

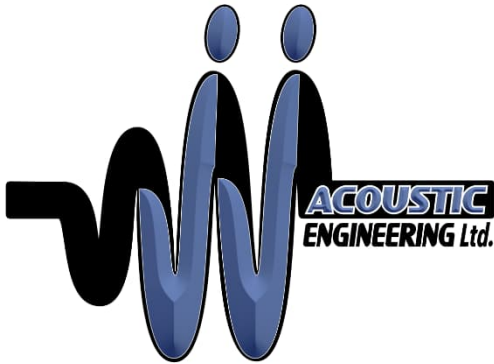


Road Traffic and Stationary Noise Impact Study

1 Dunbar Road North, Waterloo, Ontario

JJ-00658--NIS1





August 15, 2024,

Reference No. JJ-00658-NIS1

Marie-Christine Pinard
VP Corporate Development
2744668 Ontario Inc.
c/o 360 Pacifica Capital Corporation
700-1130 Sherbrooke St W
Montreal, QC, H3 A 2M8

Dear Ms. Pinard:

**Re: Road Traffic and Stationary Noise Impact Study
1 Dunbar Road North, Waterloo, Ontario**

1. Introduction

JJ Acoustic Engineering Ltd. (JJAЕ) was retained to complete a Road Traffic and Stationary Noise Impact Study (Study) for the residential development located at 1 Dunbar Road North in Waterloo, Ontario (Site). The Site will be developed into a 10-storey residential building. JJAЕ has provided a copy of the most up-to-date Site Plan in Attachment A.

The Study was prepared consistent with Ontario Ministry of the Environment, Conservation and Park (MOECP) NPC 300, "Environmental Noise Guideline, Stationary and Transportation Sources—Approval and Planning" dated August 2013 and The Regional Municipality of Waterloo Noise Policy Implementation Guideline dated October 22, 2019.

This Study has determined that the potential environmental noise impact from road traffic noise is significant. The proposed development will need the following: a requirement for central air-conditioning and noise warning clauses. Road traffic noise control requirements for the Site were determined based on road traffic volumes provided by the Region of Waterloo (Region) and forecasted to 10 years from the date of this study. JJAЕ has also verified the data with the City of Waterloo and has been supplied in Attachment B.

JJ Acoustic Engineering Ltd.
joey@jjae.ca
226-346-6473

The following attachments were included with this Study:

- Attachment A – Site Plan
- Attachment B – Traffic Data Summary Table & Sample Stamson Traffic Model Outputs
- Attachment C – Stationary Noise Impact Figures
- Attachment D – Stationary Noise Impact Source Table
- Attachment E – Owners Statement
- Attachment F – Consultant's Declaration

2. Road Traffic Analysis

2.1 Road Traffic Noise Modeling Methodology

The road traffic noise impact was conducted using STAMSON, the MOECP's computerized model of ORNAMENT. The Application of the model for the site was consistent with the ORNAMENT technical documents. The computer model input parameters include, among other data, the number of road segments, number of house rows, the positional relationship of the receptor to a noise source or barrier in terms of distance, elevation and angle of exposure to the source, the basic site topography, the ground surface type, traffic volumes, traffic composition and speed limit.

The predicted sound level is based on the 1-hour equivalent sound level, designated as Leq, and is adjusted by the STAMSON program to the 16-hour daytime and the 8-hour nighttime equivalent sound level. The applicable noise criteria for noise sensitive spaces are specified in terms of the 16-hour daytime period (7:00 a.m. to 11:00 p.m.) and 8-hour nighttime period (11:00 p.m. to 7:00 a.m.) enabling a direct comparison between the STAMSON model output and the noise limits.

Where there are multiple sources of noise, such as road and rail, JJAЕ evaluated noise control measures by combining both road and rail sources and applying measures as described in Section C7.3 of NPC 300.

2.2 Road Traffic Model Input Parameters

This section describes the STAMSON model input parameters used to predict road traffic noise impact for the Site.

The Site has one significant roadway in the vicinity of the development: Erb Street West approximately 15 meters to the South. Where there are intervening and off-site structures that provide line-of-sight obstruction to the roads, JJAЕ did not include line-of-sight obstruction in our analysis as to calculate worst-case noise impact.

JJAЕ reviewed other surrounding roadways in the vicinity of the Site and only the significant roadways were used in our modeling, other roadways were considered to be insignificant or beyond our red flag zone.

2.2.1 Road Traffic Parameters

The traffic data provided by the Region has been summarized below:

Erb Street West:

- Current AADT (2024): 17,000
- Forecast AADT (2034): 17,900
- Commercial Vehicle Rates: 2% medium trucks and 1% heavy trucks
- Posted Speed Limit: 50 km/h
- Day Night Splits: 90% day and 10% night

The traffic data is the foundation of this analysis and the Study will be updated if the values change. Traffic data was supplied by the Region. The Region's AADT report for this Noise Studies report has been supplied in Attachment B.

2.3 Road Traffic Noise Modeling Results

JJAE calculated the Plane of Window (POW) noise exposure for each floor at the Site for the separate daytime and nighttime periods.

The STAMSON road traffic model outputs are provided in Attachment B.

2.4 Road Traffic Modeling Discussion

Noise control requirements will be defined based on NPC 300.

Daytime Outdoor Living Area Assessment (NPC 300, Section C7.1.1)

NPC 300 section A5 (pages 13-14) defines an Outdoor Living Area (OLA). As part of this definition, a balcony or terrace is considered an OLA if it has a minimum depth of 4 meters. All balconies are less than 4 m in depth and therefore will not be considered as OLAs.

JJAE has determined the OLA location is on roof of the Site. JJAE has calculated the OLA's to be 52 dBA. A summary has been provided in Attachment B Table B1.

Plane of a Window – Ventilation Requirements (NPC 300, Section C7.1.2)

The predicted daytime and nighttime Plane of Window (POW) noise impact assumes a worst-case and direct line of sight noise exposure to both roads, unless the building itself blocks line-of-sight (full or partial).

JJAE has used the following criteria, which is a summary of NPC 300 requirements, to evaluate the Site noise impacts from road traffic noise:

Daytime Level (dBA)	Nighttime Level (dBA)	Ventilation Requirements and Warning Clauses	Special Building Components
55	50	Not Required	Not Required
55 – 65	50 – 60	Yes, with Type C Warning Clause	Not Required
66 or more	61 or more	Yes, with Type D Warning Clause	Yes

Table B.1 summarizes the predicted worst-case sound levels and the requirements for the units. The following warning clause is required:

Warning Clause 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, Conservation and Parks."

Indoor Living Areas – Building Components (NPC 300, Section C7.1.3)

At minimum, the building must be constructed to standard Ontario Building Code requirements.

3. Stationary Noise Impact Analysis

3.1 Stationary Noise Impact Sound Level Criteria

The general criteria for stationary noise sources are defined by NPC 300. The criteria defined in Table C-5 and C-6, "Exclusion Limit Values of One-Hour Equivalent Sound Level (Leq, dBA) Outdoor Points of Reception" and "Exclusion Limit Values of One-Hour Equivalent Sound Level (Leq, dBA) Plane of Window of Noise Sensitive Spaces" are used to evaluate the noise impact at the proposed development. The Site is in what would generally be considered a Class 1 acoustic environment as defined by NPC-300, a Class 1 Area as "an area with an acoustical environment typical of a major population center, where the background sound level is dominated by the activities of people, usually road traffic, often referred to as 'urban hum'."

The criteria for a Class 1 area have been summarized below:

Receiver Category	Time Period	Stationary Noise Criteria
Outdoor Living Area (OLA)	Day = 7:00 to 23:00	Leq = 50 dBA
Plane of Window (POW)	Day = 7:00 to 23:00	Leq = 50 dBA
	Night = 23:00 to 7:00	Leq = 45 dBA

3.2 Modelling Methodology

The stationary noise impact was evaluated using the CADNA A acoustic modelling software that is based on the ISO 9613-2 standard. The data for all potential stationary noise sources was summarized in Attachment D.

JJAE used the following assumptions in our Cadna A model:

- **Ground Absorption:** Default ground absorption coefficient of 0.7 was used.
- **Temperature:** 10°C
- **Humidity:** 70%
- **Building Reflection Coefficient:** Absorption Coefficient Alpha of 0.37 (Reflection Loss of 2dB, Structured Façade) was used.
- **Time-Weighted Adjustment:** where sources operate non-continuously JJAE has provided operating times and as shown in Sections 4 and 5.
- **Tonality:** A 5 dbA tonal penalty was applied to all tonal sources, where applicable. JJAE has provided a (T) for sources identified as tonal in Sections 4 and 5.
- **Reflection Order:** A maximum reflection order of 1 was used to evaluate indirect noise impact.

4. Noise Impact Summary – From Site to Environment

The noise from the Site to the neighboring buildings could not be accounted for because the site has not undergone mechanical design yet. An addendum to this report should be completed once a mechanical design is done to account for noise from the Site to the neighboring building.

5. Noise Impact Summary – From Environment to Site

There are several buildings near the site. JJAЕ has identified several potential stationary noise sources including:

- Representative MUA (Steady)
- Representative Chiller (60 minutes daytime, 30 minutes nighttime)
- Small HVAC Units (60 minutes daytime, 30 minutes nighttime)

A summary of the noise sources used in our modelling is provided in Attachment D.

JJAЕ modelled the noise impact from all significant noise sources to the Site. The results are summarized in the table below and illustrated on Figure 1.

Facade	Worst Case Daytime Sound Level (dBA)	Daytime Noise Limit (dBA)	Worst Case Nighttime Sound Level (dBA)	Nighttime Noise Limit (dBA)	Limits met
North	41	50	41	45	Yes
East	36	50	36	45	Yes
South	36	50	36	45	Yes
West	44	50	44	45	Yes
OLA	39	50	N/A	N/A	Yes

From the table above it can be seen that the all façades and the OLA are below noise limits

6. Recommendations

The road traffic noise impacts were above the NPC 300 requirements. Noise mitigation measures include:

- Warning Clause Type C to be registered on Title and/or included in all agreements of purchase and sale and/or leases and/or disclosure statements and declarations for the development for all units.
- Mandatory Requirement for Air Conditioning for the entire building.

These have been summarized in Attachment B under Table B1.

The stationary noise impacts from the environment to the site were evaluated and the sound level predictions were determined to be below the noise limits for all façades and the OLA.

The noise from the Site to the neighboring buildings could not be accounted for because the site has not undergone mechanical design yet. An addendum to this report should be completed once a mechanical design is done to account for noise from the Site to the neighboring building.

7. Conclusions

The results of this Study indicate that the potential environmental impact from road traffic noise sources is significant. Mitigation measures will be required including ventilation requirements and a noise warning clause for each unit. With the mitigation measures provided in Section 6, there should be no negative noise impact from the neighboring buildings to the Site. Therefore, this development is feasible with respect to NPC-300 and RMWNPIG.

Should you have any questions on the above, please do not hesitate to contact us.

Yours truly,

Written by:

Reviewed by:

Aug. 15, 2024

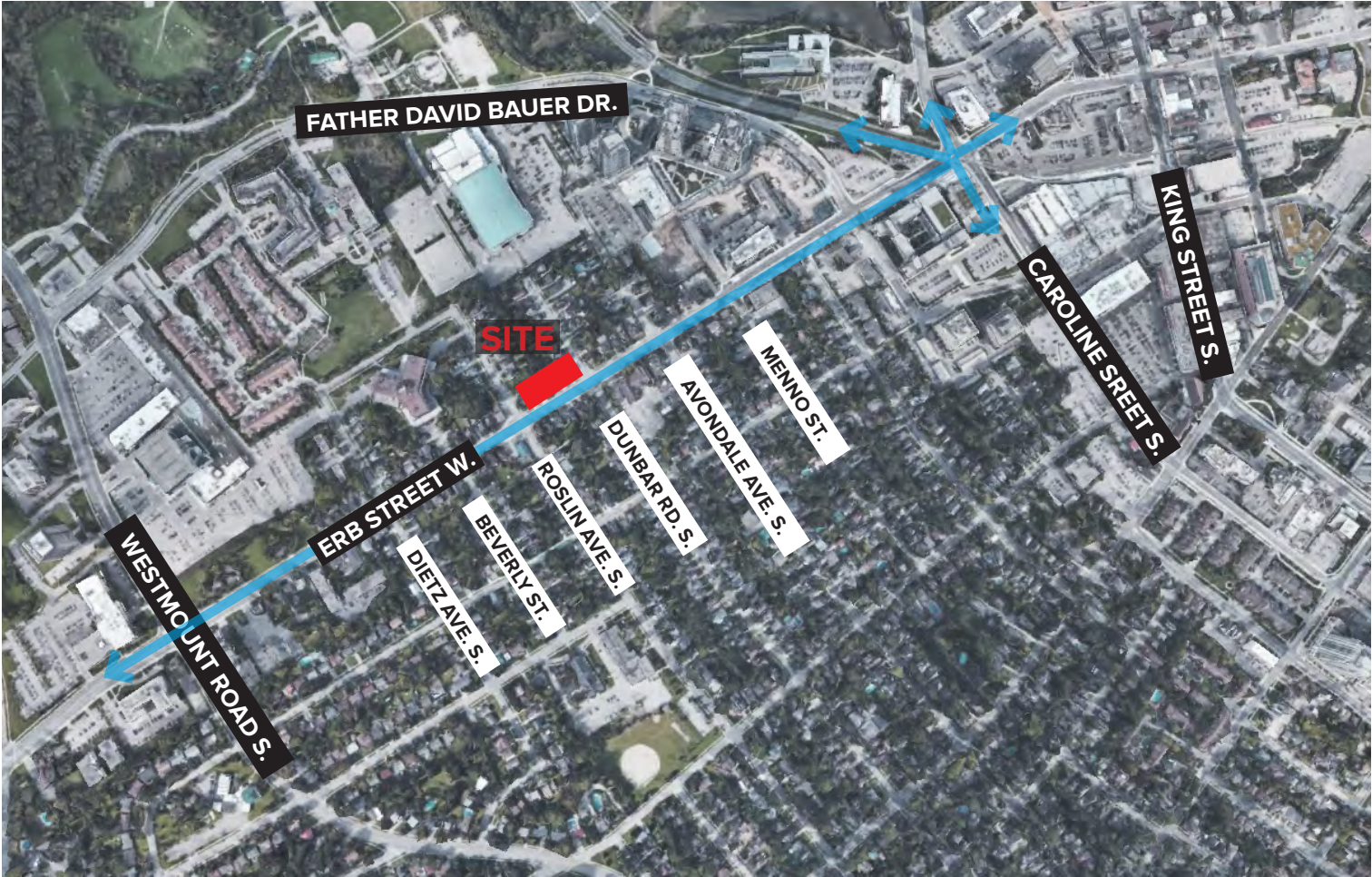


Emmanuel Ghiorghis,
Acoustic Technician

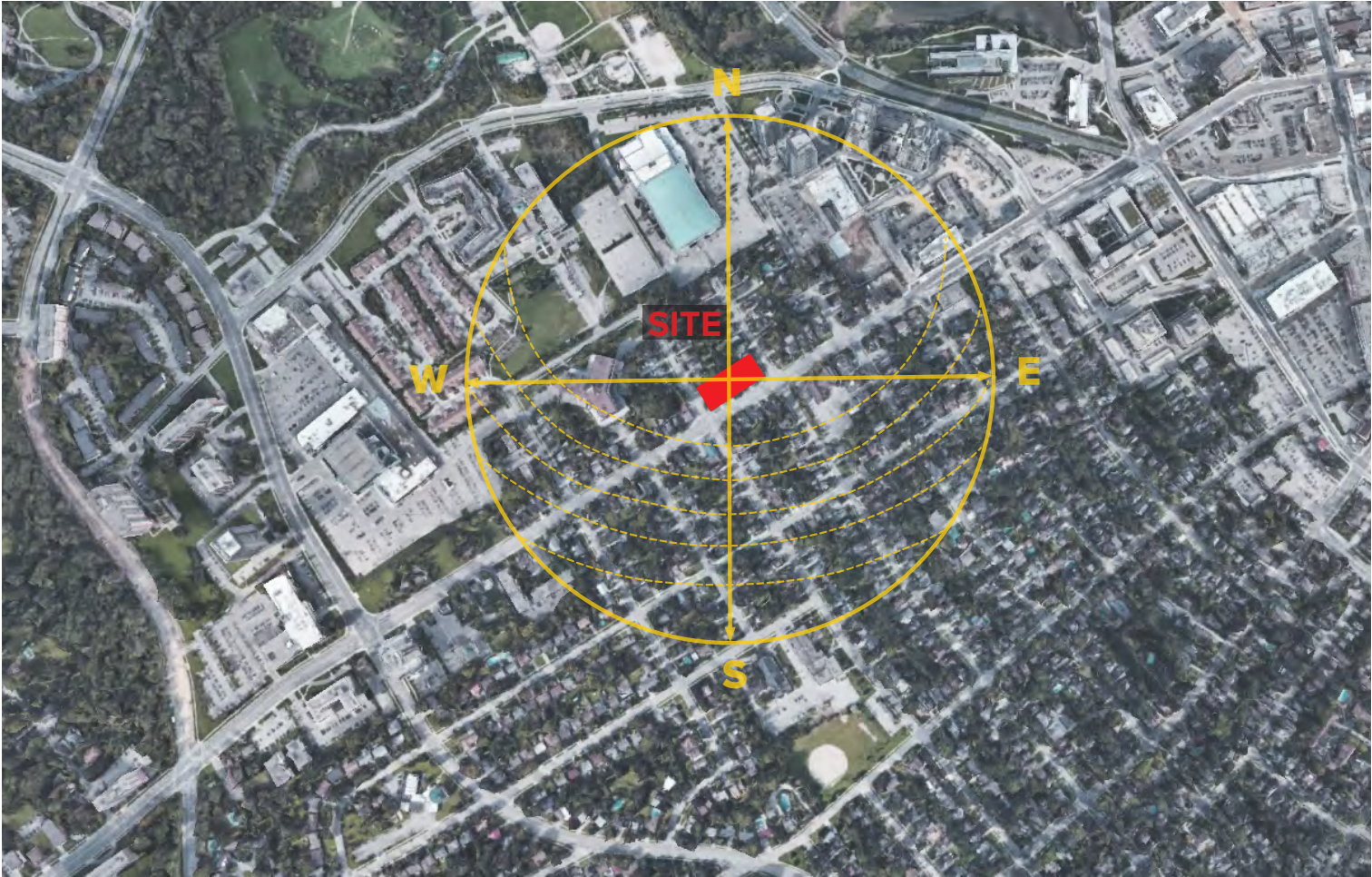


Joey Jraige, P.Eng., B.A.Sc.
President

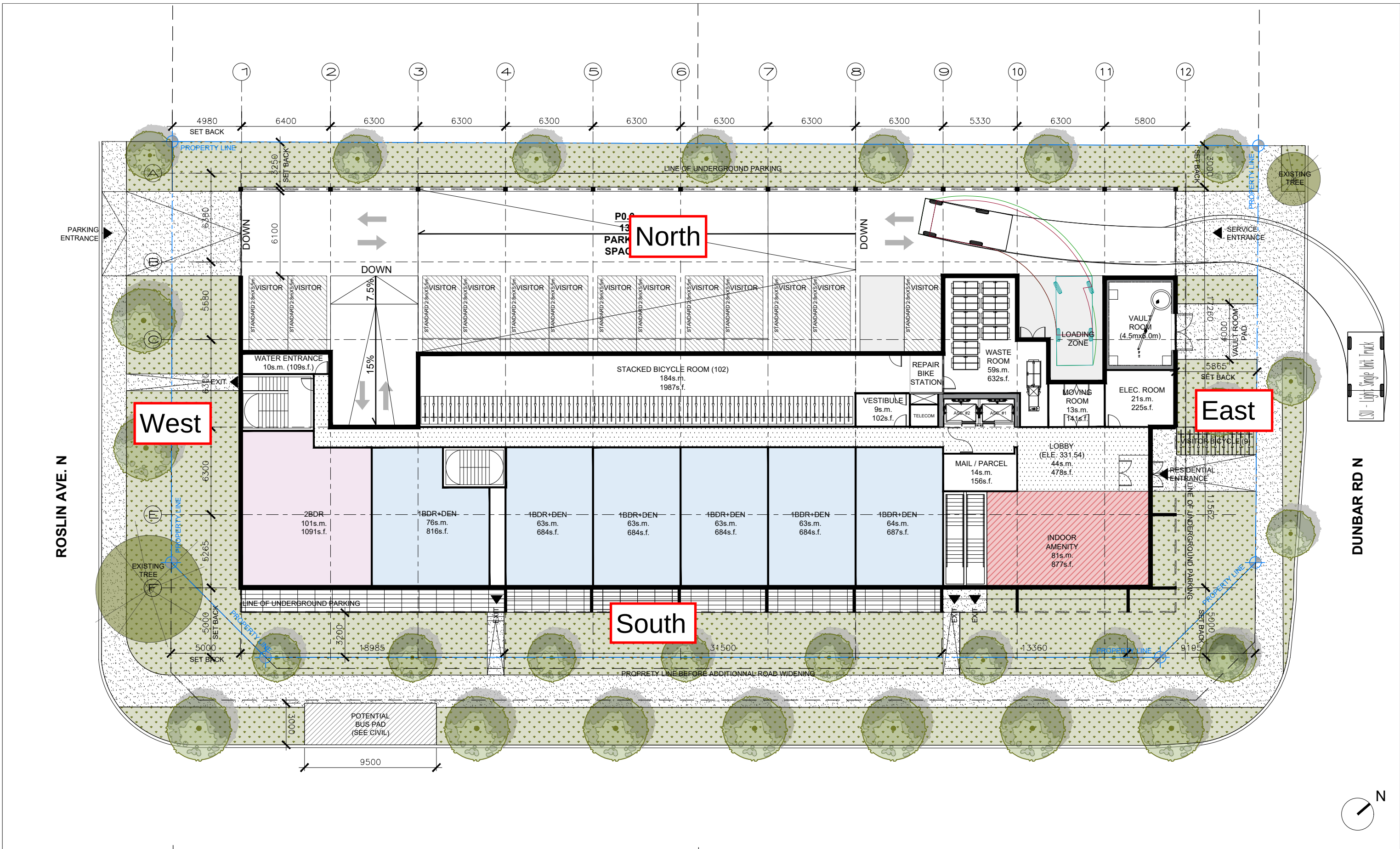
ATTACHMENT A

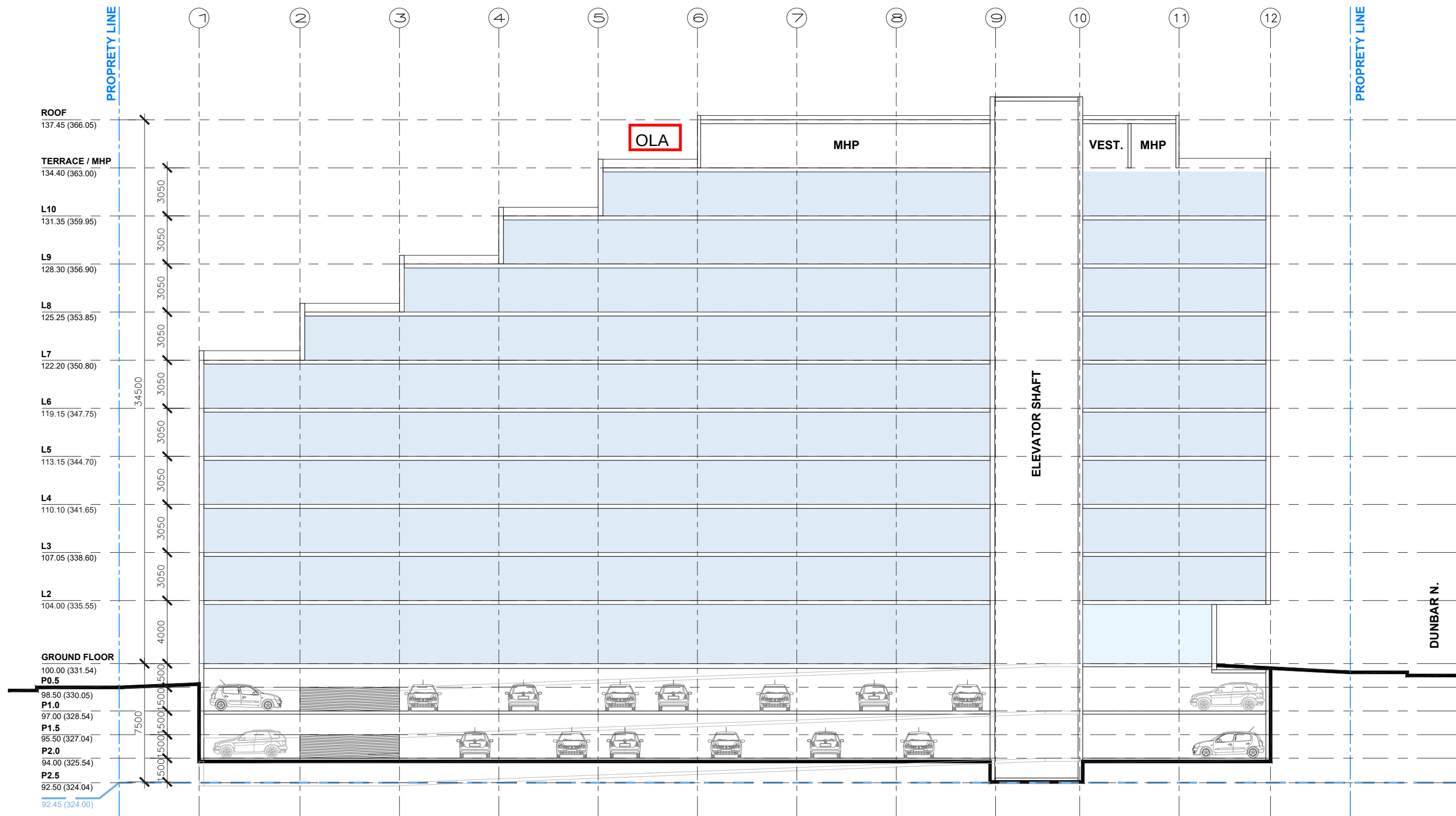


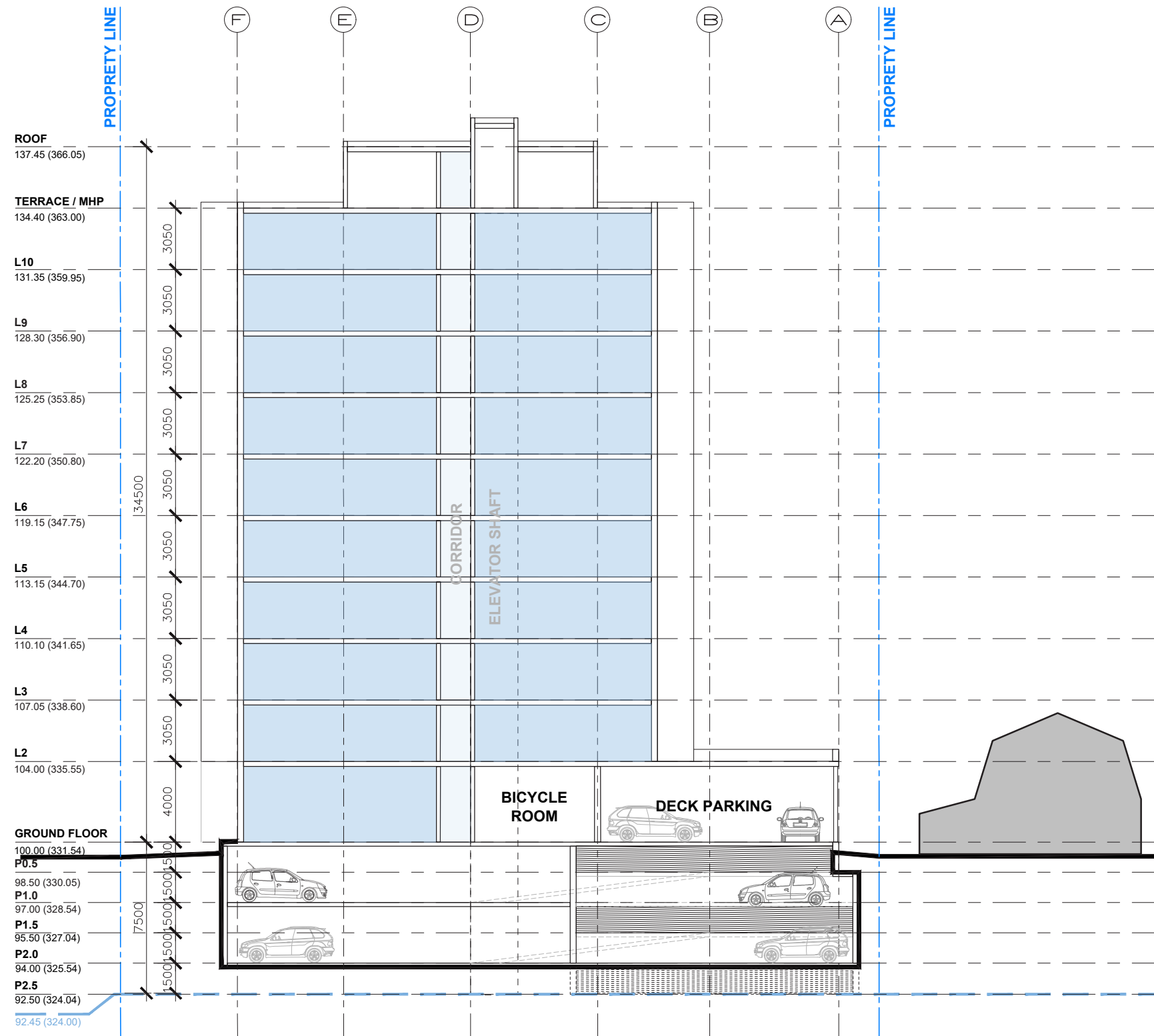
Main axes



Sun path







ATTACHMENT B

Table B1
Road Traffic Noise Levels and Mitigation Measures Summary
 1 Dunbar Road **North**, Waterloo, Ontario

Point of Reception	Road Sound Level Daytime (dBA)	Road Sound Level Nighttime (dBA)	Ventilation Requirements NPC 300	Warning Clauses From NPC 300	Special Building Components
North (1)					
Plane of Window Level 1	55 (dBA)	48 (dBA)	Not Required	Not Required	Compliance with Ontario Building Code
Plane of Window Level 2	55 (dBA)	48 (dBA)	Not Required	Not Required	Compliance with Ontario Building Code
Plane of Window Level 3	54 (dBA)	48 (dBA)	Not Required	Not Required	Compliance with Ontario Building Code
Plane of Window Level 4	54 (dBA)	47 (dBA)	Not Required	Not Required	Compliance with Ontario Building Code
Plane of Window Level 5	54 (dBA)	47 (dBA)	Not Required	Not Required	Compliance with Ontario Building Code
Plane of Window Level 6	53 (dBA)	47 (dBA)	Not Required	Not Required	Compliance with Ontario Building Code
Plane of Window Level 7	53 (dBA)	46 (dBA)	Not Required	Not Required	Compliance with Ontario Building Code
Plane of Window Level 8	52 (dBA)	46 (dBA)	Not Required	Not Required	Compliance with Ontario Building Code
Plane of Window Level 9	52 (dBA)	45 (dBA)	Not Required	Not Required	Compliance with Ontario Building Code
Plane of Window Level 10	52 (dBA)	45 (dBA)	Not Required	Not Required	Compliance with Ontario Building Code
East					
Plane of Window Level 1	59 (dBA)	52 (dBA)	Requirement for Air Conditioning	Type C	Compliance with Ontario Building Code
Plane of Window Level 2	59 (dBA)	52 (dBA)	Requirement for Air Conditioning	Type C	Compliance with Ontario Building Code
Plane of Window Level 3	59 (dBA)	52 (dBA)	Requirement for Air Conditioning	Type C	Compliance with Ontario Building Code
Plane of Window Level 4	59 (dBA)	52 (dBA)	Requirement for Air Conditioning	Type C	Compliance with Ontario Building Code
Plane of Window Level 5	58 (dBA)	52 (dBA)	Requirement for Air Conditioning	Type C	Compliance with Ontario Building Code
Plane of Window Level 6	58 (dBA)	52 (dBA)	Requirement for Air Conditioning	Type C	Compliance with Ontario Building Code
Plane of Window Level 7	58 (dBA)	52 (dBA)	Requirement for Air Conditioning	Type C	Compliance with Ontario Building Code
Plane of Window Level 8	58 (dBA)	51 (dBA)	Requirement for Air Conditioning	Type C	Compliance with Ontario Building Code
Plane of Window Level 9	58 (dBA)	51 (dBA)	Requirement for Air Conditioning	Type C	Compliance with Ontario Building Code
Plane of Window Level 10	57 (dBA)	51 (dBA)	Requirement for Air Conditioning	Type C	Compliance with Ontario Building Code

South

Plane of Window Level 1	65 (dBA)	58 (dBA)	Requirement for Air Conditioning	Type C	Compliance with Ontario Building Code
Plane of Window Level 2	65 (dBA)	58 (dBA)	Requirement for Air Conditioning	Type C	Compliance with Ontario Building Code
Plane of Window Level 3	64 (dBA)	58 (dBA)	Requirement for Air Conditioning	Type C	Compliance with Ontario Building Code
Plane of Window Level 4	64 (dBA)	57 (dBA)	Requirement for Air Conditioning	Type C	Compliance with Ontario Building Code
Plane of Window Level 5	64 (dBA)	57 (dBA)	Requirement for Air Conditioning	Type C	Compliance with Ontario Building Code
Plane of Window Level 6	63 (dBA)	57 (dBA)	Requirement for Air Conditioning	Type C	Compliance with Ontario Building Code
Plane of Window Level 7	63 (dBA)	56 (dBA)	Requirement for Air Conditioning	Type C	Compliance with Ontario Building Code
Plane of Window Level 8	62 (dBA)	56 (dBA)	Requirement for Air Conditioning	Type C	Compliance with Ontario Building Code
Plane of Window Level 9	62 (dBA)	55 (dBA)	Requirement for Air Conditioning	Type C	Compliance with Ontario Building Code
Plane of Window Level 10	62 (dBA)	55 (dBA)	Requirement for Air Conditioning	Type C	Compliance with Ontario Building Code

West

Plane of Window Level 1	59 (dBA)	52 (dBA)	Requirement for Air Conditioning	Type C	Compliance with Ontario Building Code
Plane of Window Level 2	59 (dBA)	52 (dBA)	Requirement for Air Conditioning	Type C	Compliance with Ontario Building Code
Plane of Window Level 3	59 (dBA)	52 (dBA)	Requirement for Air Conditioning	Type C	Compliance with Ontario Building Code
Plane of Window Level 4	59 (dBA)	52 (dBA)	Requirement for Air Conditioning	Type C	Compliance with Ontario Building Code
Plane of Window Level 5	58 (dBA)	52 (dBA)	Requirement for Air Conditioning	Type C	Compliance with Ontario Building Code
Plane of Window Level 6	58 (dBA)	52 (dBA)	Requirement for Air Conditioning	Type C	Compliance with Ontario Building Code
Plane of Window Level 7	58 (dBA)	52 (dBA)	Requirement for Air Conditioning	Type C	Compliance with Ontario Building Code
Plane of Window Level 8	58 (dBA)	51 (dBA)	Requirement for Air Conditioning	Type C	Compliance with Ontario Building Code
Plane of Window Level 9	58 (dBA)	51 (dBA)	Requirement for Air Conditioning	Type C	Compliance with Ontario Building Code
Plane of Window Level 10	57 (dBA)	51 (dBA)	Requirement for Air Conditioning	Type C	Compliance with Ontario Building Code

Outdoor Living Area

OLA	52 (dBA)	N/A	N/A	N/A	N/A
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Note:

`(1)The North Facade is shielded from the road by the building. JJAEE has assumed a conservative 10 dBA reduction in sound level from the South Façade for the North Façade.

`(2) The OLA is shielded by the buildings edge. JJAEE has assumed a conservative 10 dBA reduction in sound level from the South Façade 10th floor for the OLA

STAMSON 5.0 NORMAL REPORT Date: 16-08-2024 10:24:57
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: eastf1.te Time Period: Day/Night 16/8 hours
Description: East Facade Floor 1

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

Car traffic volume : 15627/1736 veh/TimePeriod *
Medium truck volume : 322/36 veh/TimePeriod *
Heavy truck volume : 161/18 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): 17900
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 2.00
Heavy Truck % of Total Volume : 1.00
Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: Erb Street (day/night)

Angle1 Angle2 : 0.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 30.00 / 30.00 m
Receiver height : 2.00 / 2.00 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: Erb Street (day)

Source height = 1.00 m

ROAD (0.00 + 58.87 + 0.00) = 58.87 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	90	0.00	64.89	0.00	-3.01	-3.01	0.00	0.00	0.00	58.87

Segment Leq : 58.87 dBA

Total Leq All Segments: 58.87 dBA

Results segment # 1: Erb Street (night)

Source height = 1.00 m

ROAD (0.00 + 52.35 + 0.00) = 52.35 dBA

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

0	90	0.00	58.37	0.00	-3.01	-3.01	0.00	0.00	0.00	52.35
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Segment Leq : 52.35 dBA

Total Leq All Segments: 52.35 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 58.87
(NIGHT): 52.35

STAMSON 5.0 NORMAL REPORT Date: 16-08-2024 10:05:36
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: SouthF1.te Time Period: Day/Night 16/8 hours
Description: South Facade Floor 1

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

Car traffic volume : 15627/1736 veh/TimePeriod *
Medium truck volume : 322/36 veh/TimePeriod *
Heavy truck volume : 161/18 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): 17900
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 2.00
Heavy Truck % of Total Volume : 1.00
Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: Erb Street (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective 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: Erb Street (day)

Source height = 1.00 m

ROAD (0.00 + 64.89 + 0.00) = 64.89 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	64.89	0.00	0.00	0.00	0.00	0.00	0.00	64.89

Segment Leq : 64.89 dBA

Total Leq All Segments: 64.89 dBA

Results segment # 1: Erb Street (night)

Source height = 1.00 m

ROAD (0.00 + 58.37 + 0.00) = 58.37 dBA

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

-90	90	0.00	58.37	0.00	0.00	0.00	0.00	0.00	0.00	58.37
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Segment Leq : 58.37 dBA

Total Leq All Segments: 58.37 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 64.89
(NIGHT): 58.37

STAMSON 5.0 NORMAL REPORT Date: 16-08-2024 10:25:51
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: westf1.te Time Period: Day/Night 16/8 hours
Description: West Facade Floor 1

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

Car traffic volume : 15627/1736 veh/TimePeriod *
Medium truck volume : 322/36 veh/TimePeriod *
Heavy truck volume : 161/18 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): 17900
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 2.00
Heavy Truck % of Total Volume : 1.00
Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: Erb Street (day/night)

Angle1 Angle2 : 0.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 30.00 / 30.00 m
Receiver height : 2.00 / 2.00 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: Erb Street (day)

Source height = 1.00 m

ROAD (0.00 + 58.87 + 0.00) = 58.87 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	90	0.00	64.89	0.00	-3.01	-3.01	0.00	0.00	0.00	58.87

Segment Leq : 58.87 dBA

Total Leq All Segments: 58.87 dBA

Results segment # 1: Erb Street (night)

Source height = 1.00 m

ROAD (0.00 + 52.35 + 0.00) = 52.35 dBA

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

0	90	0.00	58.37	0.00	-3.01	-3.01	0.00	0.00	0.00	52.35
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Segment Leq : 52.35 dBA

Total Leq All Segments: 52.35 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 58.87
(NIGHT): 52.35

Region of Waterloo AADT Forecast for Noise Studies

1. Development/Location

5 Dunbar Rd N, Waterloo

2. Current AADT (2024)

Erb St W

17,000

3. Forecast AADT (2034)

Erb St W

17,900

4. Commercial Vehicle Rates

% Medium Trucks

% Heavy Trucks

Erb St W

2%

1%

5. Posted Speed Limit

Erb St W

50 km/h

6. Day/Night Splits

Regional Standard 90/10 Day/Night Split

7. Expiry

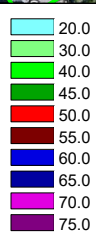
Dec 31 2024

8. Notes

This forecast is intended for the purpose of carrying out a noise study for the development at 5 Dunbar Rd N. Erb St W forecast is for the segment parallel to the property.

This forecast remains valid up to the date indicated above. The Region of Waterloo should be contacted for an updated forecast if there are plans to use this forecast beyond the above validity period.

ATTACHMENT C



- + Point Source
- vert. Area Source
- Building
- Foliage
- Receiver
- Building Evaluation

STATIONARY NOISE IMPACT STUDY 1 DUNBAR ROAD, WATERLOO, ONTARIO

Figure 1 - Stationary Noise Impact from the Neighboring Buildings to the Site

ATTACHMENT D

Table C1
Stationary Noise Impact Source Data
1 Dunbar Road North, Waterloo, Ontario

Noise Source Description	Cadna ID	Total SWL (dBA)	Data Source or Representative Data	Height Absolute (m)	Above Roof (m)	x	y
S1	OS_Small_HVAC	81.9	Small_HVAC	6.85	1.25	17538005	4812200
S2	OS_Small_HVAC	81.9	Small_HVAC	6.85	1.25	17537996	4812194
S3	OS_Rep_Chiller	92.8	Rep_Chiller	72.5	2.5	17538049	4812360
M1	OS_MUA	95.1	Site_MUA	25.4	25.4	17537724	4812215
M2	OS_MUA	95.1	Site_MUA	25.4	25.4	17537730	4812214
M3	OS_MUA	95.1	Site_MUA	25.4	25.4	17537727	4812214
M4	OS_Rep_MUA	86	Rep_MUA	72	2	17538030	4812384

ATTACHMENT E

Owner's Name: Robin Conners, Director

Owner's Address: 2744668 Ontario Inc

Project located at 1 Dunbar Rd N

Waterloo, ON

Re: Road Traffic and Stationary Noise Impact Study, 1 Dunbar Road North, Waterloo, Ontario

OWNER'S STATEMENT

I am the owner of the property, or the owner's agent, and that I understand and agree with the noise assessment and potential attenuation measures detailed in the study entitled Road Traffic and Stationary Noise Impact Study, 1 Dunbar Road North, Waterloo, Ontario, dated August 15, 2024.

The application has been designed to avoid the use of berms or walls as noise attenuation features where feasible. Where berms or walls are recommended, the Noise Study provides economic, planning and engineering justification.

If the application is changed in a way that may affect the noise level calculations, I will have a revised noise study submitted to the Region of Waterloo.

Robin Conners, Director, 2744668 Ontario Inc.

Name



Signature

2024-08-26

Date

ATTACHMENT F

CANADA

PROVINCE OF ONTARIO

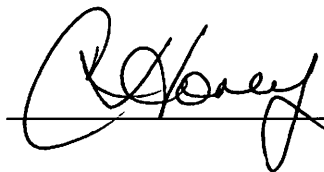
) In the Matter of the
) Environmental Protection
) Act and the Planning Act
)
)
) And in the Matter of
) 1 Dunbar Road, Waterloo, Ontario
in the Regional Municipality of
Waterloo

I, Joey Jraige, of JJ Acoustic Engineering Ltd., in the Town of Tilbury,
SOLEMNLY DECLARE THAT:

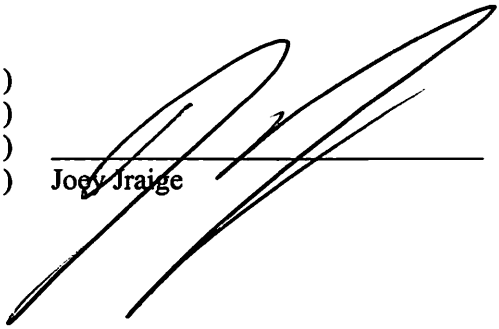
1. I am a Professional Engineer employed by JJ Acoustic Engineering Ltd. which holds a Certificate of Authorization and have personal knowledge of the matters set out below.
2. I was retained or employed as the principal consultant to undertake the assessment of noise impacts and recommendation of noise mitigation measures for the property described as 1 Dunbar Road, Waterloo, Ontario.
3. I have the expertise required to perform these services. Any assessment activities or recommendations requiring the application of engineering principles have been undertaken or supervised by an engineer qualified to perform such services.
4. The information used in the letter report entitled "Road Traffic and Stationary Noise Impact Study" dated August 15, 2024, is the best available information as of the date of the study.
5. The noise level calculations, the interpretation of noise attenuation requirements and the recommended measures are in accordance with Ministry of Environment, Conservation and Parks Guidelines, Region of Waterloo policies, and any applicable policy or guidelines of the Area Municipality, and any other applicable policy or guideline.
6. The physical noise attenuation measures proposed in this study are feasible to implement and will provide the level of attenuation indicated in the study.
7. I acknowledge that this study may be subject to a peer review conducted at my cost.
8. I acknowledge that public authorities and future owners, occupants and others may rely on this statement.

AND I make this solemn Declaration conscientiously believing it to be true and knowing that it is of the same force and effect as if made under oath.

DECLARED before me in the Town
of Tilbury, in the Regional
Municipality of Chatham-Kent
This 15th day of August, 2024



Christine Anne Honey, a Commissioner, etc.,
Province of Ontario, for Taylor & Delrue
Barristers and Solicitors.
Expires September 11, 2024.

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) 
) Joey Jraige