.46 0.00 0.00 0.00
53.81
-----
---
```

Segment Leq : 53.81 dBA

Total Leq All Segments: 53.81 dBA

TOTAL Leq FROM ALL SOURCES: 53.81

Filename: 1350 Wharncliffe Road Time Period: 16 hours
Description: Lot 29 - outdoor living area

Road data, segment # 1: Bradley

Car traffic volume : 31428 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 972 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: Bradley

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 111.60 m
Receiver height : 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: Bradley

Source height = 1.32 m

ROAD (0.00 + 53.79 + 0.00) = 53.79 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj
SubLeq

-90 90 0.66 69.71 0.00 -14.47 -1.46 0.00 0.00 0.00
53.79

Segment Leq : 53.79 dBA

Total Leq All Segments: 53.79 dBA

TOTAL Leq FROM ALL SOURCES: 53.79

Appendix B NOISE WARNING CLAUSES



Conclusions and Recommendations

The following warning clauses may be used individually or in combination:

TYPE A:

“Purchasers / tenants are advised that sound levels due to increasing road (rail) (air) traffic may occasionally interfere with some activities of the dwelling occupants as the sound levels exceed the Municipality’s and the Ministry of the Environment’s noise criteria.”

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 (rail) (air) traffic may on occasion interfere with some activities of the dwelling occupants as the sound levels exceed the Municipality’s and the Ministry of the Environment’s noise criteria.”

TYPE C

“This dwelling unit has been fitted with a forced air heating system and the ducting, etc. was sized to accommodate central air conditioning. Installation of central air conditioning by the occupant will allow windows and exterior doors to remain closed, thereby ensuring that the indoor sound levels are within the Municipality’s and the Ministry of the Environment’s noise criteria. (Note: The location and installation of the outdoor air conditioning device should be done so as to comply with noise criteria of MOE Publication NPC-216, Residential Air Conditioning Devices and thus minimize the noise impacts both on and in the immediate vicinity of the subject property.)”

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 Municipality’s and the Ministry of the Environment’s noise criteria.”

