NOISE IMPACT STUDY
PROPOSED RESIDENTIAL DEVELOPMENT
1470 WILLIAMSPORT DRIVE
MISSISSAUGA, ONTARIO

FOR

1470 WILLIAMSPORT HOLDINGS INC.

PREPARED BY

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1.0 INTRODUCTION

At the request of 1470 Williamsport Holdings Inc., J.E. COULTER ASSOCIATES LIMITED has completed a noise impact study of the proposed residential development at 1470 Williamsport Drive in Mississauga, Ontario. See Figure 1 in Appendix A for an Area Plan.

The proposed development consists of a pair of 12-storey rental apartment buildings connected by a 6-storey podium. The development is bound to the:

- east by existing residential and Havenwood Drive beyond
- south by existing residential and a parking lot and Bloor Street beyond
- west by existing commercial buildings and Dixie Road beyond
- north by Williamsport Drive and existing residential beyond.

This report also briefly reviews the impact of the development on itself and surrounding areas.

There is a commercial plaza located immediately to the west of the development that would be considered a stationary noise source with the potential to affect the future occupants of the development. There are no other stationary noise sources that would need to be reviewed.

The purpose of the study is to prepare recommendations to address potential stationary and transportation noise issues in support of the subject development's rezoning application. This report will show that applicable MECP and City of Mississauga noise guidelines can be met with modest noise control measures. These recommendations will take into consideration the sound from the surrounding roadways as well as the commercial plaza to the west of the development. Please see Figure 2 in Appendix A for a Site Plan.

2.0 APPLICABLE CRITERIA

The Ministry of the Environment, Conservation and Parks (MECP) applicable criteria to a site such as this are found in its publication *NPC-300* "Environmental Noise Guideline: Stationary and Transportation Sources – Approval and Planning."

As per *NPC-300*, this development would be considered a Class 1 – Urban area.

2.1 Transportation Noise Guidelines

Transportation noise sources addressed by *NPC-300* include aircraft, rail traffic, and roadway traffic (which include cars, trucks, buses, etc.).

Where the sound levels exceed 55 dBA L_{eq} in private outdoor living areas (OLA), MECP requires noise mitigation measures to be incorporated into the subdivision design (i.e., intervening structures such as acoustic barriers or buildings and/or greater setbacks from the noise source). However, MECP will permit sound levels up to 60 dBA L_{eq} daytime (5 dB above the criterion level of 55 dBA L_{eq}) in private outdoor living areas (OLA), if it is not technically feasible to achieve 55 dBA. Where the criterion levels are marginally exceeded, a warning clause is required in the *Agreement of Purchase and Sale* and the subdivision agreement. Elevated terraces and balconies are considered OLAs only if they are 4m or greater in depth.

For residential buildings, the Ministry's ventilation requirements are based on the sound level at the exterior building façade. Where the sound levels at the exterior of the building façade

exceed 55 dBA L_{eq} daytime at the living room window or 50 dBA L_{eq} nighttime at the bedroom window, the unit must be provided with forced air heating, with a provision for future air conditioning by the owner. An excess up to 10 dB is permissible, provided a warning clause is given. Where the sound levels exceed this limit (i.e., 65 dBA L_{eq} daytime or 60 dBA L_{eq} nighttime), air conditioning must be incorporated into the building design prior to occupancy. Warning clauses are applicable as well.

Air-conditioning requirements are applied so that adequate interior sound levels can be maintained with the windows closed.

The MECP also stipulates acceptable indoor sound levels limits, which vary depending on whether they are railway noise sources or roadway noise sources.

The applicable MECP criteria are summarized in Table 1, below.

Table 1: Noise Criteria Summary

Type of Space	Road		Rail	
	Daytime (dBA L_{eq}) (0700–2300)	**Nighttime (dBA L_{eq}) (2300–0700)**	**Daytime (dBA L_{eq}) (0700–2300)**	**Nighttime (dBA L_{eq}) (2300–0700)**
Outdoor Living Area (OLA)	55	N/A	55	N/A
Bedrooms	45	40	40	35
Living/Dining	45	45	40	40
Kitchen/Baths	45	45	40	40

Note: OLAs for condominiums are terraces/balconies greater than 4m in depth and common amenity areas such as rooftop patios intended for quiet enjoyment.

There are common outdoor amenity areas located on the ground level, the 2nd floor, and the 7th floor of the development. There are private terraces greater than 4m in depth located on the 2nd floor of the development. These are all considered OLAs per *NPC-300* and will be assessed.

There are no other private terraces or balconies greater than 4m in depth. If additional private terraces or balconies greater than 4m in depth are added, they would need to be reviewed to ensure the guidelines are met.

Transportation noise sources in the vicinity of the proposed development include road traffic from Bloor Street and Dixie Road. Williamsport Drive to the north and Havenwood Drive to the east carry significantly less traffic as they are local streets. The City of Mississauga did not have traffic volumes for these roadways and they are not considered further.

2.2 Stationary Noise Guidelines

MECP considers activities generated by fixed or mobile sources of noise within non-transportation facilities to be stationary sources. *NPC-300* basically states the average noise of the stationary source should not exceed the average noise of the roadway traffic during the same hourly time period for Class 1 areas or the exclusion limits, whichever is higher. The exclusion limits that apply are 50 dBA L_{eq} during the daytime (0700–1900 hours), 50 dBA L_{eq}

during the evening (1900–2300 hours), and 45 dBA L_{eq} nighttime (2300–0700 hours), respectively.

A "stationary noise source," to which the guideline applies, is defined in the interpretation section of the MECP guideline as being everything on a property, with a series of exceptions. The time period over which the sound is averaged is 1 hour.

3.0 TRANSPORATION NOISE SOURCES

The following sections summarize the noise sources surrounding the proposed development.

3.1 Roadway Noise Sources

The site is located north of Bloor Street and east of Dixie Road. Ultimate traffic volumes (2041), speed limits, and truck percentages for Dundas Street East were provided by the City of Mississauga and the Region of Peel.

Table 2: Future Road Traffic Volumes

Roadway	Traffic Volumes	Truck Percentage (%)		Speed Limit (km/h)	Day/Night Split (%)
		Medium	Heavy		
Bloor Street	20,600	1.1	0.9	50	90 / 10
Dixie Road	48,600	2.2	3.5	60	91 / 9

4.0 TRANSPORTATION NOISE ASSESSMENT

Traffic noise from Bloor Street and Dixie Road was calculated in STAMSON 5.04, in accordance with the City of Mississauga's terms of reference for noise and vibration studies. The calculated sound levels are summarized in Table 3, below.

Table 3: Transportation Noise Summary

Location	Description	Daytime (dBA $L_{eq,16hr}$)	Nighttime (dBA $L_{eq,8hr}$)
1	West Façade of Building	65	58
2	South Façade of Building	61	54
3	East Façade of Building	56	49
4	North Façade of Building	58	51
5	Ground Floor Outdoor Amenity (OLA)	58	N/A
6	2nd Floor Outdoor Amenity (OLA)*	58	N/A
7	2nd Floor Private Terraces (OLA)*	55	N/A
8	2nd Floor Private Terraces (OLA)*	53	N/A
9	7th Floor Outdoor Amenity (OLA)*	45	N/A

*Sound level calculations assume the presence of a 1.1m high safety screen that would also act as a noise barrier.

4.1 Noise Control Recommendations

The calculated sound levels exceed the MECP guidelines. As a result, noise control measures will be required.

Ventilation Upgrades

As the sound levels exceed 65 dBA L_{eq} during the daytime on the west façade of the building, the entire development should be provided with central air conditioning. The use of central air conditioning is fairly standard for new high-density residential developments. All of the units will need to be supplied with Warning Clause D (see Appendix C) in their *Agreements of Purchase and Sale or Lease*.

Noise Barriers

There is a proposed outdoor amenity area at grade level located near the south property line of the development. The sound levels at this amenity area would be approximately 59 dBA $L_{eq,16hr}$. A 1.7m tall noise barrier is recommended for this amenity area. With the recommended noise barrier, the sound levels in this amenity area would meet the 55 dBA $L_{eq,16hr}$ MECP guideline limits. The location of the noise barrier is shown in Figure 4.

There is a proposed outdoor amenity located on the second floor of the development. Assuming a standard 1.1m tall noise barrier, the sound level at this amenity area would be approximately 57 dBA $L_{eq,16hr.}$ A 1.4m tall noise barrier is recommended for this amenity area. With the recommended noise barrier, the sound levels in this amenity area would meet the MECP guideline limits. The location of the noise barrier is shown in Figure 5.

There is a proposed outdoor amenity area on the 7th floor located between the two buildings. Assuming a standard 1.1m tall noise barrier, the sound levels at this amenity area would be approximately 45 dBA $L_{eq,16hr,}$ and meet the MECP guideline limit. Further noise control is not required for this amenity area.

There are terraces greater than 4m in depth proposed on the 2nd floor of the development. Assuming a standard 1.1m tall safety screen that would also act as a noise barrier, the sound levels at the terraces would be equal or lower than 55 dBA $L_{eq,16hr}$, and meet the MECP guideline limit. Further noise control is not required for these terraces.

No additional private terraces or balconies greater than 4m in depth are proposed. If included, such areas will need to be addressed to ensure the guidelines are met.

All units in this development should be provided with Warning Clause B in their *Agreements of Purchase and Sale or Lease*.

As per MECP requirements, all noise barriers should be structurally sound, appropriately designed to withstand wind and snow load, and constructed without cracks or surface gaps (typically should be less than 25mm). Any gaps under the barrier that are necessary for drainage purposes should be minimized and localized, so that the acoustical performance of the barrier is maintained. The minimum surface density of the barrier should be 20 kg/m^2.

MECP allows rooftop noise barriers to have a minimum surface density of 10 kg/m2 as opposed to the 20 kg/m^2 typically required. A combination of glass wall extension on a masonry parapet

would satisfy these requirements. As the barrier reductions needed are not significant, the use of a lower density/lighter weight rooftop barrier is acceptable for the 2nd floor amenity area.

If gate access to the ground floor amenity is required, it is recommended that the gate provided be solid and free of gaps. Additionally, it is recommended the gate be located along the eastern or western extent of the amenity area.

The final barrier extents and height should be confirmed during the Site Plan Application phase.

Exterior Glazing and Walls/Panels

The suite layouts for the proposed development have not been detailed. Preliminary sound levels have been calculated using the National Research Council's BPN-56 prediction procedure using the most current plans.

Due to the modest nature of the outdoor sound levels, all units in the development may use windows rated to STC 33. This glazing configuration is fairly standard for most high-rise construction and does not represent a significant upgrade. There are no special upgrades required for the exterior walls or ceilings, which may use standard OBC-compliant assemblies. Given the modest sound levels, the final suite layouts should not affect the final glazing requirements, provided STC 33 windows are used throughout.

All units in the development should also be provided with Warning Clause Type A in their *Agreements of Purchase and Sale or Lease.*

5.0 STATIONARY NOISE ASSESSMENT

5.1 Stationary Noise Sources

There is a commercial plaza located to the west of the proposed development. An aerial review of the site shows that the rooftop equipment on adjacent buildings consists of a refrigeration unit, exhaust fans, and HVAC equipment. Delivery trucks assessing the loading dock on the east side of the commercial building have also been considered in the assessment.

Generic sound data based on similar projects and manufacturer's data from similar equipment have been assumed for the exhaust fans, refrigeration unit, and HVAC equipment. Sound data for the delivery trucks was assumed based on data from previous projects.

During a site visit on December 3, 2024, the commercial buildings mechanical equipment was not audible at the west property line of the development, even during lulls in traffic. As such, this analysis is expected to be conservative.

5.2 Calculation of Stationary Noise

For road traffic, the traffic volumes during the quietest hour are usually half the average volume for that period. This typically represents a 3 dB downward adjustment to the daytime or nighttime sound levels. The sound levels were adjusted an additional 2 dB downward to represent the current sound levels, as ultimate traffic volumes were provided by the City and the Region. The calculated ambient/guideline sound levels are the exclusion limits or the quietest hourly ambient sound level during that period, whichever is higher.

The rooftop mechanical equipment and truck movement was modelled in CadnaA using the ISO 9613 prediction procedure. The calculated sound levels on the façades of the development are summarized in Table 4, below. Typically, the HVAC equipment operates at a 75% duty cycle during the day and at 50% during the night. The refrigeration unit was assumed to run at 100% load during the daytime and 50% load at nighttime. It was assumed that one delivery truck accessed the building and continuously idled for an entire hourly period. This is conservative as there do not appear to be regular truck deliveries.

Table 4: Stationary Noise Summary

Location	Description	Ambient/Guideline Sound Levels (dBA $L_{eq,1hr}$)		Calculated Sound Levels (dBA $L_{eq,1hr}$)		Meets Criteria	
		Daytime	Nighttime	Daytime	Nighttime	Daytime	Nighttime
1	West Façade of Bldg.	60	53	55	52	Yes	Yes
2	South Façade of Bldg.	56	49	49	45	Yes	Yes
4	North Façade of Bldg.	53	46	46	42	Yes	Yes
5	Ground Floor Outdoor Amenity	53	N/A	35	N/A	Yes	Yes
6	2nd Floor Outdoor Amenity	51	N/A	45	N/A	Yes	Yes
9	7th Floor Outdoor Amenity	50	N/A	30	N/A	Yes	Yes

*Other locations at the development are less critical to noise from the commercial plaza due to increased distance.

As seen in Table 4, the predicted sound levels from the adjacent rooftop equipment at the nearest residences during the quietest daytime and nighttime periods are well below the ambient sound levels. Noise control measures are not required based on this analysis.

Regardless, Warning Clause Type E (see Appendix C) should be included in the *Agreements of Purchase/Sale or Lease* of all the units of the building. The typical wording is: "Purchasers/tenants are advised that due to the proximity of the adjacent commercial facilities, noise from the facilities may at times be audible."

6.0 IMPACT OF THE DEVELOPMENT ON ITSELF AND THE SURROUNDING AREA

The City requests that new developments consider the noise impact of the development both on itself and the surrounding area.

Typically, for a development such as this, exhaust fans and other mechanical equipment are the major noise generators. There are no noise sensitive receivers near the subject development. Given the ambient sound levels in the area, the more critical receptors are the future occupants of the development itself.

In terms of the impact of the development on itself, the development's own mechanical/electrical equipment needs to be considered

The mechanical design of the development has not yet progressed to the point where the impact of the development on itself or its surroundings can be accurately quantified. As plans mature, a review of the impacts of the development on itself as well as on the surrounding area can be completed.

Noise control measures for the development's mechanical equipment can be readily incorporated into the design. In many cases, equipment can also be selected to avoid a noise impact entirely. It is recommended a review of the outdoor noise impact of the development be completed when the mechanical design is completed, prior to the building permit application.

7.0 CONCLUSIONS

The proposed development is located in an area with a modest amount of transportation noise. The transportation sound levels exceed the MECP guidelines, and noise control measures in the form of ventilation upgrades, noise barriers, and façade elements have been recommended. The extent and nature of these upgrades is similar to those required for residential developments built nearby busy roadways.

A detailed review of the stationary noise sources in the area indicates that noise control measures are not required to meet the MECP guidelines.

Overall, the transportation and stationary noise study demonstrates that the proposed development meets the applicable MECP and City of Mississauga guidelines. There are no major noise issues that would prove challenging to address at later stages of the design.

8.0 SUMMARY OF RECOMMENDATIONS

To meet the requirements of the Ministry of the Environment, Conservation and Parks and the City of Mississauga, the following noise control measures will be required:

1. All units should be supplied with central air conditioning. Warning Clause Type D will be inserted into the *Agreements of Purchase and Sale or Lease* for all units.

2. All units within the development need to be supplied with Warning Clauses Type A and Type B in their *Agreements of Purchase and Sale or Lease*.

3. The outdoor amenity area at the grade level will meet the MECP guideline limits with the proposed 1.7m tall noise barrier.

4. The 2nd floor amenity area will meet the MECP guideline limits with the proposed 1.4m tall noise barrier.

5. Assuming a standard 1.1m tall noise barrier, the sound levels meet the MECP guideline limits at the 2nd floor terraces that are greater than 4m in depth. No further noise control is recommended for these areas.

6. Assuming a standard 1.1m tall noise barrier, the sound levels meet the MECP guideline limits at the 7th floor outdoor amenity area. No further noise control is recommended for this area.

7. Based on the modest sound levels, upgrades beyond STC 33 are not required for the glazing. As the transportation sound levels are modest, the recommendations for glazing are unlikely to change once the suite layouts are finalized.

8. While nearby stationary sources are predicted to be below the applicable limits, all units should be provided with Warning Clause E in their *Agreements of Purchase and Sale or Lease* to acknowledge the potential noise from surrounding stationary noise sources.

9. Prior to the building permit application, a review of the proposed development's mechanical and electrical equipment should be completed to ensure that applicable noise guidelines are met at the surrounding areas as well as at the future development itself.

/pt

APPENDIX A: FIGURES

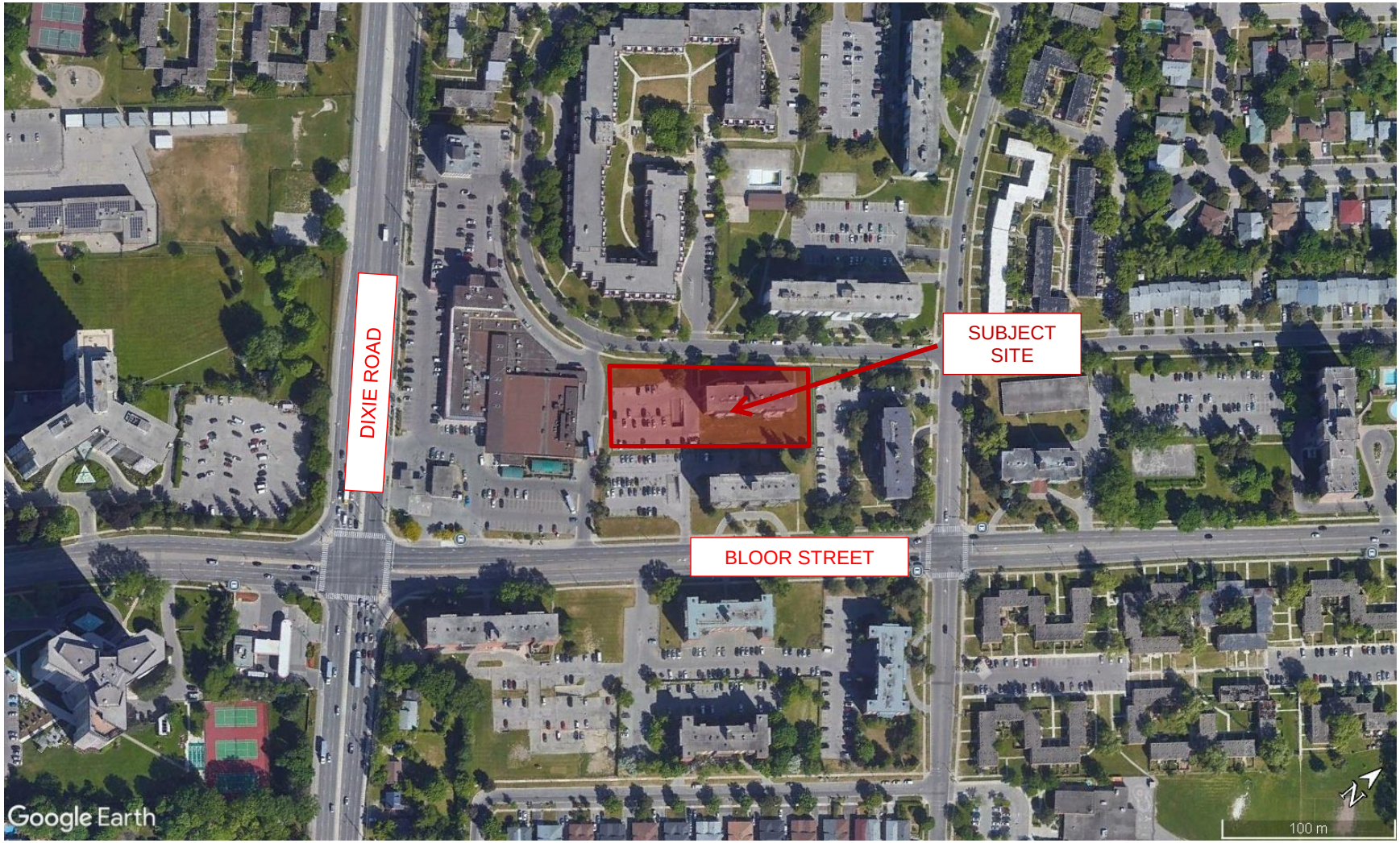

Figure 1: Key Plan

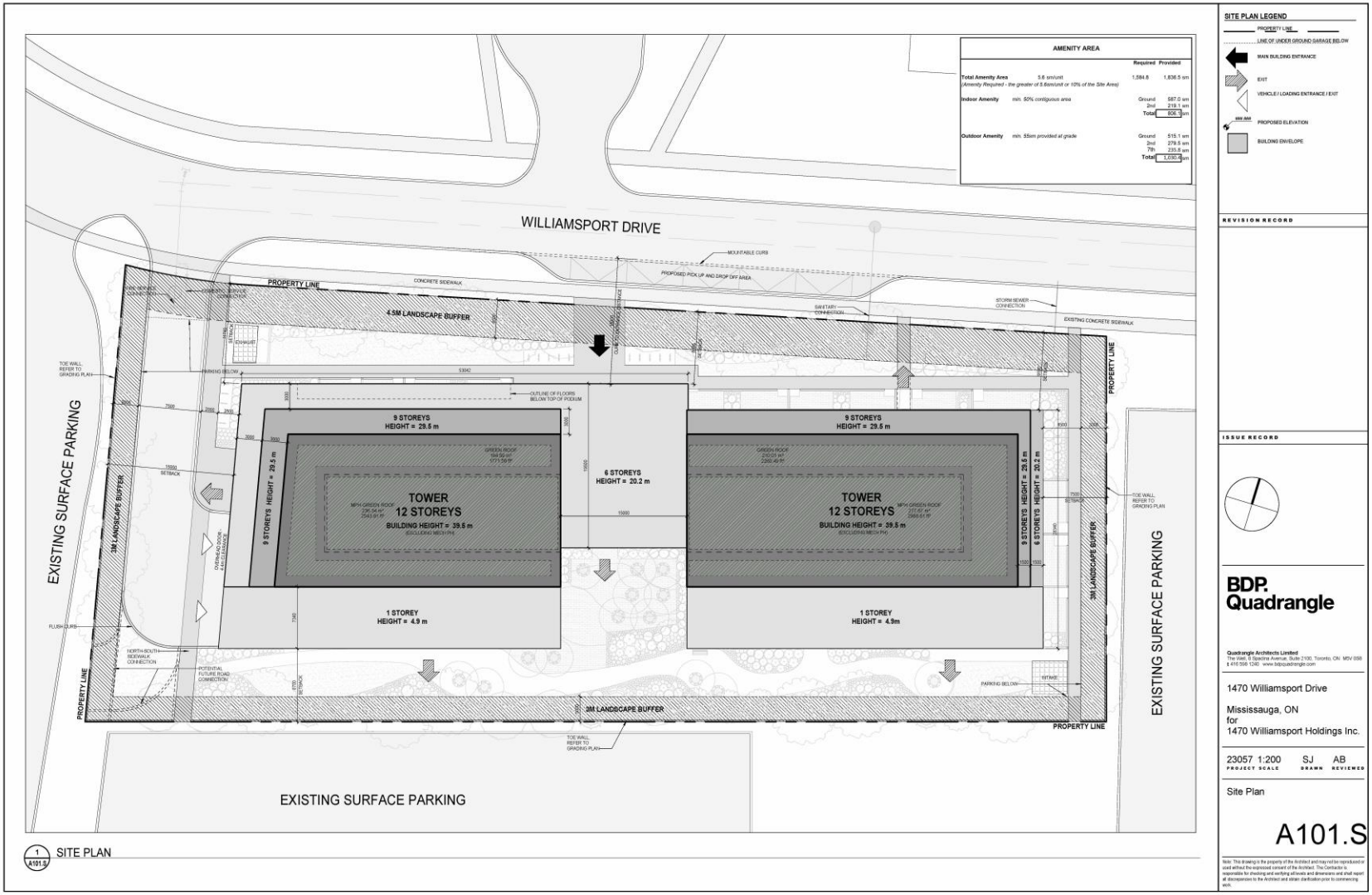

Figure 2: Site Plan

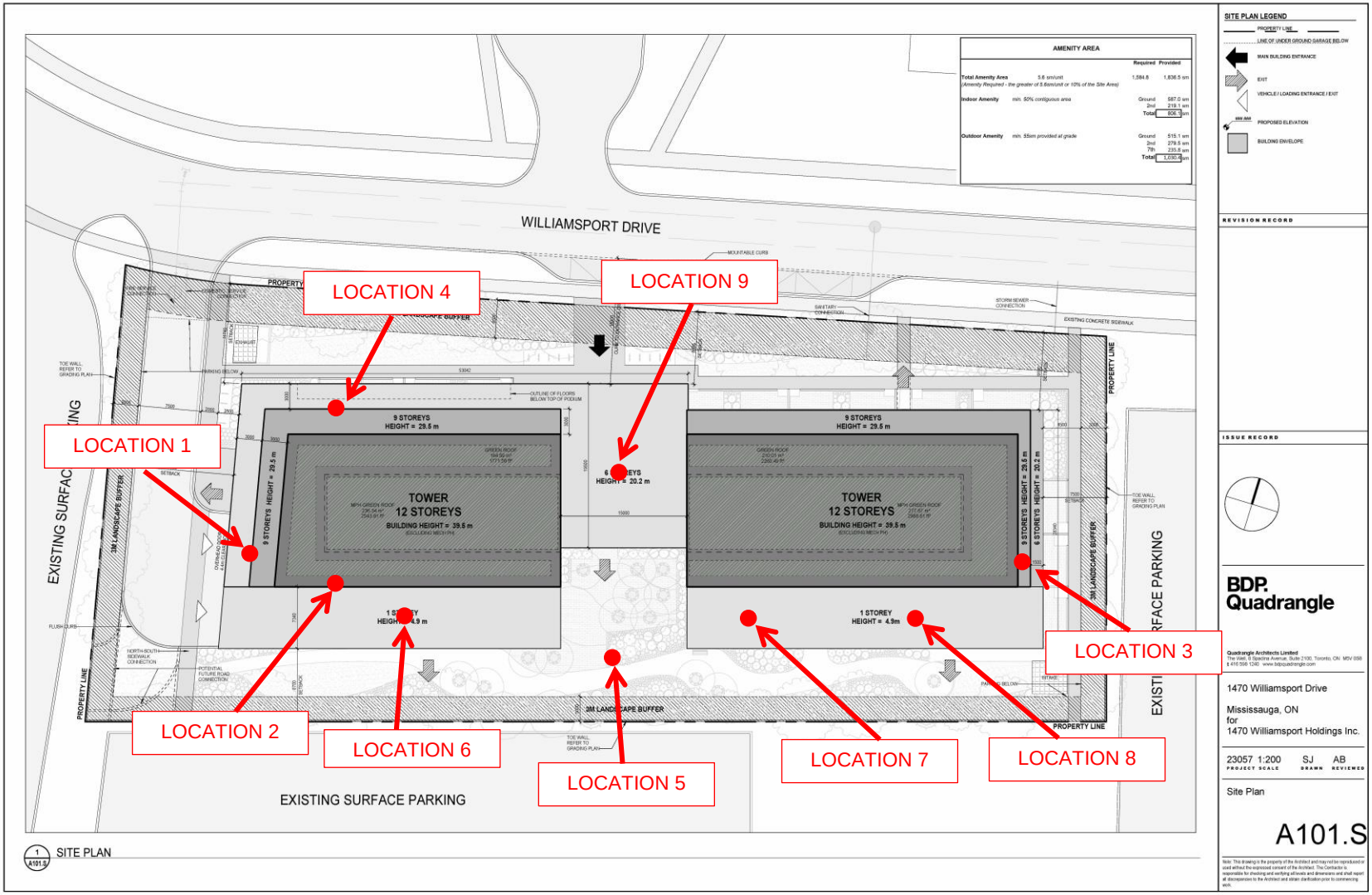

Figure 3: Calculation Locations

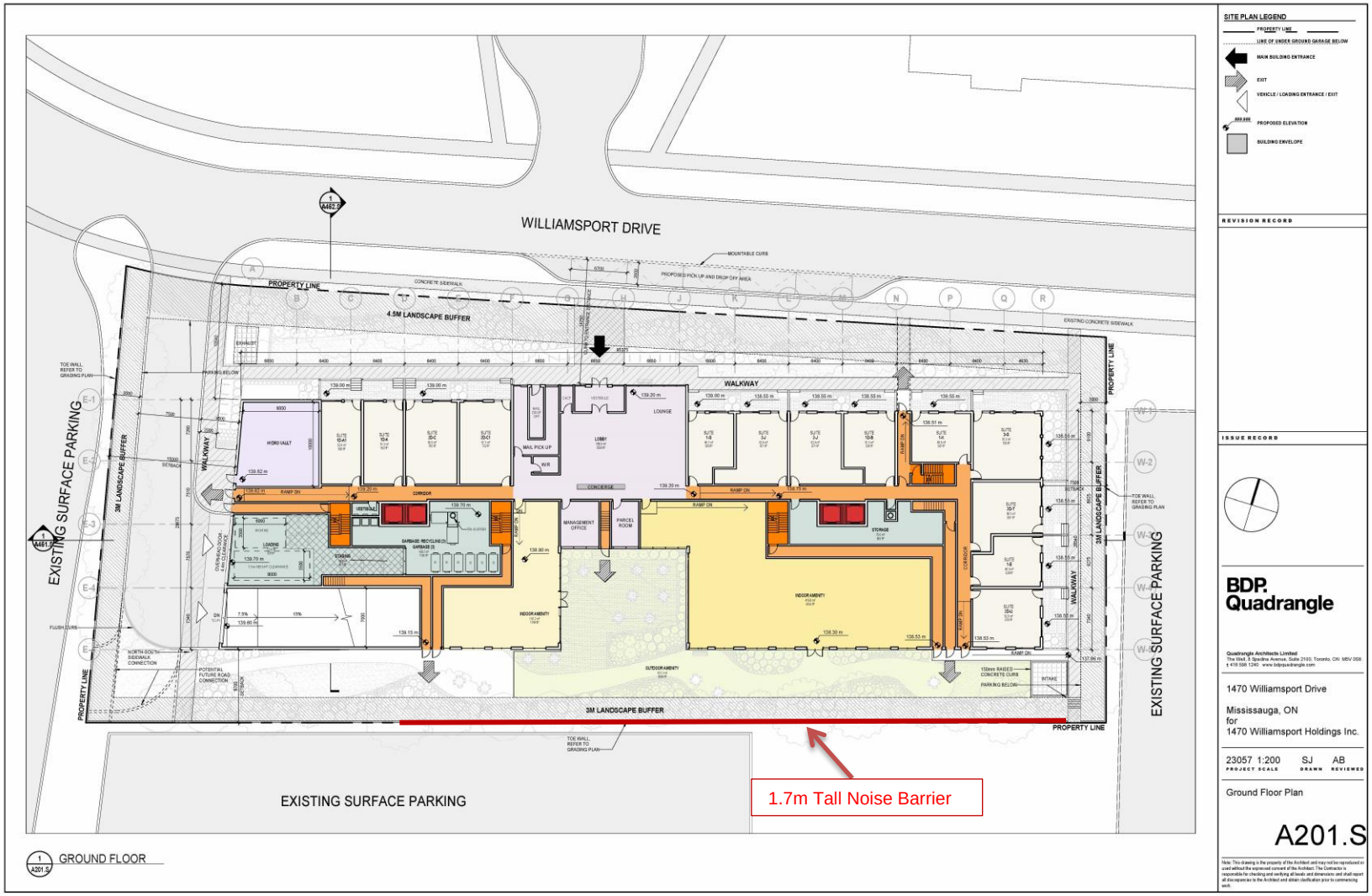

Figure 4: Location of Noise Barrier for Ground Floor Amenity Area

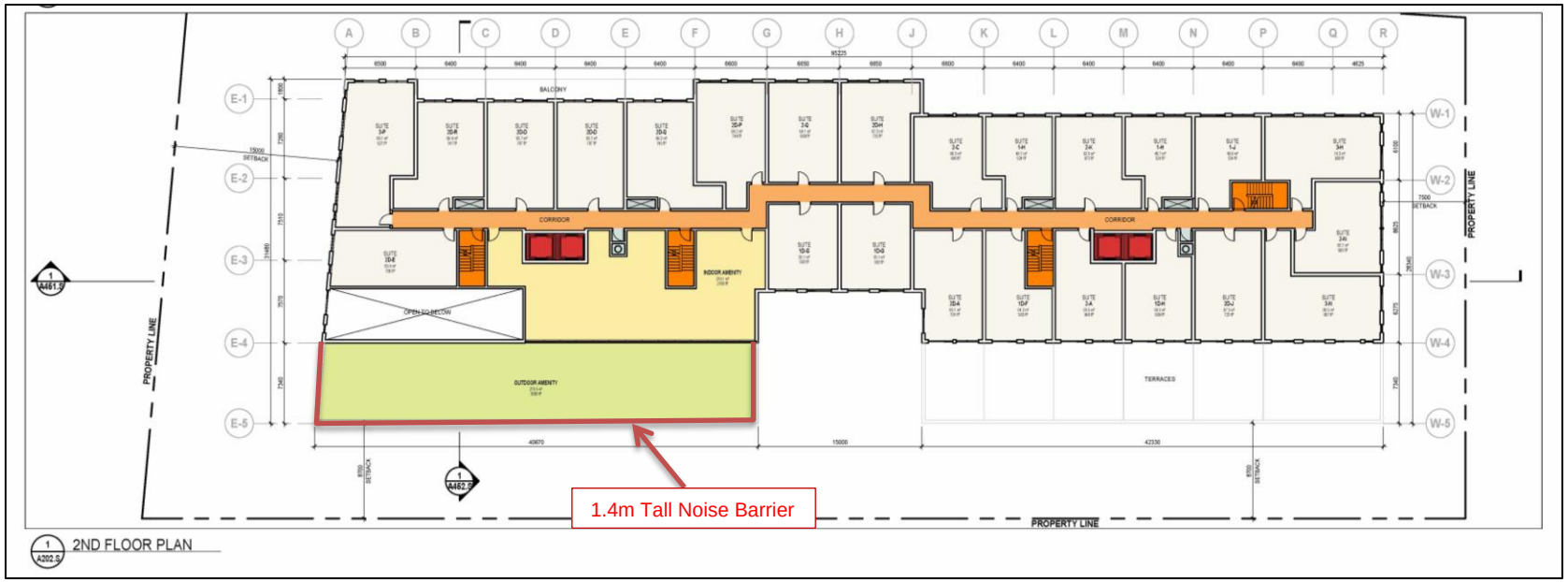

Figure 5: Location of Noise Barrier for 2nd Floor Amenity Area

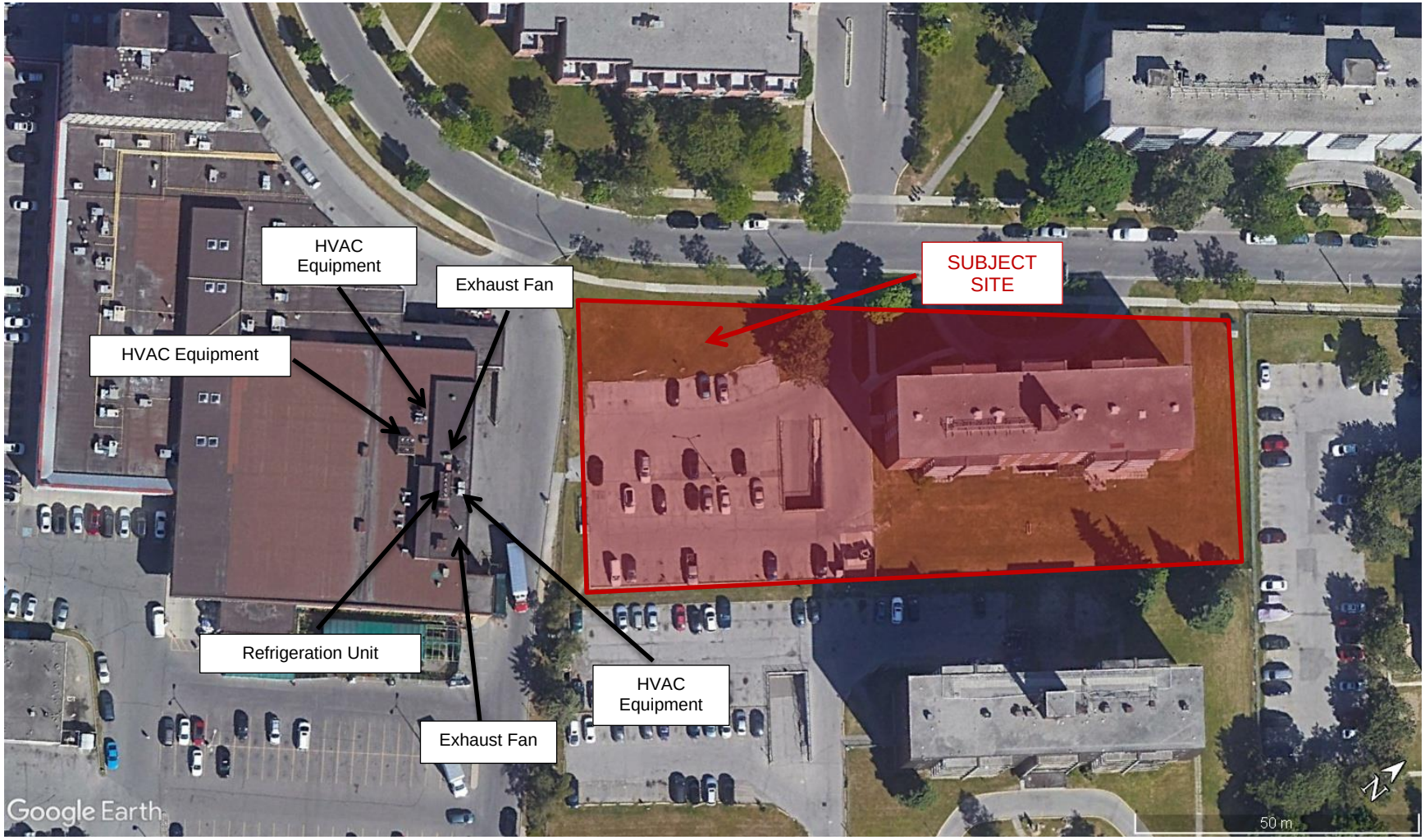

Figure 6: Rooftop Equipment Locations

APPENDIX B: DATA AND SAMPLE CALCULATIONS

NOISE REPORT FOR PROPOSED DEVELOPMENT

Date: 28/Nov/24

REQUESTED BY:

Name: Brendon Colaco, B.A.Sc.
Company: JE Coulter Associates
Fax# 416-502-8598 ext. 224

PREPARED BY:

Name: Naveda Dukhan
Tel#: 905-615-3200 ext. 8948

Location: Bloor Street (east of Dixie Rd)

ID# 637

ON SITE TRAFFIC DATA

Specific	*Street Names*				
	Bloor Street				
AADT:	20600				
# of Lanes:	*4				
% Trucks:	2%				
Medium/Heavy Truck Ratio:	55/45				
Day/Night Split:	90/10.				
Posted Speed Limit:	50 km/hr				
Gradient of Road:	2%				
Ultimate R.O.W.:	30m				

Comments: *Option 6 for a two-lane roadway was approved in 2023. Additional information can be found in the Bloor St. EA on the City website. Ontario Bill 212 is also relevant to this project.
Ultimate Traffic data only (2041)

Region of Peel
working with you

Date: December 2, 2024
Requestor: Brendon Colaco, J.E. Coulter Associates Limited
Request Type: Noise Traffic Data Request
Location: Dixie Road - 280m North of Bloor Street

Brendon Colaco,

As per your request, please see below traffic data from 2024:

	Existing	Ultimate
24 Hour Traffic Volume	38611	48600
# of Lanes	6	6
Day/Night Split	91/9	91/9
Day Trucks (% of Total Volume)	2.1% Medium 3.5% Heavy	2.1% Medium 3.5% Heavy
Night Trucks (% of Total Volume)	2.2% Medium 3.1% Heavy	2.2% Medium 3.1% Heavy
Right-of-Way Width	45 meters	
Posted Speed Limit	60 km/h	

Note:
1. The current volume is not the Annual Average Daily Traffic, but the averaged raw volumes over three data collection days. For Annual Average Traffic Volume, visit the Peel Open Data website below: http://opendata.peelregion.ca/data-categories/transportation/traffic-count-stations.aspx'2. The ultimate volume is the planned volume during a level of service 'D' where a 2 second vehicle headway and a volume to capacity ratio of 0.9 is assumed. Traffic signals and hourly variations in traffic are also incorporated into the ultimate volume.

If you require further assistance, please contact me at transportationplanningdata@peelregion.ca

Regards,

Karan Bedi
Intermediate Planner, Transportation Planning
Transportation Division | Public Works | Region of Peel
10 Peel Centre Drive, Suite B, 4th Floor
Brampton, ON L6T 4B9

STAMSON 5.0 NORMAL REPORT
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: wsportw.te Time Period: Day/Night 16/8 hours
Description: West Facade

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

Car traffic volume	: 18169/2019	veh/TimePeriod *
Medium truck volume	: 204/23	veh/TimePeriod *
Heavy truck volume	: 167/19	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)	:	20600
Percentage of Annual Growth	:	0.00
Number of Years of Growth	:	0.00
Medium Truck % of Total Volume	:	1.10
Heavy Truck % of Total Volume	:	0.90
Day (16 hrs) % of Total Volume	:	90.00

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

Angle1 Angle2	: -90.00 deg	0.00 deg
Wood depth	: 0	(No woods.)
No of house rows	: 0 / 0	
Surface	: 2	(Reflective ground surface)
Receiver source distance	: 65.00 / 65.00	m
Receiver height	: 7.00 / 7.00	m
Topography	: 1	(Flat/gentle slope; no barrier)
Reference angle	: 0.00	

Road data, segment # 2: Dixie (day/night)

Car traffic volume	: 41749/4129	veh/TimePeriod *
Medium truck volume	: 929/92	veh/TimePeriod *
Heavy truck volume	: 1548/153	veh/TimePeriod *
Posted speed limit	: 60	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)	:	48600
Percentage of Annual Growth	:	0.00
Number of Years of Growth	:	0.00
Medium Truck % of Total Volume	:	2.10
Heavy Truck % of Total Volume	:	3.50
Day (16 hrs) % of Total Volume	:	91.00

```
Data for Segment # 2: Dixie (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  : 135.00 / 145.00 m
Receiver height           :   7.00 / 7.00   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00


Results segment # 1: Bloor (day)
--------------------------------

Source height = 0.97 m

ROAD (0.00 + 55.68 + 0.00) = 55.68 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------
--
   -90      0   0.00  65.06   0.00  -6.37  -3.01   0.00   0.00   0.00
55.68
-------------------------------------------------------------------------
--

Segment Leq : 55.68 dBA


Results segment # 2: Dixie (day)
--------------------------------

Source height = 1.37 m

ROAD (0.00 + 63.89 + 0.00) = 63.89 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------
--
   -90     90   0.00  73.43   0.00  -9.54   0.00   0.00   0.00   0.00
63.89
-------------------------------------------------------------------------
--

Segment Leq : 63.89 dBA

Total Leq All Segments: 64.50 dBA


Results segment # 1: Bloor (night)
----------------------------------

Source height = 0.98 m
```

ROAD (0.00 + 49.19 + 0.00) = 49.19 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	0	0.00	58.57	0.00	-6.37	-3.01	0.00	0.00	0.00	49.19

Segment Leq : 49.19 dBA

Results segment # 2: Dixie (night)

Source height = 1.37 m

ROAD (0.00 + 56.54 + 0.00) = 56.54 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	66.39	0.00	-9.85	0.00	0.00	0.00	0.00	56.54

Segment Leq : 56.54 dBA

Total Leq All Segments: 57.57 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 64.50
(NIGHT): 57.57

STAMSON 5.0 NORMAL REPORT
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: wsports.te Time Period: Day/Night 16/8 hours
Description: South Facade

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

Car traffic volume : 18169/2019 veh/TimePeriod *
Medium truck volume : 204/23 veh/TimePeriod *
Heavy truck volume : 167/19 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): 20600
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 1.10
Heavy Truck % of Total Volume : 0.90
Day (16 hrs) % of Total Volume : 90.00

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

Angle1 Angle2 : -90.00 deg 40.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 65.00 / 65.00 m
Receiver height : 7.00 / 7.00 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: Dixie (day/night)

Car traffic volume : 41749/4129 veh/TimePeriod *
Medium truck volume : 929/92 veh/TimePeriod *
Heavy truck volume : 1548/153 veh/TimePeriod *
Posted speed limit : 60 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): 48600
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 2.10
Heavy Truck % of Total Volume : 3.50

```
    Day (16 hrs) % of Total Volume     :  91.00

Data for Segment # 2: Dixie (day/night)
----------------------------------------
Angle1   Angle2           : -90.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 160.00 / 160.00 m
Receiver height           :   7.00 / 7.00   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00


Results segment # 1: Bloor (day)
---------------------------------

Source height = 0.97 m

ROAD (0.00 + 56.96 + 0.00) = 56.96 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------------
--
   -90     40   0.00  65.06   0.00  -6.69  -1.41   0.00   0.00   0.00
56.96
-------------------------------------------------------------------------------
--

Segment Leq : 56.96 dBA


Results segment # 2: Dixie (day)
---------------------------------

Source height = 1.37 m

ROAD (0.00 + 60.14 + 0.00) = 60.14 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------------
--
   -90      0   0.00  73.43   0.00 -10.28  -3.01   0.00   0.00   0.00
60.14
-------------------------------------------------------------------------------
--

Segment Leq : 60.14 dBA

Total Leq All Segments: 61.35 dBA


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

Source height = 0.98 m

ROAD (0.00 + 50.46 + 0.00) = 50.46 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	40	0.00	58.57	0.00	-6.69	-1.41	0.00	0.00	0.00	50.46

Segment Leq : 50.46 dBA

Results segment # 2: Dixie (night)

Source height = 1.37 m

ROAD (0.00 + 53.10 + 0.00) = 53.10 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	0	0.00	66.39	0.00	-10.28	-3.01	0.00	0.00	0.00	53.10

Segment Leq : 53.10 dBA

Total Leq All Segments: 54.29 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 61.35
(NIGHT): 54.29

APPENDIX C: WARNING CLAUSES

TYPE A: "Purchasers/tenants are advised that sound levels due to increasing road traffic and rail 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, Conservation and Parks."

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 and rail 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, Conservation and Parks."

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, Conservation and Parks."

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, Conservation and Parks."

TYPE E: "Purchasers/tenants are advised that due to the proximity of the adjacent industry, noise from the industry may at times be audible."

APPENDIX D: REFERENCES

1. Ministry of the Environment, “Model Municipal Noise Control By-Law, Final Report,” August 1978.

2. Ontario Ministry of the Environment, Environmental Approvals and Land Use Planning Branch, “Guidelines for Road Traffic Noise Assessment,” July 1986.

3. Ministry of the Environment’s *STAMSON* Computer Programme (Version 5.03) for the IBM PC.

4. Ministry of the Environment, *ORNAMENT*, “Ontario Road Noise Analysis Method for Environment and Transportation,” November 1988.

5. Quirt, D.J., “Controlling Sound Transmission into Buildings,” National Research Council, Building Practice Note 56, Update 1.1.

6. Ministry of the Environment, *STEAM* “Sound from Trains Environmental Analysis Method,” July 1990.

7. Ministry of the Environment, “Environmental Noise Guideline: Stationary and Transportation Sources – Approval and Planning,” Publication NPC-300, August 2013.