



**Noise Assessment Report
187 Dorchester Road**

March 20, 2019

Prepared for:

Sifton Properties Limited

Prepared by:

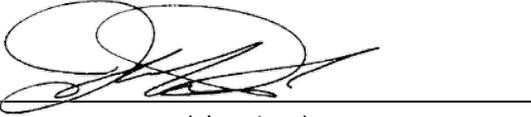
Stantec Consulting Ltd.
600-171 Queens Avenue
London, ON N6A 5J7



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Prepared by 
(signature)

Rich Turner, Senior Community Designer

Reviewed by 
(signature)

Jeff Paul P.Eng, Managing Principal



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Introduction
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1.0 INTRODUCTION

1.1 PURPOSE OF REPORT

Stantec Consulting Ltd. has been retained by Sifton Properties Limited to prepare an environmental noise assessment for a site located in the Town of Dorchester. The site is located along the east side of Dorchester Road and south of Byron Avenue, as shown in Figure 1. A Noise Assessment Study is required to address municipal policies regarding residential development adjacent to county and local 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 Ontario 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's 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 be developed as a draft plan of subdivision with a total of 190 single family lots, as well as, a multi-family block, commercial block and various parks and open space blocks.

Surrounding land uses are as follows:

- North – existing residential, Shoppers Drug Mart, Dorchester Terrace Retirement Residence;
- East – existing residential;
- South – open space;
- West –existing residential and agriculture.

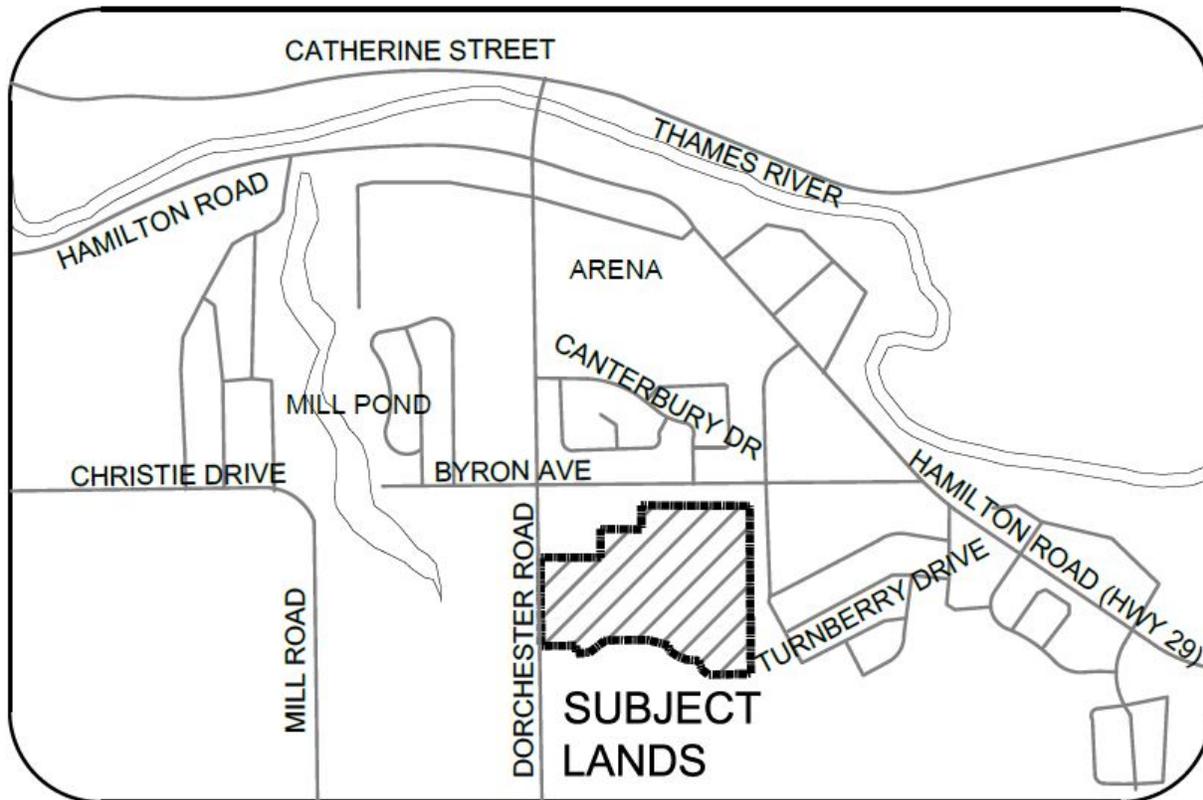
The focus of this report will be on the single-family residential lots. A separate noise report for Block 191 (multi-family residential) should be prepared at the time of site plan approval.

The main potential noise source that may impact the subject site is vehicular traffic on Dorchester Road and Byron Avenue, north and west of the proposed development. Current traffic volumes for both road segments were provided by Middlesex County and the Municipality of Thames Centre.



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Figure 1-1 – Key Plan



Noise Level Criteria

March 20, 2019

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 and Rail 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 Leg exceeds 55 dBA Type A
	Greater than 60 dBA	n/a	Control measures (barriers) required to reduce the Leg to below 60 dBA and as close to 55 dBA as technically, economically and administratively feasible	Required if resultant Leg exceeds 55 dBA Type B



Noise Level Criteria
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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 and Rail 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)

Table 2-4: Road and Rail Noise - Building Component Requirements

Location		Leg (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
	Rail	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



Noise Level Criteria
 March 20, 2019

Location		Leg (16 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
	Rail	Less than or equal to 55 dBA	Building compliant with the Ontario Building Code
		Greater than 55 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)



Observations and Calculations

March 20, 2019

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

Current traffic volume data for both sections of Dorchester Road and Byron Avenue were provided by Middlesex County and the Municipality of Thames Centre. Additional information obtained regarding applicable assumptions and ratios for day/night traffic and car/ truck traffic is summarized as follows:

Dorchester Road

- Current traffic volumes for this section of Dorchester Road as provided by Middlesex County is 4,366 vehicles per day;
- Combined medium and heavy truck traffic for this segment of Dorchester Road is estimated to be 3.0% of total traffic volume; the remainder is assumed to be car traffic;
- Daytime (7 am – 11 pm) traffic is assumed to be 90%, with the remaining 10% at night (11 pm – 7 am);
- Speed limit for this segment of Dorchester Road 50 km/hour.

Byron Avenue

- Current traffic volumes for this section of Byron Avenue as provided by the Municipality of Thames Centre is 2,800 vehicles per day;
- Combined medium and heavy truck traffic for this segment of Byron Avenue is estimated to be 3.0% of total traffic volume; the remainder is assumed to be car traffic;
- Daytime (7 am – 11 pm) traffic is assumed to be 90%, with the remaining 10% at night (11 pm – 7 am);
- Speed limit for this segment of Byron Avenue 50 km/hour.

For the purpose of this report the maximum traffic volumes used reflect a 2% increase in use per year over a 20-year time period.



Observations and Calculations

March 20, 2019

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

Table 3-1: Projected Traffic Volumes

Dorchester Road	20 year Projected – 2% increase per year		
	Day	Night	Total
Car	5,663	630	6,293
Truck	175	19	194
Total	5,838	649	6,487
Speed Limit	50km/hr		
Gradient	0%		
Surface	Asphalt		
Byron Avenue	20 Year Projected – 2% increase per year		
	Day	Night	Total
Car	3,632	404	4,036
Truck	112	12	124
Total	3,744	416	4,160
Speed Limit	50km/hr		
Gradient	0%		
Surface	Asphalt		



Observations and Calculations
 March 20, 2019

3.3 PROJECTED NOISE LEVELS

Using the MOE 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 proposed draft plan of subdivision prepared by Monteith Brown Planning Consultants, as shown on Figure 2. The locations chosen represent the worst case scenario in regards to setback and exposure to Dorchester Road and Byron Avenue.

Table 3-2: Summary of Projected Unattenuated Noise Levels

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

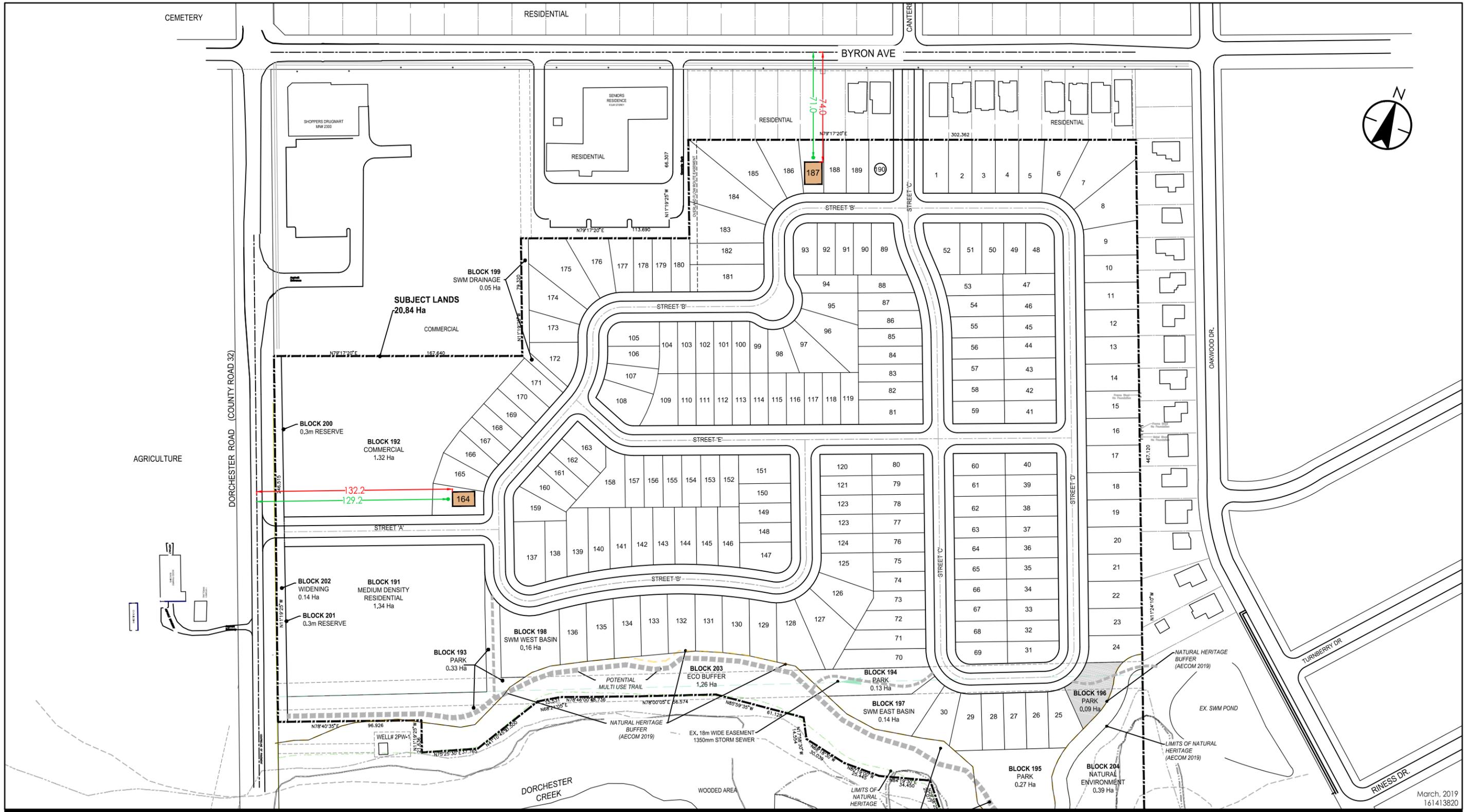
Location(lot)	Daytime building face ILA (dBA)	Nighttime building face ILA (dBA)	Daytime OLA (dBA)
164	45.12	39.46	45.29
187	47.37	41.46	47.67



Observations and Calculations
March 20, 2019

Figure 3-1 - Noise Assessment Plan





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March, 2019
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600-171 Queens Avenue
 London ON N6A 5J7
 Tel. 519-645-2007
 www.stantec.com

- Legend**
- ↔20.0↔ Indoor Living Area Setback
 - ↔20.0↔ Outdoor Living Area Setback



Client/Project
 SIFTON PROPERTIES LIMITED
 187 DORCHESTER ROAD
 Dorchester, ON Canada

Figure No.
 2.0

Title
 NOISE ASSESSMENT PLAN

Conclusions and Recommendations

March 20, 2019

4.0 CONCLUSIONS AND RECOMMENDATIONS

4.1 CONCLUSIONS

Predicted noise levels are below MECP criteria at the daytime and nighttime indoor living area and the outdoor living area for units with exposure to Dorchester Road and Byron Avenue.

Therefore, the consideration of noise mitigation is not warranted based on MECP requirements.

Respectfully Submitted By:



Jeff Paul, P.Eng
Senior Managing Principal



Appendix A Noise Level Calculations
3/20/2019 12:00:00 AM

Appendix A NOISE LEVEL CALCULATIONS



Filename: 187 Dorchester Road Time Period: 16 hours
Description: Lot 164 - Daytime Building Face

Road data, segment # 1: Dorchester R

Car traffic volume : 5663 veh/TimePeriod
Medium truck volume : 0 veh/TimePeriod
Heavy truck volume : 175 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: Dorchester R

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 : 132.20 m
Receiver height : 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: Dorchester R

Source height = 1.32 m

ROAD (0.00 + 45.12 + 0.00) = 45.12 dBA

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

-90	90	0.66	62.27	0.00	-15.69	-1.46	0.00	0.00	0.00
45.12									

Segment Leq : 45.12 dBA

Total Leq All Segments: 45.12 dBA

TOTAL Leq FROM ALL SOURCES: 45.12

Filename: 187 Dorchester Road Time Period: 16 hours
 Description: Lot 187 - Outdoor Living Area

Road data, segment # 1: Byron Ave

Car traffic volume : 3632 veh/TimePeriod
 Medium truck volume : 0 veh/TimePeriod
 Heavy truck volume : 112 veh/TimePeriod
 Posted speed limit : 50 km/h
 Road gradient : 0 %
 Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: Byron Ave

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 : 71.00 m
 Receiver height : 1.50 m
 Topography : 1 (Flat/gentle slope; no barrier)
 Reference angle : 0.00

Results segment # 1: Byron Ave

Source height = 1.32 m

ROAD (0.00 + 47.67 + 0.00) = 47.67 dBA

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

-90	90	0.66	60.33	0.00	-11.21	-1.46	0.00	0.00	0.00
47.67									

Segment Leq : 47.67 dBA

Total Leq All Segments: 47.67 dBA

TOTAL Leq FROM ALL SOURCES: 47.67