Environmental Noise Feasibility Study

17 & 19 Ann Street, 84 & 90 High Street East

Proposed Mixed-Use Development

Ann Street and High Street
City of Mississauga

August 22, 2024
Project: 121-0145

Prepared for

10 West GO GP Inc

Prepared by

Abhishek Thyagarajan, M.S., EIT

Reviewed by

LICENSED PROFESSIONAL ENGINEER
08/22/2024
S. NAGARAJ
100197435
PROVINCE OF ONTARIO

Seema Nagaraj, Ph.D., P.Eng.

LICENSED PROFESSIONAL ENGINEER
08/22/2024
G.S. DU
100098179
PROVINCE OF ONTARIO

Guangsheng (Sam) Du, M.Sc., P.Eng.

VALCOUSTICS
Canada Ltd.

Version History

Version #	Date	Comments
1.0	December 16, 2021	Final – Issued to Client
2.0	July 25, 2023	Final – Revised to include stationary noise impact
3.0	August 22, 2024	Updated for rail volumes and stationary noise

TABLE OF CONTENTS

…/cont'd

TABLE OF CONTENTS (continued)

LIST OF TABLES

…/cont'd

TABLE OF CONTENTS (continued)

LIST OF FIGURES

LIST OF APPENDICES

Environmental Noise Feasibility Study

17 & 19 Ann Street, 84 & 90 High Street East

Proposed Mixed-Use Development

Ann Street and High Street
City of Mississauga

EXECUTIVE SUMMARY

Valcoustics Canada Ltd. (VCL) previously prepared an Environmental Noise Feasibility Study, dated December 14, 2021 and an updated report dated July 25, 2023, for the proposed development in support of the Official Plan Amendment (OPA) and Zoning By-law Amendment (ZBA) applications to the City of Mississauga. This updated report has been prepared to address revisions to the architectural drawings and comments from Metrolinx (see Appendix F).

The project will consist of one 23-storey residential building with ground floor retail, 6 levels of underground parking and a mechanical penthouse. Common outdoor amenity spaces will be located at grade and on Level 2.

The main transportation noise sources with potential to impact the proposed development are road traffic on Hurontario Road and Lakeshore Road East as well as rail traffic on the Canadian National Railway (CN) Oakville Subdivision. The main source of stationary noise in the vicinity of the proposed development is the Bell utility building located to the southwest of the subject site, on the west side of Ann Street. The sound levels on site have been determined and compared with the applicable Ministry of Environment, Conservation and Parks (MECP) noise guideline limits to determine the need for noise mitigation.

To meet the applicable transportation noise source guideline limits:

- All residential units in the proposed development require mandatory air conditioning;
- Exterior walls meeting a minimum STC of 54 (e.g., brick veneer) and windows meeting STC 39 are sufficient to meet the indoor sound level criteria of the MECP noise guidelines; and
- A 1.2 m high parapet sound barrier is required at the Level 2 common outdoor amenity terrace.

Final requirements should be checked when detailed building plans are available. This could be done as a condition for obtaining a building permit.

The current noise impact from the neighbouring Bell utility building is an interim condition. The facility is currently undergoing upgrades to the mechanical systems that will include replacing the rooftop and grade-level mechanical equipment with quieter units. A change from Class 1 to Class 4 status is recommended to cover the interim period that may occur if the development is

occupied before the upgrades are complete. With the existing mechanical equipment at the Bell building, a 1.8 m high sound barrier would be required at the northeast side of the grade-level condenser to meet the Class 4 guideline limits. The status of the Bell upgrades should be reviewed and the mitigation measures should be confirmed prior to occupancy of the proposed development.

1.0 INTRODUCTION

1.1 SCOPE

VCL previously prepared an Environmental Noise Feasibility Study, dated December 14, 2021 and an update dated July 25, 2023, in support of the Official Plan Amendment and Zoning By-law Amendment application submission to the City of Mississauga. This updated report has been prepared to address revision to the architectural drawings and comments from Metrolinx.

From an acoustical perspective, the most significant changes to the architectural drawings are a reduction in building height from 26 to 23 storeys. The building footprint and setback distances relative to the noise sources remain unchanged.

The review comments from Metrolinx (included as Appendix F) were received after the 2023 Noise Report was submitted. Some the revisions requested by Metrolinx were already completed as part of the 2023 Noise Report. All requested revisions (i.e. use of updated rail forecasts, not projecting the provided volumes, and including an updated warning clause) are addressed in this update report.

The potential sound levels and noise mitigation measures needed for the proposed development to comply with the MECP noise guideline requirements are outlined herein.

1.2 THE SITE AND SURROUNDING AREA

The proposed development is located at 17 & 19 Ann Street, 84 & 90 High Street East in the City of Mississauga. The site is bounded by:

- Park Street East, with a parking lot and railway line beyond, to the north;
- Hurontario Street, with residential and commercial buildings beyond, to the east;
- High Street East, with residential buildings and Lakeshore Road beyond, to the south; and
- Ann Street, with residential and commercial buildings beyond, to the west.

A Key Plan is included as Figure 1.

1.3 THE PROPOSED DEVELOPMENT

The project will consist of one 23-storey, 362-unit residential building with ground floor retail, 6 levels of underground parking and a mechanical penthouse. A common outdoor amenity area will be provided at grade on the east of the building. A common outdoor amenity terrace will also be provided on Level 2, on the east side of the proposed building. Indoor amenity areas will be provided in the mezzanine level and Level 2.

This report is based on the drawing set prepared by CORE Architects last updated on August 1, 2024. The Site Plan is shown as Figure 2A and the Roof Plan including receptor locations is shown in Figure 2B.

1.4 RESPONSES TO COMMENTS FROM METROLINX

Item #1:

Comment:

Metrolinx is in receipt of the Environmental Noise Feasibility Study prepared by Valcoustics dated December 14, 2021. Metrolinx provides the following comments:

- *Metrolinx has updated their Rail data forecasting as of December 2022. Please update the Study to reflect the most current data from the Oakville Subdivision / Lakeshore West Corridor. The proponent shall submit the study for review and satisfaction of Metrolinx. The proponent may obtain Metrolinx's most up to date rail forecast by submitting a request to raildatarequests@metrolinx.com. However, please note that we have attached the most recent rail data that should be used for your convenience.*

Furthermore,

- *Metrolinx notes Appendix C (of the Study) shows that a growth rate of 2.5% projected to 10 years was applied.*
- *Please note that the most recently provided rail data as of December 2022 has already been projected until 2032 and a growth rate should not be applied.*
- *As such, please revise the report to not include the growth rate.*

Response:

It is noted that the review comments from Metrolinx were received after the July 25, 2023 Noise Report was submitted. In the July 25, 2023 Noise Report, the growth rate was applied to CN freight and way freight traffic only. The Metrolinx data was not projected, as the data was understood to represent the future condition. However, the analysis in the July 25, 2023 Noise Report was done using forecasts provided by Metrolinx in 2021 (not the updated forecasts from year 2022).

This update report uses the Metrolinx forecasts provided in 2022. As directed, these forecasted volumes have not been projected. The rail traffic data used in this update report is included in Appendix A and summarized in Table 1B.

Item #2:

Comment:

We note that Metrolinx warning clause has been included however, Metrolinx has updated their warning clause as of November 2022. Please revise the Report to replace the warning clause with the following:

- *The Proponent shall provide confirmation to Metrolinx, that following warning clause will be inserted into all Development Agreements, Offers to Purchase, and Agreements of Purchase and Sale or Lease of each unit within 300 metres of the Railway Corridor*

    - ***Warning:** The Applicant is advised that the subject land is located within Metrolinx's 300 metres railway corridor zone of influence and as such is advised that Metrolinx and its assigns and successors in interest has or have a right-of-way within 300 metres from the subject land. The Applicant is further advised that there may be alterations to or expansions of the rail or other transit facilities on such right-of-way in the future including the possibility that Metrolinx or any railway entering into an agreement with Metrolinx to use the right-of-way or their assigns or successors as aforesaid may expand or alter their operations, which expansion or alteration may affect the environment of the occupants in the vicinity, notwithstanding the inclusion of any noise and vibration attenuating measures in the design of the development and individual lots, blocks or units.*

Response:

Warning Clause D in Table 4 of this report has been revised to the wording requested by Metrolinx.

2.0 NOISE SOURCES

2.1 TRANSPORTATION SOURCES

2.1.1 Road and Rail Traffic

The noise sources with potential to impact the proposed development are road traffic on Hurontario Road and Lakeshore Road East as well as railway traffic on the CN Oakville Subdivision.

Ultimate road traffic data for Hurontario Road and Lakeshore Road East was obtained from the City of Mississauga. All other nearby roadways are expected to have low traffic volumes and hence, not expected to have a significant noise impact on the proposed development.

Way freight and passenger rail volumes on the CN Oakville Subdivision were obtained from CN. (There is no freight traffic on this portion of the rail line.) The future (2034) rail volumes were forecast by compounding the existing volumes by 2.5% annually.

The Oakville Subdivision also carries the Lakeshore West GO commuter rail service. Forecasts for the Lakeshore West line were obtained from Metrolinx. Note, Metrolinx mentioned that at high speed, the noise level and spectrum of electric train is expected to be very similar to those of equivalent diesel trains. Thus, as suggested by Metrolinx, the electric trains were modelled as diesel trains.

The road and rail traffic data are summarized in Tables 1A and 1B. Correspondence is included as Appendix A.

TABLE 1A ROAD TRAFFIC DATA

Roadway[(1)]	Year	24-hour Volume[(2)]	% Trucks		Day/Night (%)	Speed Limit (kph)
			Medium	Heavy		
Hurontario Street	Ultimate	21300	3.85	3.15	90/10	50
Lakeshore Road East	Ultimate	36300	2.75	2.25	90/10	40

Notes:

(1) Obtained from the City of Mississauga.

(2) AADT – Annual Average Daily Traffic.

TABLE 1B RAIL TRAFFIC DATA

Subdivision	Period	Train Type	Maximum # of Trains	Maximum # of Cars	Maximum # of Locomotives per train	Maximum Speed (kph)
CN - Oakville Subdivision	Daytime (0700 to 2300)	Way Freight[(1)]	0	25	4	100
		Passenger[(1, 2)]	13 (18.4)	10	2	150
		GO1[(3)]	354	5	1	137
	Nighttime (2300 to 0700)	Way Freight[(1)]	5 (7.1)	25	4	100
		Passenger[(1, 2)]	2 (2.8)	10	2	150
		GO1[(3)]	54	5	1	137

Notes:

(1) Rail traffic volumes and maximum speed applicable to year 2020 obtained from CN.

(2) Values in parenthesis have been extrapolated to the year 2034 using a growth rate of 2.5%, compounded annually.

(3) Future rail traffic forecasts obtained from Metrolinx.

2.1.2 Air Traffic

The subject site lies outside the NEF 25 contour of Lester B. Pearson International Airport. Thus, there are no requirements for noise from aircraft traffic.

2.2 PORT CREDIT GO STATION

The Port Credit GO Station is located to the northwest of the subject site, on the north side of Queen Street East. Trains that stop at the station will decelerate, briefly idle, and then accelerate as they depart. Some trains will also pass by the station without stopping.

This assessment has been updated using sound measurements of rail activity in the vicinity of the subject site as described in the Environmental Noise Assessment report for 28 Ann Street, prepared by Valcoustics Canada Ltd., dated February 25, 2021 (Reference 6). The measurements included trains accelerating, decelerating and idling at the station, as well as trains passing the station without stopping. The measurements were scaled up to account for the future

condition with increased rail volumes. Thus, the mitigation requirements based on this analysis method will be sufficient to meet the indoor rail traffic noise criteria stipulated in the MECP noise guideline NPC-300.

2.3 HURONTARIO LRT

A future Light Rail Transit (LRT) line is planned along Hurontario Street. The south terminus of the line will be located to the east of the subject site, at the east side of the GO station parking lot. A "Noise and Vibration Impact Assessment Report" dated June 4, 2014 was prepared for the LRT by J.E. Coulter Associates Limited. The results of the study indicated that the addition of the LRT would result in no noticeable change in sound levels along most of the corridor, including in the vicinity of the subject site. Thus, the LRT has not been included in the assessment as an additional noise source.

2.4 STATIONARY SOURCES

The stationary noise source with the potential for impact at the subject site is the Bell utility building located on the west side of Ann Street. The noise sources at this facility are the rooftop HVAC units and condensers located on the rooftop and at grade. A detailed assessment of the noise impact from the Bell building is provided in Section 5.

Existing and future high-rise residential developments are located to the east, west, south and north of the subject site. The main noise sources associated with these developments are the rooftop HVAC units. The closest existing high-rise building is the new development at 28 Ann Street, approximately 45 m to the northwest of the subject site. As shown in the Environmental Noise Assessment report for 28 Ann Street (Reference 6), the sound level limits are predicted to be met at the existing high-rise buildings at closer setback distances than the subject site. Thus, it is expected that the sound level limits will be met at the subject site as well. The other high-rise residential developments in the vicinity are located at larger setback distances. Due to the distance separation and the high ambient sound level due to road and rail traffic in the vicinity, noise from these developments is not expected to have a significant noise impact at the subject site. Thus, these noise sources have not been considered further in the assessment.

3.0 ENVIRONMENTAL NOISE GUIDELINES

3.1 MECP NOISE GUIDELINE PUBLICATION NPC-300

The applicable noise guidelines for new residential development are those in MECP Publication NPC-300, "Environmental Noise Guideline, Stationary, and Transportation Sources – Approval and Planning".

The environmental noise guidelines of the MECP, as provided in Publication NPC-300, are discussed briefly below and summarized in Appendix B.

3.1.1 Transportation Source Noise Guidelines

3.1.1.1 Architectural Elements

In the daytime (0700 to 2300), the indoor criterion for road noise is $L_{eq\ Day}$(1) of 45 dBA for sensitive spaces such as living/dining rooms, dens and bedrooms. At night, the indoor criterion for road noise is $L_{eq\ Night}$(2) of 45 dBA for sensitive spaces such as living/dining rooms and dens and 40 dBA for bedrooms. The architectural design of the building envelope (walls, windows, etc.) must provide adequate sound isolation to achieve these indoor sound level limits, based on the applicable outdoor sound level on the facades.

3.1.1.2 Ventilation

In accordance with the MECP noise guideline for road traffic sources, if the daytime sound level, $L_{eq\ Day}$, at the exterior face of a noise sensitive window is greater than 65 dBA, means must be provided so that windows can be kept closed for noise control purposes and central air conditioning is required. For daytime sound levels between 56 dBA and 65 dBA inclusive, there need only be the provision for adding air conditioning at a later date. A warning clause advising the occupant of the potential interference with some activities is also required. At nighttime, air conditioning would be required when the sound level exceeds 60 dBA ($L_{eq\ Night}$) at a noise sensitive window (provision for adding air conditioning is required when greater than 50 dBA).

3.1.1.3 Outdoors

For outdoor amenity areas ("Outdoor Living Areas" – OLAs), the guideline is $L_{eq\ Day}$ of 55 dBA, with an excess not exceeding 5 dBA considered acceptable if it is technically not practicable to achieve the 55 dBA objective, providing warning clauses are registered on title. Note that for road traffic sources, a balcony is not considered an OLA, unless it is the only OLA for the occupant, and it is:

- at least 4 m in depth; and
- unenclosed.

3.1.2 Stationary Noise Sources

3.1.2.1 Class 1 Area

The subject site is in an urban area where man made sounds dominate the ambient sound environment 24 hours per day. This is defined as a Class 1 area by the MECP guidelines. The applicable limits for Class 1 areas are the higher of the ambient noise (primarily due to road traffic) or the exclusion limits. The exclusion limits for a Class 1 area are:

- 50 dBA during the daytime (0700 and 1900 hours) and evening (1900 and 2300 hours) at the exterior of a window to a noise sensitive space and at an outdoor point of reception; and
- 45 dBA during the nighttime (2300 and 0700 hours) at the exterior of a window to a noise sensitive space.

(1) 16-hour energy equivalent sound level (0700-2300 hours).
(2) 8-hour energy equivalent sound level (2300-0700 hours).

Noise sensitive spaces within the proposed residential development are the living and sleeping quarters. There are no indoor sound level limits for stationary sources. Balconies or elevated terraces are not outdoor points of reception where the guideline limits must be met unless they are the only outdoor living area for the occupant, have a minimum depth of 4 m and are not enclosed.

The guidelines require that the assessment determine the predictable worst-case noise impact. The predictable worst-case is when the difference between the sound level from the stationary noise source and the MECP guideline limit is greatest.

3.1.2.2 Class 4 Area

Class 4 areas are defined in NPC-300 as an area:

- that would otherwise be a Class 1 or 2 area;
- intended for development or re-development with new noise-sensitive land use(s) that are not yet built;
- in proximity to existing, lawfully-established stationary source(s); and
- that has formal confirmation from the land use planning authority with the Class 4 area classification.

Although not specifically identified in NPC-300, Class 4 is intended to be used when noise mitigation measures required to meet the Class 1 or 2 guideline limits are not feasible to implement. Class 4 is also a way to allow noise sensitive development in areas that are in transition.

The sound level limits for Class 4 areas are higher than those for a Class 1 area. The sound level limits in a Class 4 area are the higher of the ambient due to road traffic or the Class 4 exclusion limits. The Class 4 exclusion limits are:

- 60 dBA for any hour during the daytime and evening at the exterior of a window into a noise sensitive space;
- 55 dBA for any hour during the nighttime at the exterior of a window into a noise sensitive space; and
- 55 dBA for any hour during the daytime and evening at an outdoor point of reception. There are no sound level limits for outdoor points of reception at night.

The reason for the higher sound level limits for a Class 4 area is that even though exterior windows are permitted to operable, they are assumed to be closed to protect the indoor living spaces. In a Class 1 or 2 area, exterior windows are assumed to be open. In either case, the objective is to create a suitable indoor sound environment for the future occupants. In a Class 4 area, buildings need to have central air conditioning to allow the exterior windows to remain closed.

3.1.2.3 Applicable Sound Level Limits

The locations on the proposed building facade with the greatest exposure to the Bell building noise sources are largely screened from road and rail traffic noise. The minimum exclusion limits were therefore used in this assessment.

3.1.2.4 Area Classification

The site is currently in a Class 1 area. However, the intent is to have the site deemed Class 4 by the municipality. The Class 4 status is recommended because the neighbouring Bell building (the stationary source in the vicinity) will be undergoing mechanical system upgrades in the next few years that will replace the existing rooftop mechanical units and that will significantly decrease the noise impact at the neighbouring buildings. The Class 4 status will allow the guideline limits to be met at the proposed development in the interim period before the upgrade is complete. See Section 5.0 for further discussion.

3.2 REGION OF PEEL GUIDELINES

The Region of Peel guidelines are essentially the same as the MECP guidelines except that the nighttime level for triggering the air conditioning requirement is 1 dBA more stringent (i.e., lower) than the levels specified by the MECP – i.e., mandatory air conditioning for nighttime sound levels of 60 dBA or greater, and the provision for adding air conditioning for levels between 51 to 59 dBA inclusive.

3.3 FEDERATION OF CANADIAN MUNICIPALITIES/RAILWAY ASSOCIATION OF CANADA

The standard mitigation requirements of the Federation of Canadian Municipalities and the Railway Association of Canada (FCM/RAC) suggest a dwelling setback of 30 m for a residential development adjacent to a principal main line, if in combination with a safety berm at least 2.5 m above the property line grade (at a 2.5:1 slope). A 5.5 m high sound barrier is also suggested (e.g., 3.0 high acoustic fence atop a 2.5 m high safety berm). Due to the distance setback of the site and intervening development, the safety berm and acoustic fence would not be expected as a requirement.

Warning clauses specific to the railway for all dwellings within 300 m of the right-of-way are recommended.

Aside from “standard” requirements regarding the setback of dwellings and safety berm/sound barrier configuration, the sound level design objectives of FCM/RAC are similar to those of the MECP.

4.0 TRANSPORTATION NOISE IMPACT ASSESSMENT

4.1 ANALYSIS METHOD

Using the road and rail traffic data in Tables 1A and 1B, the sound levels, in terms of $L_{eq\ Day}$ and $L_{eq\ Night}$, were determined using STAMSON V5.04 – ORNAMENT and STEAM, the computerized road and rail traffic noise prediction models of the MECP.

The daytime and nighttime sound levels at the building facades were assessed at Level 22 plane of windows, the highest floor with residential suites (Level 23 is the mechanical penthouse). This represents the worst-case location. The daytime sound levels at the OLAs were assessed 1.5 m above the grade or slab elevation, at the centre of the amenity space.

Inherent screening of each building face due to its orientation to the noise source was taken into account for this assessment. Screening from the existing development in the vicinity was also included in the OLA calculations.

Note, in this report, the rail noise prediction model was calibrated based on the sound measurements in the vicinity of the site using the data and analysis method described in the Environmental Noise Assessment report for 28 Ann Street (Reference 6). See Appendix C.

4.2 SOUND LEVEL PREDICTION

The highest daytime/nighttime unmitigated sound levels of 65 dBA/60 dBA are predicted to occur at the top floor, north facade of the building. The highest unmitigated daytime OLA sound level of 61 dBA is predicted to occur at the Level 2 common outdoor amenity terrace.

Table 2 summarises the predicted sound levels outdoors at specific locations. Figure 2B shows the receptor locations used in this assessment.

The sound level calculations for all the assessment locations are included in Appendix D.

TABLE 2 PREDICTED UNMITIGATED SOUND LEVELS[(1)]

Location[(1)]	Source	Distance (m)[(2)]	$L_{eq\ Day}$ (dBA)	$L_{eq\ Night}$ (dBA)
R1 – Northeast Corner North Facade	Hurontario St Southbound	48	57	51
	Hurontario St Northbound	56	57	50
	CN Oakville Subdivision	168	63	59
	Total	-	**65**	**60**
R2 – Northeast Corner East Facade	Hurontario St Southbound	48	60	53
	Hurontario St Northbound	56	59	53
	Lakeshore Rd Westbound	223	50	44
	Lakeshore Rd Eastbound	232	50	44
	CN Oakville Subdivision	168	60	57
	Total	-	**65**	**60**

…/cont'd

TABLE 2 PREDICTED UNMITIGATED SOUND LEVELS(1) (continued)

Location(1)	Source	Distance (m)(2)	$L_{eq\ Day}$ (dBA)	$L_{eq\ Night}$ (dBA)
R3 – Southeast Corner East Facade	Hurontario St Southbound	52	59	53
	Hurontario St Northbound	60	59	52
	Lakeshore Rd Westbound	182	51	44
	Lakeshore Rd Eastbound	191	51	44
	CN Oakville Subdivision	209	58	54
	Total	-	**64**	**58**
R4 – Southeast Corner South Facade	Hurontario St Southbound	52	55	49
	Hurontario St Northbound	60	55	48
	Lakeshore Rd Westbound	182	53	46
	Lakeshore Rd Eastbound	191	53	46
	Total	-	**60**	**54**
R5 – Southwest Corner South Facade	Hurontario St Southbound	71	54	48
	Hurontario St Northbound	80	54	47
	Lakeshore Rd Westbound	192	53	46
	Lakeshore Rd Eastbound	201	53	46
	Total	**-**	**60**	**53**
R6 – Northwest Corner North Facade	Hurontario St Southbound	67	53	47
	Hurontario St Northbound	75	53	46
	CN Oakville Subdivision	169	63	59
	Total	**-**	**63**	**61**
OLA1 – 2nd Floor Common Outdoor Amenity Terrace	Hurontario St Southbound	46	57	-
	Hurontario St Northbound	55	56	-
	Lakeshore Rd Westbound	186	51	-
	Lakeshore Rd Eastbound	194	51	-
	Total	**-**	**61**	**-**
OLA2 – Grade Level East Common Outdoor Amenity Area	Hurontario St Southbound	38	57	-
	Hurontario St Northbound	46	55	-
	CN Oakville Subdivision	205	53	-
	Total	-	**60**	-

Notes:

(1) Daytime/nighttime receptors were assessed at the Level 25 (top residential floor) windows. OLA receptors were assessed at a height of 1.5 m above grade or above the terrace floor slab. Figure 2B shows the assessment receptor locations.

(2) Distance indicated is from the centreline of the noise sources to facade or OLA.

4.3 NOISE ABATEMENT REQUIREMENTS

The noise control measures can generally be classified into two categories which are interrelated, but which can be treated separately for the most part:

a) Architectural elements to achieve acceptable indoor noise guidelines for transportation sources; and

b) Design features to protect the OLAs.

Noise abatement requirements are summarised in Table 3 and notes to Table 3.

4.3.1 Indoors

The indoor sound level guidelines can be achieved by using appropriate construction for exterior walls, windows, and doors. In determining the worst-case architectural requirements for the apartment, exterior wall and window areas were assumed to be 20% and 80%, respectively, of the associated floor area at a corner room with facades exposed directly or at an angle to the road traffic noise source, for both living/dining areas and sleeping quarters.

4.3.1.1 Architectural requirements

The updated analysis shows that exterior walls meeting STC 54 and windows meeting STC 39 are sufficient to meet the indoor sound level criteria of the MECP noise guidelines.

Note, the window frames themselves must also be designed to ensure that the overall sound isolation performance for the entire window unit meets the sound isolation requirement. This must be confirmed by the window manufacturer through the submission of acoustical test data.

The final sound isolation requirements should be reviewed when architectural plans are developed. Wall and window constructions should also be reviewed at this point to ensure that the indoor sound level criteria of the MECP noise guideline.

4.3.1.2 Ventilation requirements

The building requires mandatory air conditioning to be installed in all units to allow the window to remain closed for noise control purposes.

4.3.2 Outdoors

The unmitigated daytime OLA sound levels at the common outdoor amenity areas are predicted to be:

- 61 dBA at the Level 2 common outdoor amenity terrace; and
- 60 dBA at the grade-level common amenity area at the east side of the proposed building.

The unmitigated daytime OLA sound level at the Level 2 common outdoor amenity terrace exceeds the 60 dBA maximum permitted under the MECP guidelines. A sound barrier is therefore required. A 1.2 m high parapet sound barrier along the east and south perimeters of the terrace will mitigate the daytime OLA sound level to the 55 dBA design objective and is recommended. Note that this is the minimum sound barrier height required to break the line-of-sight to the noise sources.

The unmitigated daytime OLA sound level at the grade-level amenity area at the east side of the building exceeds the 55 dBA design objective but is within the 5 dB leeway permitted under the MECP guidelines, provided warning clauses are registered on title. Since this amenity area is adjacent to the North Park Block, a privacy wall and decorative metal fence are currently proposed along the perimeter. This fence must be a total height of 1.5 m to meet the City of Mississauga standard fencing height. Given that there are specific (non-acoustical) fence requirements at this location, the unmitigated daytime OLA sound level is within the maximum permitted under the MECP guidelines, and another common outdoor amenity area that meets the 55 dBA design objective is provided on Level 2, a sound barrier is not recommended at this location.

The sound barrier location is shown on Figure 2B.

Sound barriers must be of solid construction with no gaps, cracks, or holes, and must meet a minimum surface density of 20 kg/m². Suitable material can include wood, concrete, metal sandwich panel, glazing or a combination of these.

TABLE 3 OLA MITIGATION

Location	Unmitigated Daytime OLA Sound Level (dBA)	Sound Barrier Heights to Achieve Mitigated Daytime OLA Sound Level					
		60 dBA	59 dBA	58 dBA	57 dBA	56 dBA	55 dBA
Level 2 common outdoor amenity terrace	61	See Note 1	See Note 1	See Note 1	See Note 1	See Note 1	1.2
East grade level common outdoor amenity area	60	1.8(2)	1.8(2)	1.8(2)	1.8	2.0	2.2

Notes:

(1) A 1.2 m high sound parapet sound barrier is required to break the line of sight to the noise sources. This barrier mitigates the daytime OLA sound level to 55 dBA.

(2) 1.8 m high is the minimum acoustic fence height for a grade-level OLA. However, an acoustic fence is not recommended at this location given that there are non-acoustical fence requirements at this location, the unmitigated daytime OLA sound levels is within the maximum permitted under the MECP guidelines and another OLA that meets the 55 dBA design objective is provided on Level 2.

Other balconies and private terraces are expected to be below 4 m in depth and hence, not considered OLAs under the MECP guidelines. Sound barriers are therefore not required for noise control purposes.

4.3.3 Warning Clauses

Warning clauses are a tool to inform prospective owners/occupants of potential annoyance due to existing noise sources. Where the guideline sound level limits are exceeded, appropriate warning clauses should be registered on title or included in the development agreement that is registered on title. The warning clauses should also be included in agreements of Offers of Purchase and Sale and lease/rental agreements to make future occupants aware of the potential noise situation.

Table 4 and the notes to Table 4 summarize the warning clauses for the site.

TABLE 4 MINIMUM NOISE ABATEMENT MEASURES

Location	Air Conditioning(1)	Exterior Wall(2)	Window STC Rating(3)	Sound Barrier(4)	Warning Clauses(5)
All residential units	Mandatory	STC 54	Up to STC 39	1.2 m high at Level 2 terrace	A + B + C + D

Notes:

(1) Where methods must be provided to allow windows to remain closed for noise control purposes, a commonly used technique for is the use of air conditioning.

(2) STC - Sound Transmission Class Rating (Reference ASTM-E413). Analyses were based upon the assumption that wall and window areas are as indicated in Section 4.3.1.1 of this report. Requirements should be checked once floor plans have been finalized and exterior wall construction details are defined.

(3) STC values are based upon the assumption that all wall and window areas are as indicated in Section 4.3.1.1 of this report. Requirements should be checked once floor plans have been finalized and exterior wall construction details are defined.

(4) Sound barriers must be of solid construction with no gaps, cracks, or holes, and must meet a minimum surface density of 20 kg/m². Suitable material can include wood, concrete, metal sandwich panel, glazing or a combination of these.

(5) The warning clauses to be registered on title and be included in Offers of Purchase and Sale for designated lots:

A. “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 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.”

B. “This dwelling unit has been supplied with an 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 the Municipality and the Ministry of the Environment, Conservation and Parks.”

C. “Purchasers/tenants are advised that due to the proximity of the existing Bell Canada facility, noise from this facility may at times be audible.”

D. "Warning: The Applicant is advised that the subject land is located within Metrolinx’s 300 metres railway corridor zone of influence and as such is advised that Metrolinx and its assigns and successors in interest has or have a right-of-way within 300 metres from the subject land. The Applicant is further advised that there may be alterations to or expansions of the rail or other transit facilities on such right-of-way in the future including the possibility that Metrolinx or any railway entering into an agreement with Metrolinx to use the right-of-way or their assigns or successors as aforesaid may expand or alter their operations, which expansion or alteration may affect the environment of the occupants in the vicinity, notwithstanding the inclusion of any noise and vibration attenuating measures in the design of the development and individual lots, blocks or units.”

5.0 STATIONARY NOISE IMPACT ASSESSMENT

5.1 SOUND SOURCES AND OPERATING SCENARIOS

The stationary noise source with the potential for impact at the subject site is the Bell Canada utility building to the west of the proposed development, on the west side of Ann Street.

As part of the operations of the Bell building, mechanical equipment operates indoors 24 hours a day. The interior of the building is cooled to prevent the equipment from overheating.

The main noise sources with the potential for impact at the subject site are the outdoor HVAC and condenser units. It is noted that the Bell parking lot lands just north of the existing Bell building

are subject to future residential redevelopment. As part of this redevelopment the Bell facility building will be undergoing mechanical system upgrades. As part of the upgrades, the rooftop and grade-level mechanical equipment will be replaced with quieter units and the layout will be modified. It is understood that these upgrades will be complete within the next few years. However, since the final mechanical design and construction is not yet complete, the assessment below is based the existing rooftop mechanical units and operating scenarios.

Sound measurements at the facility were done by VCL staff on October 24, 2022 and November 2, 2022.

The locations of the noise sources are shown on Figure 3. The source IDs, sound power levels and source heights are summarized below in Table 5.

The analysis assumed that these units could run continuously for a full hour at any time of the day in order to maintain the indoor environment.

TABLE 5 NOISE SOURCE DATA

Source ID's	Source Description	Sound Power Level (dBA)(2)	Source Height (m)(1)	Operating Scenario (mins/hours)
				Daytime/Evening/Nighttime
AC3	Rooftop AC Unit Trane TTR042	79	1.0	60 mins (100% duty cycle)
AC4	Rooftop AC Unit	85(3)	1.1	
COND1	Rooftop Condenser RefPlus CLD021-5	89	1.6	
COND4	Rooftop Condenser RefPlus COD022-5	90	2.0	
COND_AG	Condenser at grade Trane RAUA-2506MA	93	1.0	

Notes:

(1) Source height relative to the height of the roof or to grade.

(2) Sound Measurements by VCL staff on October 24, 2022 and November 2, 2022.

(3) AC4 was observed to emit a tonal sound. Thus, a 5 dBA penalty was applied to AC4 in accordance with MECP publication NPC-104. The sound power level shown in the table includes the 5 dB penalty.

It is noted that there is an emergency generator as well as are several other mechanical units on the rooftop other than those show in in Figure 3. Based on discussions with Bell Canada staff as well as sound measurements and observations by VCL staff, these units would not be expected to have a significant impact at the subject site. These units were therefore not included in the model.

5.2 ANALYSIS METHOD

A 3-D acoustic model of the proposed development along with the stationary sources in the vicinity was developed using CadnaA V2023 MR1 environmental noise modelling software. The software follows the protocol of ISO standard 9613-2:1996 “Acoustics – Attenuation of Sound During Propagation Outdoors” to predict sound levels at receiver locations. The model accounts for distance, atmospheric absorption and ground attenuation. The sound level from all relevant sources (hourly L_{eq}) was determined for each receptor position. Soft ground (G=1) was used for the lawn area at the east side of the Bell building. Hard ground (G = 0) was used elsewhere. Two orders of sound reflection from the building facades were included in the acoustical model.

The predicted sound levels at the proposed building were assessed using the Building Evaluation feature in CadnaA, which assesses the highest sound level at any storey, at multiple points around the building facade. The numbers shown in octagons around the building facades represent the highest plane of window (POW) sound level at that location. Sample stationary noise calculation is included as Appendix E.

5.3 SOUND LEVEL ASSESSMENT

Figure 4 shows the predicted sound levels due to the Bell building. The left pane represents the daytime/evening scenario hours. The right pane represents the nighttime scenario hour. Locations marked in red exceed the noise guideline limits. Locations marked in white comply with the guideline limits. Note, since the operating scenarios are the same for all hours of the day, the predicted sound levels are the same for both scenarios. However, the extent of the nighttime exceedances is greater due to the more stringent guideline limit at nighttime.

At the building facade, the highest sound level of 57 dBA is predicted to occur at the west facade, in the direction of the Bell building. This represents:

- A 7 dB excess over the Class 1 daytime/evening guideline limits and a 12 dB excess over the Class 1 nighttime guideline limits.
- Compliance with the Class 4 daytime/evening guideline limits and a minor 2 dB excess over the Class 4 nighttime guideline limits.

Since the predicted sound levels exceed the noise guideline limits, mitigation measures are required.

5.4 MITIGATION

5.4.1 Mitigation to meet the Class 1 Guideline Limits

To meet the Class 1 guideline limits:

- COND1 would need to be mitigated to a maximum sound power level of 82 dBA. This represents a 7 dB reduction from the current sound emission level.
- COND4 would need to be mitigated to a maximum sound power level of 80 dBA. This represents a 10 dB reduction from the current sound emission level.
- COND_AG would need to be mitigated to a maximum sound power level of 78 dBA. This represents a 15 dB reduction from the current sound emission level.

- AC4 would need to be mitigated to maximum sound power level of 70 dBA. This represents a 15 dB reduction from the current sound emission level.
  - Alternatively, AC4 could be mitigated or re-selected with a balanced spectrum (i.e., no tones). The unit would need to be mitigated to a maximum sound level of 75 dBA.

The mitigated sound levels are shown on Figure 5.

With the mitigation measures recommended above, the highest sound level at the building facade is predicted to be 45 dBA. This meets the daytime, evening and nighttime guideline limits.

5.4.2 Mitigation to meet the Class 4 Guideline Limits

The excesses over the Class 4 noise guideline limits are predicated to only occur on the lower floors of the proposed development and impact only a small number of units. It should also be noted that the west exposure (i.e. in the direction of the Bell building) at the ground floor does not have any residential units.

To meet the Class 4 guideline limits:

- A 1.8 m high sound barrier along the northeast side of COND_AG (the grade-level condenser) would be needed.

The sound barrier and mitigated sound levels are shown on Figure 6.

Sound barriers must be of solid construction with no gaps, cracks, or holes, and must meet a minimum surface density of 20 kg/m². Suitable material can include wood, concrete, metal sandwich panel, glazing or a combination of these.

All dwelling units would also be required to have mandatory air conditioning to allow windows to remain closed. Note that this is a requirement to mitigate the transportation noise regardless.

It is also noted that Bell has plans to remove or re-locate the grade-level condenser as part of their upgrades. If the condenser is removed or re-located to part of the roof farther away from subject site, compliance with the Class 4 limits may be achieved without a sound barrier. The status of the Bell building upgrades should be reviewed to confirm the mitigation requirements before occupancy of the 10 West development.

5.5 DISCUSSION

One of the goals of the Bell building mechanical system upgrades will be to mitigate the sound levels from the mechanical units such that sound level meet the Class 1 guideline limits (or the Class 4 limits, if Class 1 is not feasible) in support of the re-development of Bell parking lot lands for residential purposes at 80 High Street.

As the 10 West development site is set further back and across the street from the Bell building, it is expected that any future compliance with Class 1 or Class 4 for the redevelopment of the 80 High Street parking lot lands will result in compliance with these limits at the 10 West development as well. It should also be noted that upon the future development of the 80 High Street lands and if it is feasible to reach compliance for Class 1, the Class 4 provision over the 10 West lands would only be temporary and eventually meet the Class 1 limits.

In addition, in many cases like this, the strategy to achieve compliance with the MECP noise guideline limits is to classify the development as a Class 4 area. An example Class 4 site in the City of Mississauga is the proposed residential development at 1707-1725 Barbertown Road in which case the Class 4 sound level limits apply to both the proposed residential development and the stationary noise source (i.e., the industrial facility). This allows the development to proceed without jeopardizing the existing industrial facility in terms of compliance with the MECP noise guideline limits.

A Class 4 status is therefore recommended for the subject site.

5.6 CLASS 4 AREA – WARNING CLAUSE

The MECP noise guidelines will also require a specific warning clause to be registered on title and included in all Offers of Purchase and Sale, lease/rental agreements and condominium declarations for all residential units. Potential wording for the warning clause is shown below:

"Purchasers/tenants are advised that the sound levels due to the nearby Bell utility building are required to comply with sound level limits that are protective of indoor areas and are based on the assumption that windows and exterior doors are closed. This dwelling unit has been supplied with a ventilation/air conditioning system which will allow windows and exterior doors to remain closed."

6.0 EFFECT OF THE BUILDING ON THE SURROUNDING ENVIRONMENT

6.1 MECHANICAL EQUIPMENT

The main source of noise associated with this development, with the potential for significant impact on surrounding buildings, is the mechanical equipment. Mechanical plans for the building have not yet been development. A detailed assessment therefore cannot be done at this time.

Mechanical equipment interfacing to the outdoors must comply with the MECP noise guideline limits in NPC-300. By proper engineering design, all requirements can be met, and no significant noise impact would be created for surrounding uses. Appropriate choice of location, equipment type, and noise control features should be considered during detailed design for such items as rooftop equipment and air intakes and exhausts, including underground parking garage ventilation systems. Any parking garage air shafts located immediately adjacent to residential uses may need special noise control treatment such as choice of fan type, acoustically lining the shaft, providing silencers or adding carbon monoxide (CO) sensors to the fans. (With CO sensors, the fans operate less frequently. The lesser operation reduces the possibility of noise impact.)

For any emergency generators, appropriate steps should be taken to ensure that the equipment placement, treatment, and the routine testing schedule will not generate adverse noise impact on neighbouring properties. The generator will require silencers on the intake and exhaust cooling air paths, as well as a muffler on the combustion exhaust.

7.0 CONCLUSIONS

With the incorporation of the recommended noise mitigation measures, the indoor and outdoor transportation noise guidelines can be met. Future occupants will be made aware of potential noise situation through warning clauses, as per MECP guidelines.

The approvals and administrative procedures are available to ensure that the noise requirements are implemented.

8.0 REFERENCES

1. PC STAMSON 5.04, “Computer Program for Road Traffic Noise Assessment”, Ontario Ministry of the Environment.

2. Building Practice Note No. 56: “Controlling Sound Transmission into Buildings”, by J. D. Quirt, Division of Building Research, National Council of Canada, September 1985.

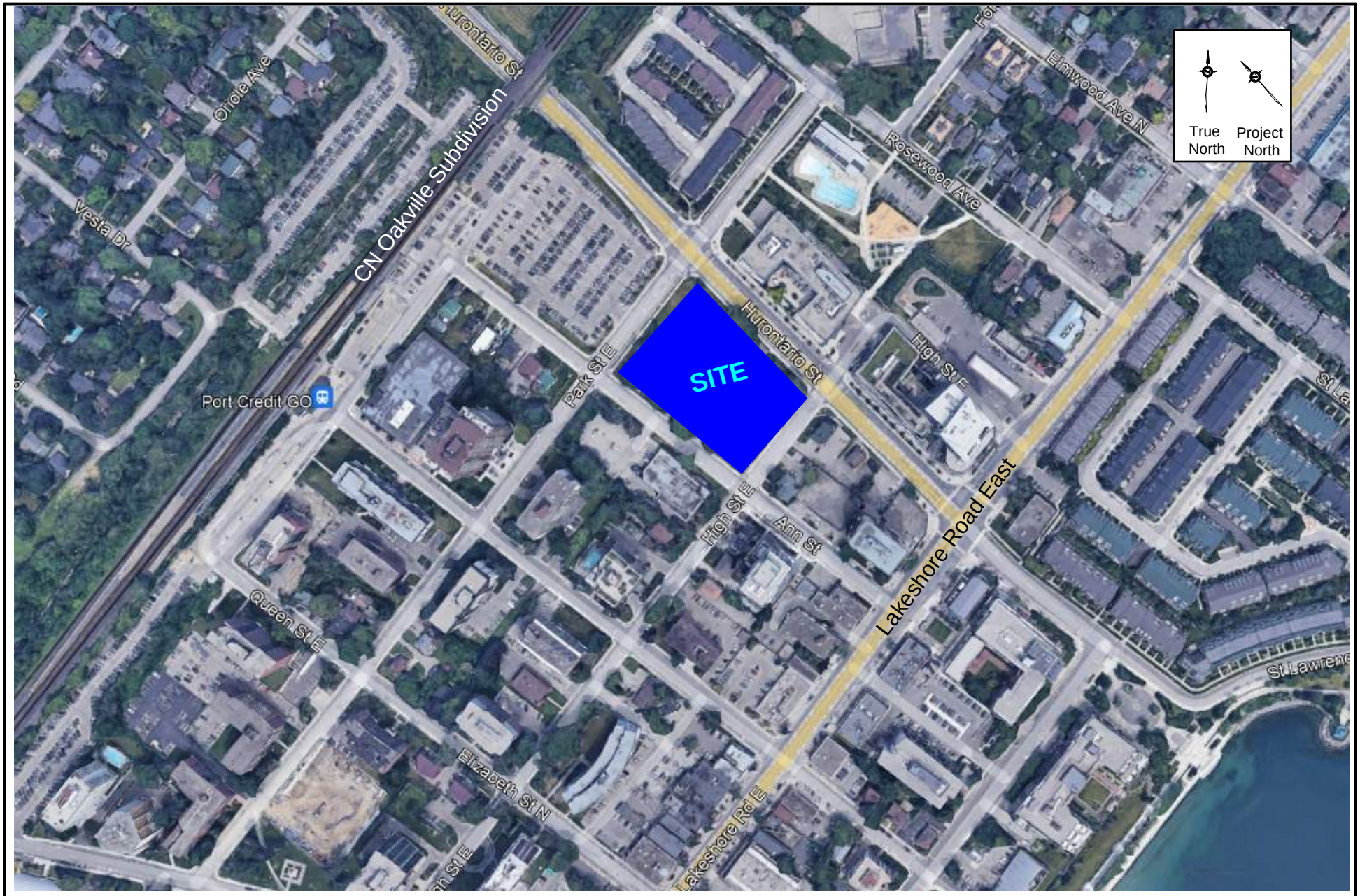
3. “Sound Level Limits for Stationary Sources in Class 1 and 2 Areas (URBAN)”, Ontario Ministry of the Environment, Publication NPC-205, October 1995.

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

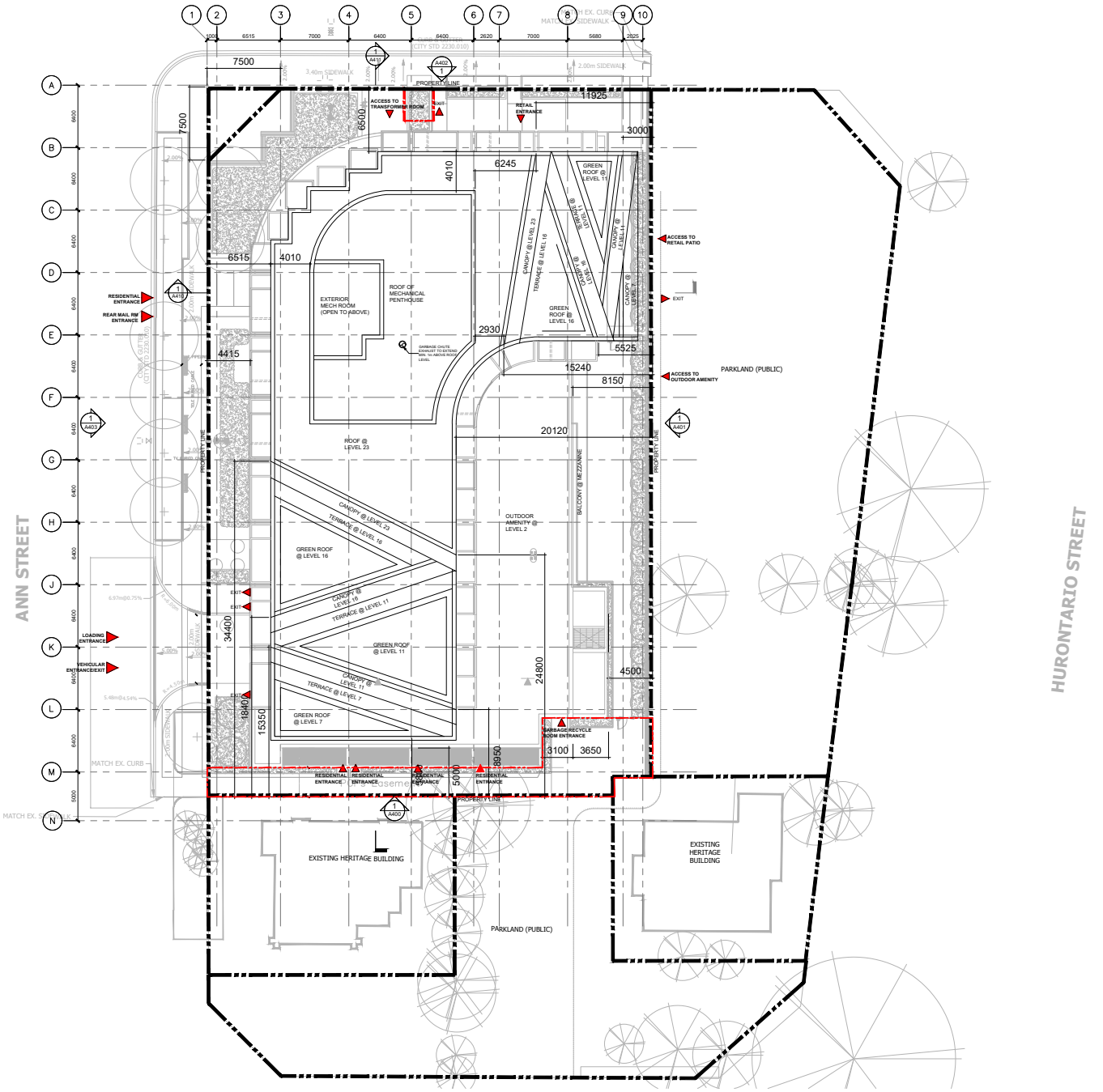
5. “Environmental Noise Feasibility Study – 17/19 Ann Street, 84&90 High Street East, and Part of 91 Park Street East”, Valcoustics Canada Ltd., December 2021.

6. “Environmental Noise Assessment, 28 Ann Street, Proposed Residential Development, City of Mississauga”, Valcoustics Canada Ltd., Project: 119-0095, February 25, 2021.

AT\SN\SD\mv
Ann Street - Noise v3_0 Fnl



VALCOUSTICS Canada Ltd. consulting acoustical engineers	Title: **Key Plan**	Date: **July 30, 2024**	Figure: **1**
	Project Name: **10 West, Mississauga**	Project No.: **121-0145**	



Base drawing by CORE Architects

VALCOUSTICS Canada Ltd. consulting acoustical engineers	Title: **Site Plan**	Date: **July 30, 2024**	Figure **2A**
	Project Name: **10 West, Mississauga**	Project Number: **121-0145**	

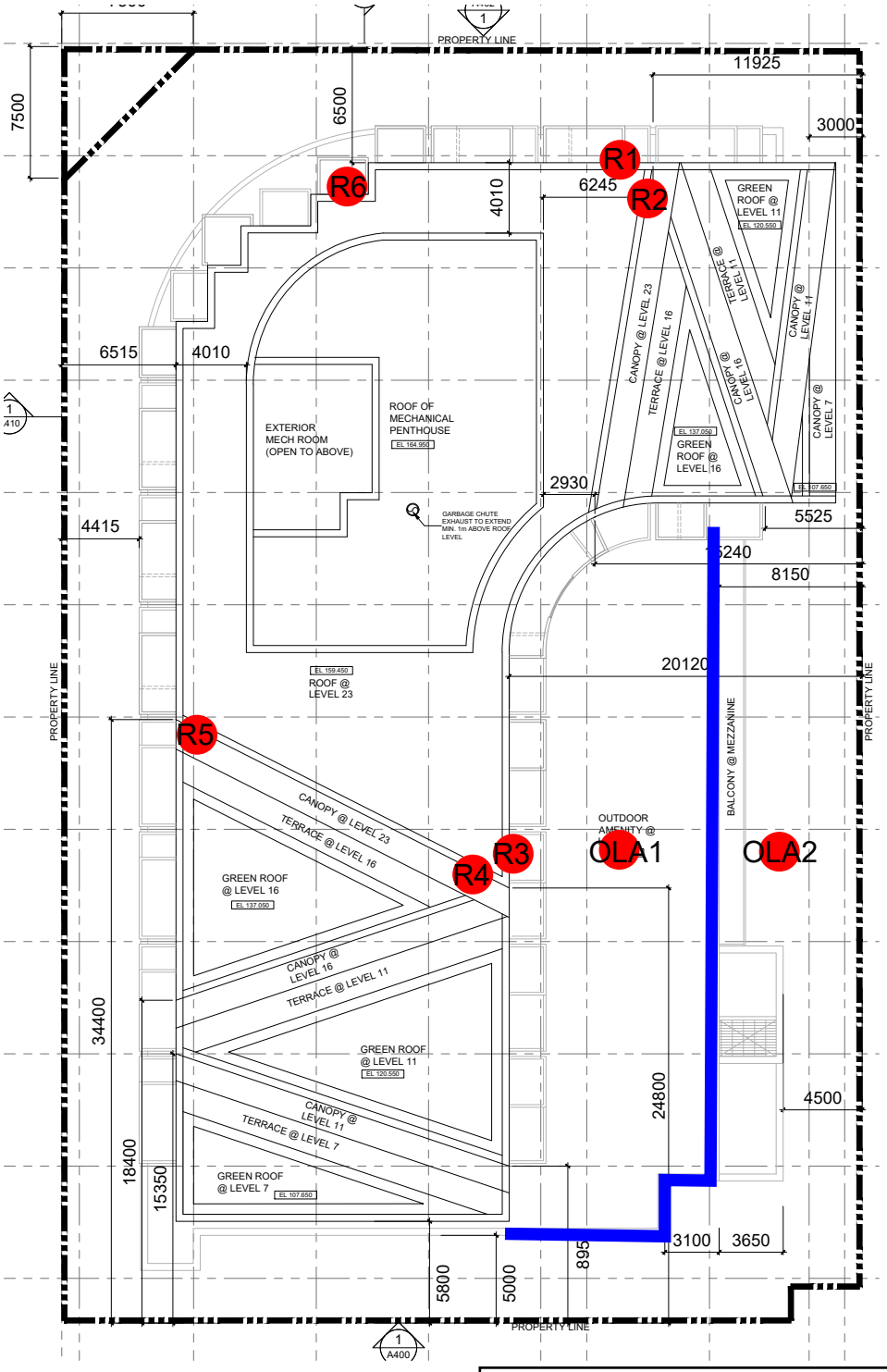
LEGEND

Receptor Location

1.2 m Noise Barrier

True North

Project North

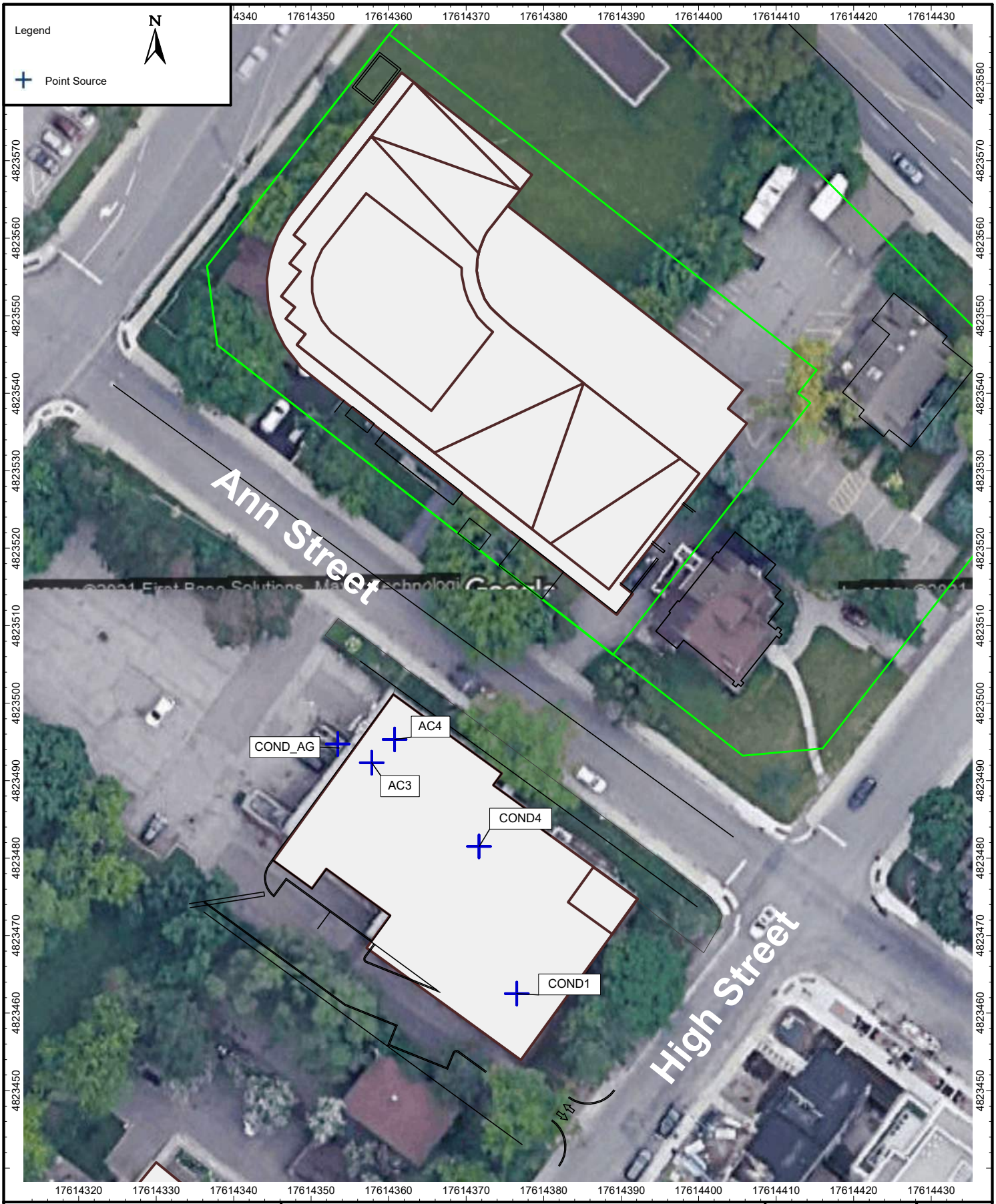


Note:
All suites require mandatory air-conditioning. Exterior walls meeting STC 54 and exterior windows meeting up to STC 39 are sufficient to meet the indoor noise guideline limits.

Base drawing by CORE Architects

VALCOUSTICS Canada Ltd.
consulting acoustical engineers

Title:	Date:	Figure
Roof Plan	**July 30, 2024**	**2B**
Project Name: **10 West, Mississauga**	Project Number: **121-0145**	



VALCOUSTICS
Canada Ltd.
consulting acoustical engineers

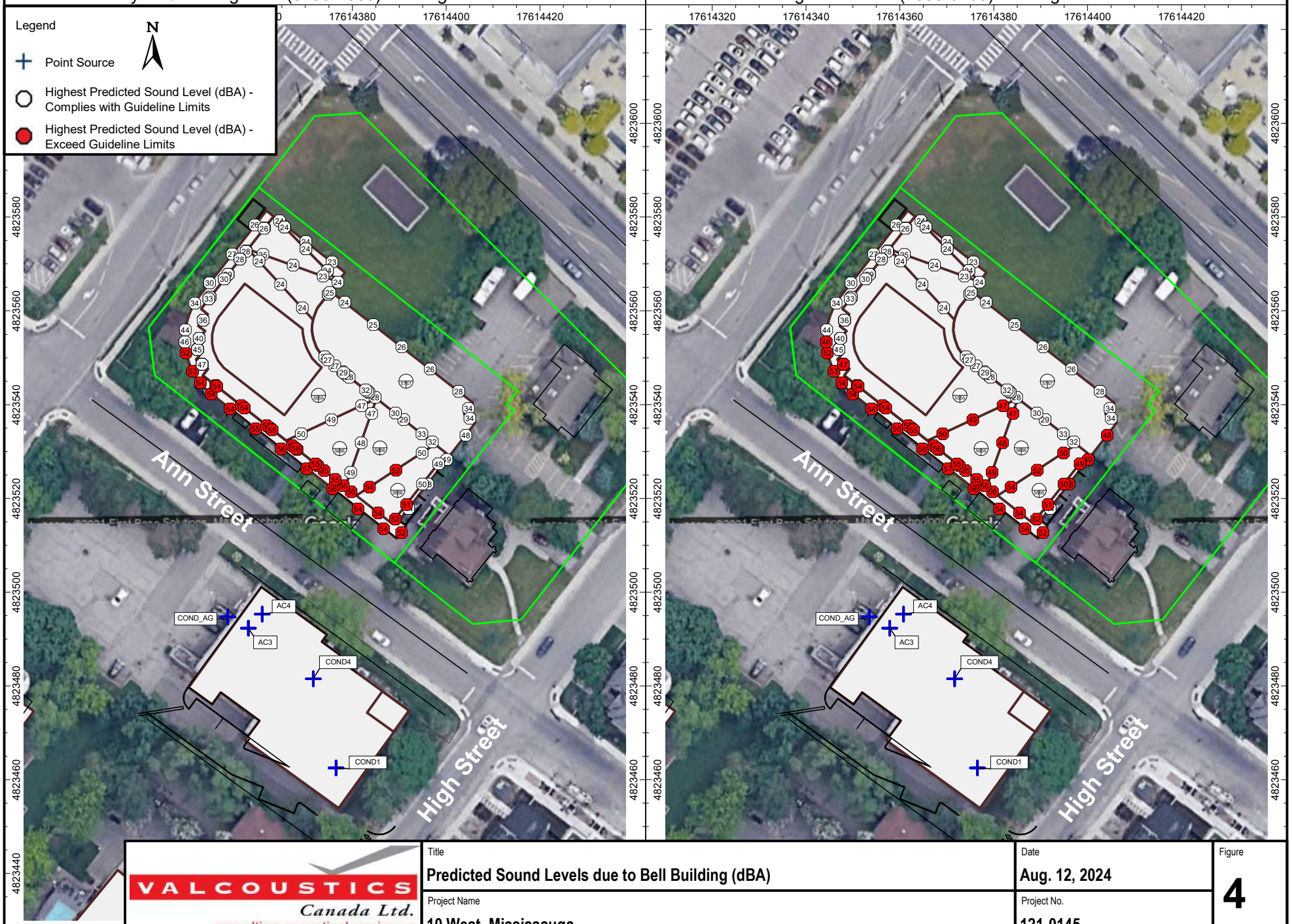
Title	Date	Figure
Source IDs	**Aug. 12, 2024**	**3**
Project Name: **10 West, Mississauga**	Project No.: **121-0145**	

C:\Users\snagaraj\Box\WIP - Canada\2021\1210145\000\Analysis\Cadna\24-07-04 Mit to Class 4\2024-07-29 10 West - updated building heights.cna

Date Plotted: 12.08.24

Daytime/Evening Hour (0700-2300) Building Evaluations

Nighttime Hour (2300-0700) Building Evaluations

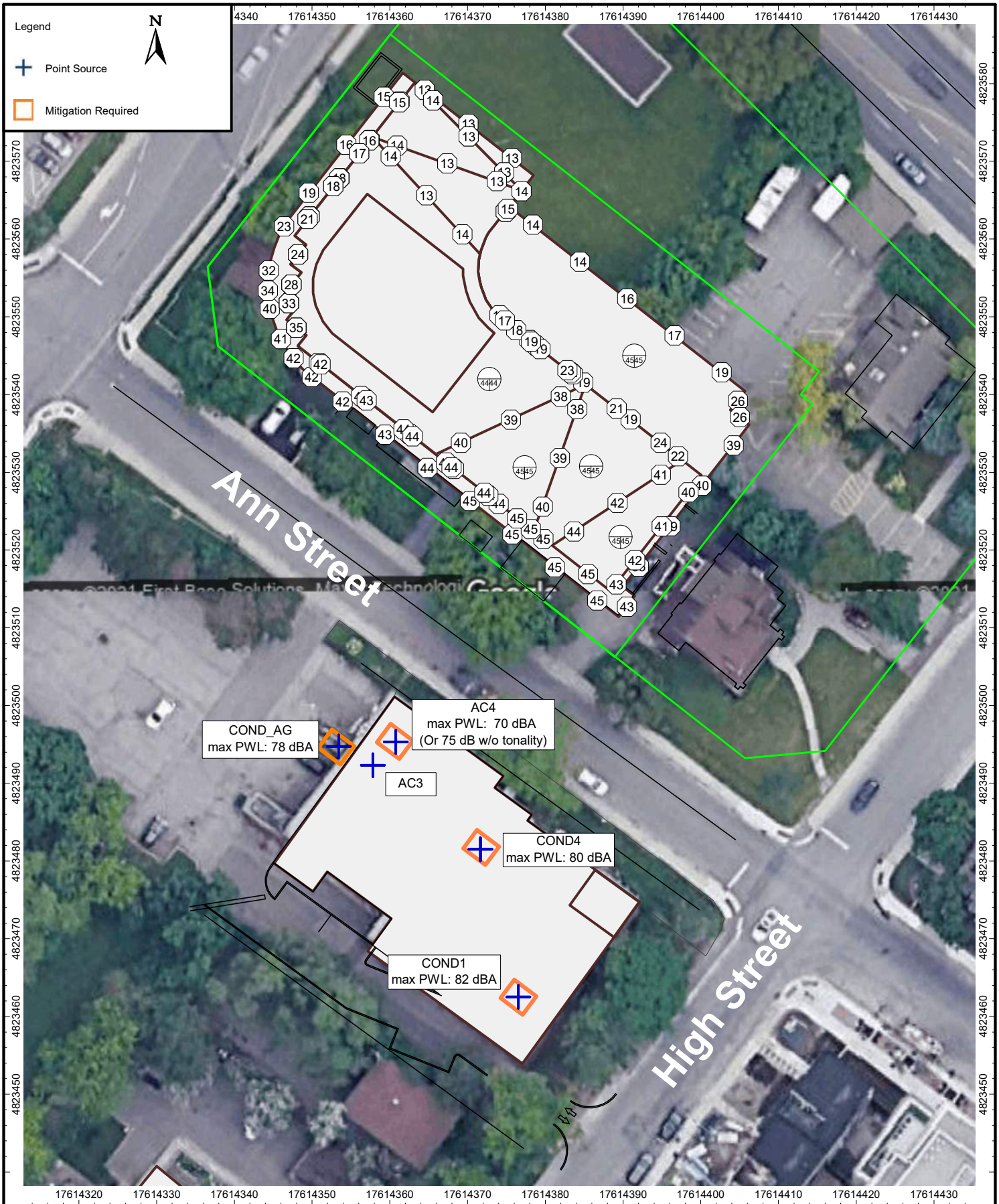


VALCOUSTICS Canada Ltd.
consulting acoustical engineers

Title: **Predicted Sound Levels due to Bell Building (dBA)**	Date: **Aug. 12, 2024**
Project Name: **10 West, Mississauga**	Project No.: **121-0145**
	Figure: **4**

C:\Users\snagaraj\Box\WIP - Canada\2021\1210145\000\Analysis\Cadna\24-07-04 Mit to Class 4\2024-07-29 10 West - updated building heights.cna

Date Plotted: 12.08.24

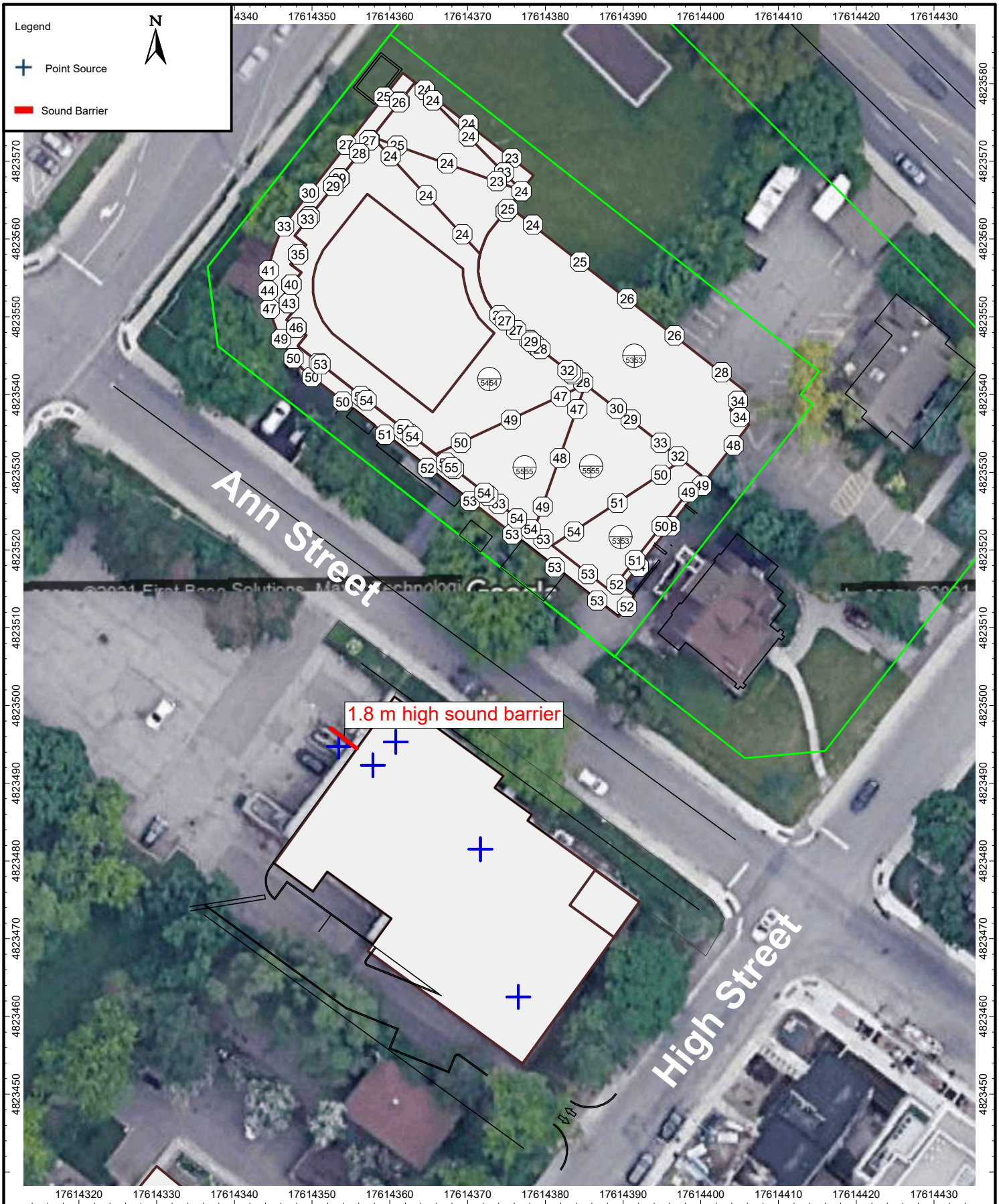


VALCOUSTICS Canada Ltd.
consulting acoustical engineers

Title	Date	Figure
Predicted Sound Levels (dBA) - Class 1 Mitigation	**Aug. 12, 2024**	**5**
Project Name: **10 West, Mississauga**	Project No.: **121-0145**	

C:\Users\snagaraj\Box\WIP - Canada\2021\1210145\000\Analysis\Cadna\24-07-04 Mit to Class 4\2024-07-29 10 West - updated building heights.cna

Date Plotted: 12.08.24



VALCOUSTICS Canada Ltd. consulting acoustical engineers	Title: **Predicted Sound Levels (dBA) - Class 4 Mitigation**	Date: **Aug. 12, 2024**	Figure: **6**
	Project Name: **10 West, Mississauga**	Project No.: **121-0145**	

C:\Users\snagaraj\Box\WIP - Canada\2021\1210145\000\Analysis\Cadna\24-07-04 Mit to Class 4\2024-07-29 10 West - updated building heights.cna

Date Plotted: 12.08.24

APPENDIX A
ROAD AND RAIL TRAFFIC DATA

Date: 2020/10/29 Project Number: OAK – 12.68 – Hurontario St/ Park St

Dear Seema:

Re: Train Traffic Data – CN Oakville Subdivision near Hurontario St/ Park St in Mississauga, ON

The following is provided in response to Seema's 2020/09/29 request for information regarding rail traffic in the vicinity of Hurontario St/ Park St in Mississauga at approximately Mile 12.68 on CN's Oakville Subdivision.

Typical daily traffic volumes are recorded below. However, traffic volumes may fluctuate due to overall economic conditions, varying traffic demands, weather conditions, track maintenance programs, statutory holidays and traffic detours that when required may be heavy although temporary. For the purpose of noise and vibration reports, train volumes must be escalated by 2.5% per annum for a 10-year period.

Typical daily traffic volumes at this site location are as follows:

***Maximum train speed is given in Miles per Hour**

	0700-2300			
Type of Train	Volumes	Max.Consist	Max. Speed	Max. Power
Freight	0	140	60	4
Way Freight	0	25	60	4
Passenger	13	10	95	2

	2300-0700			
Type of Train	Volumes	Max.Consist	Max. Speed	Max. Power
Freight	0	140	60	4
Way Freight	5	25	60	4
Passenger	2	10	95	2

The volumes recorded reflect westbound and eastbound freight and passenger operations on CN's Oakville Subdivision.

Except where anti-whistling bylaws are in effect, engine-warning whistles and bells are normally sounded at all at-grade crossings. There are two (2) at-grade crossings in the immediate vicinity of the study area at Mile 12.02 Revus Ave, and Mile 13.11 Stanebanic Rd. Anti-whistling bylaws are not in effect at these crossings. Please note that engine warning whistles may be sounded in cases of emergency, as a safety and or warning precaution at station locations and pedestrian crossings and occasionally for operating requirements.

With respect to equipment restrictions, the gross weight of the heaviest permissible car is 286,000 lbs.

The double mainline track is considered continuously welded rail throughout the study area.

Abhishek Thyagarajan

From: Umair Naveed <Umair.Naveed@cn.ca> on behalf of GLD-Permits <permits.gld@cn.ca>
Sent: October 19, 2021 9:28 AM
To: Abhishek Thyagarajan
Cc: Sam Du
Subject: RE: Rail data request - Hurontario Street, Mississauga (VCL file: 1210145.000)

Good Morning Abhishek,

The attached data is still valid.

Thanks,

GLD Team

From: Abhishek Thyagarajan <abhishek@valcoustics.com>
Sent: Monday, October 18, 2021 1:55 PM
To: GLD-Permits <permits.gld@cn.ca>
Cc: Sam Du <sam@valcoustics.com>
Subject: Rail data request - Hurontario Street, Mississauga (VCL file: 1210145.000)

Hi,

We are working on a noise study for a proposed development near Ann Street and Hurontario Street in Mississauga.
Can you please confirm if the data we have on hand is still valid? I have attached the data to this email.
Please let me know if you need any other information on this.

Thank you,
Abhishek Thyagarajan, M.S.
Acoustic Specialist
(He/Him)

VALCOUSTICS
Canada Ltd.
consulting acoustical engineers

30 Wertheim Court, Unit 25
Richmond Hill, Ontario
Canada L4B 1B9
Tel: 905-764-5223 ext. 247
Fax: 905-764-6813
abhishek@valcoustics.com

Our staff are working remotely during this period while our office is closed. We will continue to respond to emails and telephone inquiries at our regular extensions. The health and safety of our staff and clients is our top priority surrounding this uncertain period regarding COVID-19. We are closely monitoring the situation and have implemented policies to minimize the risk of exposure.

To help us stop the spread of viruses, we request that all e-mails sent to our office includes project name, number and recipient's name in the subject line.

Valcoustics Canada Ltd. is not responsible for edited or reproduced versions of this digital data.

This e-mail transmission is strictly confidential and intended solely for the person or organization to whom it is addressed. It may contain privileged and confidential information and if you are not the intended recipient, you must not copy, distribute or take any action in reliance on it. IF YOU HAVE RECEIVED THIS E-MAIL IN ERROR, PLEASE NOTIFY US AS SOON AS POSSIBLE AND DELETE IT.

METROLINX

Rail Data for 17 & 19 Ann St and 84 & 90 high St E and 91 Park St E (December 2022)

*Please note that this rail data is forecasted to 2032.

The subject lands (17 & 19 Ann st and 84 & 90 high St E and 91 Park St E, Mississauga) are located within 300 metres, adjacent to Metrolinx's Oakville Subdivision (which carries Lakeshore West GO rail service).

It's anticipated that GO rail service on this Subdivision will be comprised of diesel and electric trains. The GO rail fleet combination on this Subdivision will consist of up to 1 locomotive and 5 passenger cars. The typical GO rail weekday train volume forecast near the subject lands, including both revenue and equipment trips is in the order of 408 trains. The planned detailed trip breakdown is listed below:

	1 Diesel Locomotive	1 Electric Locomotive		1 Diesel Locomotive	1 Electric Locomotive
Day (0700-2300)	132	222	Night (2300-0700)	20	34

The current track design speed near the subject lands is 85mph (137 km/h).

There are *anti-whistling by-laws* in affect at Revus Ave and at Stavebank Rd at grade-crossing.

With respect to future electrified rail service, Metrolinx is committed to finding the most sustainable solution for electrifying the GO rail network and we are currently working towards the next phase.

Options have been studied as part of the Transit Project Assessment Process (TPAP) for the GO Expansion program, currently in the procurement phase. The successful proponent team will be responsible for selecting and delivering the right trains and infrastructure to unlock the benefits of GO Expansion. The contract is in a multi-year procurement process and teams have submitted their bids to Infrastructure Ontario and Metrolinx for evaluation and contract award. GO Expansion construction will get underway in late 2022 or 2023.

However, we can advise that train noise is dominated by the powertrain at lower speeds and by the wheel- track interaction at higher speeds. Hence, the noise level and spectrum of electric trains is expected to be very similar at higher speeds, if not identical, to those of equivalent diesel trains.

Given the above considerations, it would be prudent at this time, for the purposes of acoustical analyses for development in proximity to Metrolinx corridors, to assume that the acoustical characteristics of electrified and diesel trains are equivalent. In light of the aforementioned information, acoustical models should employ diesel train parameters as the basis for analyses. We anticipate that additional information regarding specific operational parameters for electrified trains will become available in the future once the proponent team is selected.

Operational information is subject to change and may be influenced by, among other factors, service planning priorities, operational considerations, funding availability and passenger demand.

It should be noted that this information only pertains to Metrolinx rail service. It would be prudent to contact other rail operators in the area directly for rail traffic information pertaining to non-Metrolinx rail service.

NOISE REPORT FOR PROPOSED DEVELOPMENT

Date: 12-May-21

REQUESTED BY:

Name: Abhishek Thyagarajan

Company: Valcoustics Canada Ltd.

PREPARED BY:

Nam Steven Guan

Tel#: 905-615-3200 ext. 5933

MISSISSAUGA

Location: Hurontario Street - Lakeshore Road East to Park Street
Lakeshore Road East (1) - Stavebank Road to Hurontario Street
Lakeshore Road East (2) - Hurontario Street to Seneca Avenue

ID 512

ON SITE TRAFFIC DATA

Specific	Street Names				
	Hurontario St	Lakeshore Rd E (1)	Lakeshore Rd E (2)		
AADT:	21,300	36,300	31,800		
# of Lanes:	4 Lanes	4 Lanes	4 Lanes		
% Trucks:	7%	5%	4%		
Medium/Heavy Trucks Ratio:	55/45	55/45	55/45		
Day/Night Split:	90/10	90/10	90/10		
Posted Speed Limit:	50 km/h	40 km/h	40 km/h*		
Gradient Of Road:	<2%	<2%	<2%		
Ultimate R.O.W:	30 m	26 m	26 m		

Comments:

Ultimate Traffic Data Only.

*Note: Lakeshore Road East transitions from 40 km/h to 50 km/h east of Woodlawn Avenue.

APPENDIX B
ENVIRONMENTAL NOISE GUIDELINES

APPENDIX B

ENVIRONMENTAL NOISE GUIDELINES

MINISTRY OF THE ENVIRONMENT, CONSERVATION AND PARKS (MECP)

Reference: MECP Publication NPC-300, October 2013: *"Environmental Noise Guideline, Stationary and Transportation Source – Approval and Planning"*.

SPACE	SOURCE	TIME PERIOD	CRITERION
Living/dining, den areas of residences, hospitals, nursing homes, schools, daycare centres, etc.	Road	07:00 to 23:00	45 dBA
	Rail	07:00 to 23:00	40 dBA
	Aircraft	24-hour period	NEF/NEP 5
Living/dining, den areas of residences, hospitals, nursing homes, etc. (except schools or daycare centres)	Road	23:00 to 07:00	45 dBA
	Rail	23:00 to 07:00	40 dBA
	Aircraft	24-hour period	NEF/NEP 5
Sleeping quarters	Road	07:00 to 23:00	45 dBA
	Rail	07:00 to 23:00	40 dBA
	Aircraft	24-hour period	NEF/NEP 0
Sleeping quarters	Road	23:00 to 07:00	40 dBA
	Rail	23:00 to 07:00	35 dBA
	Aircraft	24-hour period	NEF/NEP 0
Outdoor Living Areas	Road and Rail	07:00 to 23:00	55 dBA
Outdoor Point of Reception	Aircraft	24-hour period	NEF/NEP 30#
	Stationary Source		
	Class 1 Area	07:00 to 19:00(1)	50* dBA
		19:00 to 23:00(1)	50* dBA
	Class 2 Area	07:00 to 19:00(2)	50* dBA
		19:00 to 23:00(2)	45* dBA
	Class 3 Area	07:00 to 19:00(3)	45* dBA
		19:00 to 23:00(3)	40* dBA
	Class 4 Area	07:00 to 19:00(4)	55* dBA
		19:00 to 23:00(4)	55* dBA

…./cont'd

SPACE	SOURCE	TIME PERIOD	CRITERION
Plane of a Window of Noise Sensitive Spaces	Stationary Source		
	Class 1 Area	07:00 to 19:00(1)	50* dBA
		19:00 to 23:00(1)	50* dBA
		23:00 to 07:00(1)	45* dBA
	Class 2 Area	07:00 to 19:00(2)	50* dBA
		19:00 to 23:00(2)	50* dBA
		23:00 to 07:00(2)	45* dBA
	Class 3 Area	07:00 to 19:00(3)	45* dBA
		19:00 to 23:00(3)	45* dBA
		23:00 to 07:00(3)	40* dBA
	Class 4 Area	07:00 to 19:00(4)	60* dBA
		19:00 to 23:00(4)	60* dBA
		23:00 to 07:00(4)	55* dBA

\# may not apply to in-fill or re-development.
* or the minimum hourly background sound exposure $L_{eq(1)}$, due to road traffic, if higher.
(1) Class 1 Area: Urban.
(2) Class 2 Area: Urban during day; rural-like evening and night.
(3) Class 3 Area: Rural.
(4) Class 4 Area: Subject to land use planning authority's approval.

Reference: MECP Publication ISBN 0-7729-2804-5, 1987: *"Environmental Noise Assessment in Land-Use Planning"*.

EXCESS ABOVE RECOMMENDED SOUND LEVEL LIMITS (dBA)	CHANGE IN SUBJECTIVE LOUDNESS ABOVE	MAGNITUDE OF THE NOISE PROBLEM	NOISE CONTROL MEASURES (OR ACTION TO BE TAKEN)
No excess (<55 dBA)	—	No expected noise problem	None
1 to 5 inclusive (56 to 60 dBA)	Noticeably louder	Slight noise impact	If no physical measures are taken, then prospective purchasers or tenants should be made aware by suitable warning clauses.
6 to 10 inclusive (61 - 65 dBA)	Almost twice as loud	Definite noise impact	Recommended.
11 to 15 inclusive (66 - 70 dBA)	Almost three times as loud	Serious noise impact	Strongly Recommended.
16 and over (>70 dBA)	Almost four times as loud	Very serious noise impact	Strongly Recommended (may be mandatory).

APPENDIX C
RAIL NOISE CALIBRATION

Appendix D - Adjusted sound levels using Updated Metrolinx Data

Measurement Location

Measurement Setup

Train Type	Measured SEL (dBA)
	max
WayFreight	**94.6**
GO Stopping in station (1 loco)	**90.7**
GO Stopping in station (2 locos)	95.8
GO thru traffic (1 loco)	88
GO thru traffic (2 locos)	88.5
VIA	**90.6**

Calculate SEL from Leq using future train volumes

	Train Type	# of Trains	Leq (w max SEL)
Daytime Leq16	Freight	0	
	WayFreight	0	
	Passenger	17.9	55.52
	GO (1 loco)	354	68.59
	GO (2 loco)	0	
	Total		68.80
Nighttime Leq8	Freight	0	
	WayFreight	6.9	58.39
	Passenger	2.8	50.48
	GO (1 loco)	54	63.43
	GO (2 loco)	0	
	Total		64.78

*Daytime Leq16 = SEL-10*LOG(16*60*60)+10*LOG(DAYTIME TRAIN VOLUME)
**Nighttime Leq8 = SEL-10*LOG(8*60*60)+10*LOG(NIGHTTIME TRAIN VOLUME)

	STEAM Prediction (dBA)	Calculation from SEL (dBA)	Calibration factor (dBA)
Daytime Leq16	76.96	68.8	8.16
Nighttime Leq8	73.01	64.78	8.23

APPENDIX D

TRANSPORTATION SOUND LEVEL CALCULATIONS

```
STAMSON 5.04        NORMAL REPORT        Date: 21-08-2024 10:06:16
MINISTRY OF ENVIRONMENT, CONSERVATION AND PARKS / NOISE ASSESSMENT

Filename: r1.te                Time Period: Day/Night 16/8 hours
Description:

Rail data, segment # 1: CN (day/night)
-------------------------------------
Train            ! Trains      ! Speed !# loc !# Cars! Eng  !Cont
Type             !             !(km/h) !/Train!/Train! type !weld
-----------------+-------------+-------+------+------+------+----
* 1. WayF        !   0.0/7.1   ! 100.0 !  4.0 ! 25.0 !Diesel! Yes
* 2. Pass        !  18.4/2.8   ! 150.0 !  2.0 ! 10.0 !Diesel! Yes
  3. GO1         ! 354.0/54.0  ! 137.0 !  1.0 !  5.0 !Diesel! Yes

* The identified number of trains have been adjusted for
  future growth using the following parameters:

Train type:         ! Unadj. ! Annual % ! Years of !
 No  Name           ! Trains ! Increase !  Growth  !
--------------------+--------+----------+----------+
  1. WayF           !   0.0/5.0   !    2.50  !   14.00  !
  2. Pass           !  13.0/2.0   !    2.50  !   14.00  !

Data for Segment # 1: CN (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  : 168.00 / 168.00 m
Receiver height           :  75.00 / 83.00  m
Topography                :      1       (Flat/gentle slope; no barrier)
No Whistle
Reference angle           :   0.00

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

LOCOMOTIVE (0.00 + 71.04 + 0.00) = 71.04 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------
   -90     90   0.00  81.53 -10.49   0.00   0.00   0.00   0.00  71.04
-------------------------------------------------------------------

WHEEL (0.00 + 61.68 + 0.00) = 61.68 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------
   -90     90   0.00  72.17 -10.49   0.00   0.00   0.00   0.00  61.68
-------------------------------------------------------------------

Segment Leq : 71.52 dBA

Total Leq All Segments: 71.52 dBA (63.36 dBA Corrected)
```

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

LOCOMOTIVE (0.00 + 67.09 + 0.00) = 67.09 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90     90   0.00  77.58 -10.49   0.00   0.00   0.00   0.00  67.09
-------------------------------------------------------------------------

WHEEL (0.00 + 57.81 + 0.00) = 57.81 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90     90   0.00  68.30 -10.49   0.00   0.00   0.00   0.00  57.81
-------------------------------------------------------------------------

Segment Leq : 67.57 dBA

Total Leq All Segments: 67.57 dBA (59.34 dBA Corrected)

Road data, segment # 1: HurontSB (day/night)
--------------------------------------------
Car traffic volume  :  8914/990   veh/TimePeriod  *
Medium truck volume :   369/41    veh/TimePeriod  *
Heavy truck volume  :   302/34    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):  10650
    Percentage of Annual Growth        :   2.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   3.85
    Heavy Truck  % of Total Volume     :   3.15
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 1: HurontSB (day/night)
------------------------------------------
Angle1   Angle2           : -90.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  48.00 / 48.00  m
Receiver height           :  75.00 / 75.00  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

```
Road data, segment # 2: HurontNB (day/night)
---------------------------------------------
Car traffic volume  :  8914/990   veh/TimePeriod  *
Medium truck volume :   369/41    veh/TimePeriod  *
Heavy truck volume  :   302/34    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):  10650
    Percentage of Annual Growth        :   2.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   3.85
    Heavy Truck  % of Total Volume     :   3.15
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 2: HurontNB (day/night)
------------------------------------------
Angle1   Angle2           : -90.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  56.00 / 56.00  m
Receiver height           :  75.00 / 75.00  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Results segment # 1: HurontSB (day)
-----------------------------------
Source height = 1.33 m

ROAD (0.00 + 57.21 + 0.00) = 57.21 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90      0   0.00  65.28   0.00  -5.05  -3.01   0.00   0.00   0.00  57.21
-------------------------------------------------------------------------------

Segment Leq : 57.21 dBA

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

Source height = 1.33 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      0   0.00  65.28   0.00  -5.72  -3.01   0.00   0.00   0.00  56.54
-------------------------------------------------------------------------------
Segment Leq : 56.54 dBA

Total Leq All Segments: 59.90 dBA
```

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

Source height = 1.34 m

ROAD (0.00 + 50.71 + 0.00) = 50.71 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90      0   0.00  58.78   0.00  -5.05  -3.01   0.00   0.00   0.00  50.71
-------------------------------------------------------------------------------

Segment Leq : 50.71 dBA

Results segment # 2: HurontNB (night)
-------------------------------------

Source height = 1.34 m

ROAD (0.00 + 50.04 + 0.00) = 50.04 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90      0   0.00  58.78   0.00  -5.72  -3.01   0.00   0.00   0.00  50.04
-------------------------------------------------------------------------------

Segment Leq : 50.04 dBA

Total Leq All Segments: 53.40 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 71.81 (64.98 dBA Corrected)
                          (NIGHT): 67.73 (60.32 dBA Corrected)
```

```
STAMSON 5.04        NORMAL REPORT        Date: 21-08-2024 10:06:34
MINISTRY OF ENVIRONMENT, CONSERVATION AND PARKS / NOISE ASSESSMENT

Filename: r2.te                Time Period: Day/Night 16/8 hours
Description:

Rail data, segment # 1: CN (day/night)
-------------------------------------
Train            ! Trains      ! Speed !# loc !# Cars! Eng  !Cont
Type             !             !(km/h) !/Train!/Train! type !weld
-----------------+-------------+-------+------+------+------+----
* 1. WayF        !   0.0/6.9   ! 100.0 !  4.0 ! 25.0 !Diesel! Yes
* 2. Pass        !  17.9/2.8   ! 150.0 !  2.0 ! 10.0 !Diesel! Yes
* 3. GO1         ! 161.0/29.0  ! 153.0 !  1.0 ! 12.0 !Diesel! Yes
* 4. GO2         !  53.0/12.0  ! 153.0 !  2.0 ! 12.0 !Diesel! Yes

* The identified number of trains have been adjusted for
  future growth using the following parameters:

Train type:         ! Unadj. ! Annual % ! Years of !
 No  Name           ! Trains ! Increase !  Growth  !
--------------------+--------+----------+----------+
  1. WayF           !   0.0/5.0   !    2.50  !   13.00  !
  2. Pass           !  13.0/2.0   !    2.50  !   13.00  !
  3. GO1            ! 161.0/29.0  !    2.50  !    0.00  !
  4. GO2            !  53.0/12.0  !    2.50  !    0.00  !

Data for Segment # 1: CN (day/night)
------------------------------------
Angle1   Angle2           :  16.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 168.00 / 168.00 m
Receiver height           :  75.00 / 75.00  m
Topography                :      1       (Flat/gentle slope; no barrier)
No Whistle
Reference angle           :   0.00

Results segment # 1: CN (day)
-----------------------------
LOCOMOTIVE (0.00 + 67.29 + 0.00) = 67.29 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------
    16     90   0.00  81.64 -10.49  -3.86   0.00   0.00   0.00  67.29
-------------------------------------------------------------------
WHEEL (0.00 + 59.64 + 0.00) = 59.64 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------
    16     90   0.00  73.99 -10.49  -3.86   0.00   0.00   0.00  59.64
-------------------------------------------------------------------
Segment Leq : 67.98 dBA

Total Leq All Segments: 67.98 dBA (59.82 dBA Corrected)
```

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

LOCOMOTIVE (0.00 + 64.08 + 0.00) = 64.08 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-----------------------------------------------------------------------
    16     90   0.00  78.43 -10.49  -3.86   0.00   0.00   0.00  64.08
-----------------------------------------------------------------------

WHEEL (0.00 + 56.14 + 0.00) = 56.14 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-----------------------------------------------------------------------
    16     90   0.00  70.50 -10.49  -3.86   0.00   0.00   0.00  56.14
-----------------------------------------------------------------------

Segment Leq : 64.73 dBA

Total Leq All Segments: 64.73 dBA (56.50 dBA Corrected)

Road data, segment # 1: HurontSB (day/night)
--------------------------------------------
Car traffic volume  :  8914/990   veh/TimePeriod  *
Medium truck volume :   369/41    veh/TimePeriod  *
Heavy truck volume  :   302/34    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):  10650
    Percentage of Annual Growth        :   2.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   3.85
    Heavy Truck  % of Total Volume     :   3.15
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 1: HurontSB (day/night)
------------------------------------------
Angle1   Angle2           : -80.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  48.00 / 48.00  m
Receiver height           :  75.00 / 75.00  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

```
Road data, segment # 2: HurontNB (day/night)
---------------------------------------------
Car traffic volume  :  8914/990   veh/TimePeriod  *
Medium truck volume :   369/41    veh/TimePeriod  *
Heavy truck volume  :   302/34    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):  10650
    Percentage of Annual Growth        :   2.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   3.85
    Heavy Truck  % of Total Volume     :   3.15
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 2: HurontNB (day/night)
-------------------------------------------
Angle1   Angle2           : -80.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  56.00 / 56.00  m
Receiver height           :  75.00 / 75.00  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Road data, segment # 3: LakeshEB (day/night)
---------------------------------------------
Car traffic volume  : 15518/1724  veh/TimePeriod  *
Medium truck volume :   449/50    veh/TimePeriod  *
Heavy truck volume  :   368/41    veh/TimePeriod  *
Posted speed limit  :    40 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):  18150
    Percentage of Annual Growth        :   5.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   2.75
    Heavy Truck  % of Total Volume     :   2.25
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 3: LakeshEB (day/night)
-------------------------------------------
Angle1   Angle2           : -90.00 deg   11.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 223.00 / 223.00 m
Receiver height           :  75.00 / 75.00  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

```
Road data, segment # 4: LakeshWB (day/night)
-------------------------------------------
Car traffic volume  : 15518/1724  veh/TimePeriod  *
Medium truck volume :   449/50    veh/TimePeriod  *
Heavy truck volume  :   368/41    veh/TimePeriod  *
Posted speed limit  :    40 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):  18150
    Percentage of Annual Growth        :   5.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   2.75
    Heavy Truck  % of Total Volume     :   2.25
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 4: LakeshWB (day/night)
-----------------------------------------
Angle1   Angle2           : -90.00 deg   11.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 232.00 / 232.00 m
Receiver height           :  75.00 / 75.00  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

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

Source height = 1.33 m

ROAD (0.00 + 59.98 + 0.00) = 59.98 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -80     90   0.00  65.28   0.00  -5.05  -0.25   0.00   0.00   0.00  59.98
-------------------------------------------------------------------------------

Segment Leq : 59.98 dBA

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

Source height = 1.33 m

ROAD (0.00 + 59.31 + 0.00) = 59.31 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -80     90   0.00  65.28   0.00  -5.72  -0.25   0.00   0.00   0.00  59.31
-------------------------------------------------------------------------------

Segment Leq : 59.31 dBA
```

```
Results segment # 3: LakeshEB (day)
-----------------------------------

Source height = 1.23 m

ROAD (0.00 + 50.42 + 0.00) = 50.42 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     11   0.00  64.65   0.00 -11.72  -2.51   0.00   0.00   0.00  50.42
-------------------------------------------------------------------------------

Segment Leq : 50.42 dBA

Results segment # 4: LakeshWB (day)
-----------------------------------

Source height = 1.23 m

ROAD (0.00 + 50.25 + 0.00) = 50.25 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     11   0.00  64.65   0.00 -11.89  -2.51   0.00   0.00   0.00  50.25
-------------------------------------------------------------------------------

Segment Leq : 50.25 dBA

Total Leq All Segments: 63.15 dBA

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

Source height = 1.34 m

ROAD (0.00 + 53.48 + 0.00) = 53.48 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -80     90   0.00  58.78   0.00  -5.05  -0.25   0.00   0.00   0.00  53.48
-------------------------------------------------------------------------------

Segment Leq : 53.48 dBA

Results segment # 2: HurontNB (night)
-------------------------------------

Source height = 1.34 m

ROAD (0.00 + 52.81 + 0.00) = 52.81 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -80     90   0.00  58.78   0.00  -5.72  -0.25   0.00   0.00   0.00  52.81
-------------------------------------------------------------------------------

Segment Leq : 52.81 dBA
```

```
Results segment # 3: LakeshEB (night)
-------------------------------------

Source height = 1.23 m

ROAD (0.00 + 43.90 + 0.00) = 43.90 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     11   0.00  58.13   0.00 -11.72  -2.51   0.00   0.00   0.00  43.90
-------------------------------------------------------------------------------

Segment Leq : 43.90 dBA

Results segment # 4: LakeshWB (night)
-------------------------------------

Source height = 1.23 m

ROAD (0.00 + 43.72 + 0.00) = 43.72 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     11   0.00  58.13   0.00 -11.89  -2.51   0.00   0.00   0.00  43.72
-------------------------------------------------------------------------------

Segment Leq : 43.72 dBA

Total Leq All Segments: 56.65 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 69.21 (64.81 dBA Corrected)
                          (NIGHT): 65.36 (59.58 dBA Corrected)
```

```
STAMSON 5.04        NORMAL REPORT        Date: 21-08-2024 10:06:44
MINISTRY OF ENVIRONMENT, CONSERVATION AND PARKS / NOISE ASSESSMENT

Filename: r3.te                Time Period: Day/Night 16/8 hours
Description:

Rail data, segment # 1: CN (day/night)
-------------------------------------
Train            ! Trains      ! Speed !# loc !# Cars! Eng  !Cont
Type             !             !(km/h) !/Train!/Train! type !weld
-----------------+-------------+-------+------+------+------+----
* 1. WayF        !   0.0/6.9   ! 100.0 !  4.0 ! 25.0 !Diesel! Yes
* 2. Pass        !  17.9/2.8   ! 150.0 !  2.0 ! 10.0 !Diesel! Yes
* 3. GO1         ! 161.0/29.0  ! 153.0 !  1.0 ! 12.0 !Diesel! Yes
* 4. GO2         !  53.0/12.0  ! 153.0 !  2.0 ! 12.0 !Diesel! Yes

* The identified number of trains have been adjusted for
  future growth using the following parameters:

Train type:         ! Unadj. ! Annual % ! Years of !
 No  Name           ! Trains ! Increase !  Growth  !
--------------------+--------+----------+----------+
  1. WayF           !   0.0/5.0   !    2.50  !   13.00  !
  2. Pass           !  13.0/2.0   !    2.50  !   13.00  !
  3. GO1            ! 161.0/29.0  !    2.50  !    0.00  !
  4. GO2            !  53.0/12.0  !    2.50  !    0.00  !

Data for Segment # 1: CN (day/night)
------------------------------------
Angle1   Angle2           :  33.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 209.00 / 209.00 m
Receiver height           :  75.00 / 75.00  m
Topography                :      1       (Flat/gentle slope; no barrier)
No Whistle
Reference angle           :   0.00

Results segment # 1: CN (day)
-----------------------------
LOCOMOTIVE (0.00 + 65.21 + 0.00) = 65.21 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------
    33     90   0.00  81.64 -11.44  -4.99   0.00   0.00   0.00  65.21
-------------------------------------------------------------------
WHEEL (0.00 + 57.56 + 0.00) = 57.56 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------
    33     90   0.00  73.99 -11.44  -4.99   0.00   0.00   0.00  57.56
-------------------------------------------------------------------
Segment Leq : 65.90 dBA

Total Leq All Segments: 65.90 dBA (57.74 dBA Corrected)
```

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

LOCOMOTIVE (0.00 + 61.99 + 0.00) = 61.99 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-----------------------------------------------------------------------
    33     90   0.00  78.43 -11.44  -4.99   0.00   0.00   0.00  61.99
-----------------------------------------------------------------------

WHEEL (0.00 + 54.06 + 0.00) = 54.06 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-----------------------------------------------------------------------
    33     90   0.00  70.50 -11.44  -4.99   0.00   0.00   0.00  54.06
-----------------------------------------------------------------------

Segment Leq : 62.64 dBA

Total Leq All Segments: 62.64 dBA (54.41 dBA Corrected)

Road data, segment # 1: HurontSB (day/night)
--------------------------------------------
Car traffic volume  :  8914/990   veh/TimePeriod  *
Medium truck volume :   369/41    veh/TimePeriod  *
Heavy truck volume  :   302/34    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):  10650
    Percentage of Annual Growth        :   2.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   3.85
    Heavy Truck  % of Total Volume     :   3.15
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 1: HurontSB (day/night)
------------------------------------------
Angle1   Angle2           : -63.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  52.00 / 52.00  m
Receiver height           :  75.00 / 75.00  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

```
Road data, segment # 2: HurontNB (day/night)
---------------------------------------------
Car traffic volume  :  8914/990   veh/TimePeriod  *
Medium truck volume :   369/41    veh/TimePeriod  *
Heavy truck volume  :   302/34    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):  10650
    Percentage of Annual Growth        :   2.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   3.85
    Heavy Truck  % of Total Volume     :   3.15
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 2: HurontNB (day/night)
-------------------------------------------
Angle1   Angle2           : -63.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  60.00 / 60.00  m
Receiver height           :  75.00 / 75.00  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Road data, segment # 3: LakeshEB (day/night)
---------------------------------------------
Car traffic volume  : 15518/1724  veh/TimePeriod  *
Medium truck volume :   449/50    veh/TimePeriod  *
Heavy truck volume  :   368/41    veh/TimePeriod  *
Posted speed limit  :    40 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):  18150
    Percentage of Annual Growth        :   5.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   2.75
    Heavy Truck  % of Total Volume     :   2.25
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 3: LakeshEB (day/night)
-------------------------------------------
Angle1   Angle2           : -90.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 182.00 / 182.00 m
Receiver height           :  75.00 / 75.00  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

```
Road data, segment # 4: LakeshWB (day/night)
-------------------------------------------
Car traffic volume  : 15518/1724  veh/TimePeriod  *
Medium truck volume :   449/50    veh/TimePeriod  *
Heavy truck volume  :   368/41    veh/TimePeriod  *
Posted speed limit  :    40 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):  18150
    Percentage of Annual Growth        :   5.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   2.75
    Heavy Truck  % of Total Volume     :   2.25
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 4: LakeshWB (day/night)
-----------------------------------------
Angle1   Angle2           : -90.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 191.00 / 191.00 m
Receiver height           :  75.00 / 75.00  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

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

Source height = 1.33 m

ROAD (0.00 + 59.17 + 0.00) = 59.17 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -63     90   0.00  65.28   0.00  -5.40  -0.71   0.00   0.00   0.00  59.17
-------------------------------------------------------------------------------

Segment Leq : 59.17 dBA

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

Source height = 1.33 m

ROAD (0.00 + 58.55 + 0.00) = 58.55 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -63     90   0.00  65.28   0.00  -6.02  -0.71   0.00   0.00   0.00  58.55
-------------------------------------------------------------------------------

Segment Leq : 58.55 dBA
```

```
Results segment # 3: LakeshEB (day)
-----------------------------------

Source height = 1.23 m

ROAD (0.00 + 50.80 + 0.00) = 50.80 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90      0   0.00  64.65   0.00 -10.84  -3.01   0.00   0.00   0.00  50.80
-------------------------------------------------------------------------------

Segment Leq : 50.80 dBA

Results segment # 4: LakeshWB (day)
-----------------------------------

Source height = 1.23 m

ROAD (0.00 + 50.59 + 0.00) = 50.59 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90      0   0.00  64.65   0.00 -11.05  -3.01   0.00   0.00   0.00  50.59
-------------------------------------------------------------------------------

Segment Leq : 50.59 dBA

Total Leq All Segments: 62.50 dBA

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

Source height = 1.34 m

ROAD (0.00 + 52.67 + 0.00) = 52.67 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -63     90   0.00  58.78   0.00  -5.40  -0.71   0.00   0.00   0.00  52.67
-------------------------------------------------------------------------------

Segment Leq : 52.67 dBA

Results segment # 2: HurontNB (night)
-------------------------------------

Source height = 1.34 m

ROAD (0.00 + 52.05 + 0.00) = 52.05 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -63     90   0.00  58.78   0.00  -6.02  -0.71   0.00   0.00   0.00  52.05
-------------------------------------------------------------------------------

Segment Leq : 52.05 dBA
```

```
Results segment # 3: LakeshEB (night)
-------------------------------------

Source height = 1.23 m

ROAD (0.00 + 44.28 + 0.00) = 44.28 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90      0   0.00  58.13   0.00 -10.84  -3.01   0.00   0.00   0.00  44.28
-------------------------------------------------------------------------------

Segment Leq : 44.28 dBA

Results segment # 4: LakeshWB (night)
-------------------------------------

Source height = 1.23 m

ROAD (0.00 + 44.07 + 0.00) = 44.07 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90      0   0.00  58.13   0.00 -11.05  -3.01   0.00   0.00   0.00  44.07
-------------------------------------------------------------------------------

Segment Leq : 44.07 dBA

Total Leq All Segments: 55.99 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 67.53 (63.75 dBA Corrected)
                          (NIGHT): 63.49 (58.28 dBA Corrected)
```

```
STAMSON 5.04        NORMAL REPORT        Date: 21-08-2024 10:06:52
MINISTRY OF ENVIRONMENT, CONSERVATION AND PARKS / NOISE ASSESSMENT

Filename: r4.te                Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: HurontSB (day/night)
---------------------------------------------
Car traffic volume  :  8914/990   veh/TimePeriod  *
Medium truck volume :   369/41    veh/TimePeriod  *
Heavy truck volume  :   302/34    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):  10650
    Percentage of Annual Growth        :   2.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   3.85
    Heavy Truck  % of Total Volume     :   3.15
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 1: HurontSB (day/night)
-------------------------------------------
Angle1   Angle2           :  27.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  52.00 / 52.00  m
Receiver height           :  75.00 / 75.00  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Road data, segment # 2: HurontNB (day/night)
---------------------------------------------
Car traffic volume  :  8914/990   veh/TimePeriod  *
Medium truck volume :   369/41    veh/TimePeriod  *
Heavy truck volume  :   302/34    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):  10650
    Percentage of Annual Growth        :   2.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   3.85
    Heavy Truck  % of Total Volume     :   3.15
    Day (16 hrs) % of Total Volume     :  90.00
```

```
Data for Segment # 2: HurontNB (day/night)
-----------------------------------------
Angle1   Angle2           :  27.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  60.00 / 60.00  m
Receiver height           :  75.00 / 75.00  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Road data, segment # 3: LakeshEB (day/night)
-------------------------------------------
Car traffic volume  : 15518/1724  veh/TimePeriod  *
Medium truck volume :   449/50    veh/TimePeriod  *
Heavy truck volume  :   368/41    veh/TimePeriod  *
Posted speed limit  :    40 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):  18150
    Percentage of Annual Growth        :   5.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   2.75
    Heavy Truck  % of Total Volume     :   2.25
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 3: LakeshEB (day/night)
-----------------------------------------
Angle1   Angle2           : -56.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 182.00 / 182.00 m
Receiver height           :  75.00 / 75.00  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Road data, segment # 4: LakeshWB (day/night)
-------------------------------------------
Car traffic volume  : 15518/1724  veh/TimePeriod  *
Medium truck volume :   449/50    veh/TimePeriod  *
Heavy truck volume  :   368/41    veh/TimePeriod  *
Posted speed limit  :    40 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):  18150
    Percentage of Annual Growth        :   5.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   2.75
    Heavy Truck  % of Total Volume     :   2.25
    Day (16 hrs) % of Total Volume     :  90.00
```

```
Data for Segment # 4: LakeshWB (day/night)
-----------------------------------------
Angle1   Angle2           : -56.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 191.00 / 191.00 m
Receiver height           :  75.00 / 75.00  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Results segment # 1: HurontSB (day)
-----------------------------------
Source height = 1.33 m

ROAD (0.00 + 55.32 + 0.00) = 55.32 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    27     90   0.00  65.28   0.00  -5.40  -4.56   0.00   0.00   0.00  55.32
-------------------------------------------------------------------------------
Segment Leq : 55.32 dBA

Results segment # 2: HurontNB (day)
-----------------------------------
Source height = 1.33 m

ROAD (0.00 + 54.70 + 0.00) = 54.70 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    27     90   0.00  65.28   0.00  -6.02  -4.56   0.00   0.00   0.00  54.70
-------------------------------------------------------------------------------
Segment Leq : 54.70 dBA

Results segment # 3: LakeshEB (day)
-----------------------------------
Source height = 1.23 m

ROAD (0.00 + 52.90 + 0.00) = 52.90 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -56     90   0.00  64.65   0.00 -10.84  -0.91   0.00   0.00   0.00  52.90
-------------------------------------------------------------------------------
Segment Leq : 52.90 dBA

Results segment # 4: LakeshWB (day)
-----------------------------------
Source height = 1.23 m

ROAD (0.00 + 52.69 + 0.00) = 52.69 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -56     90   0.00  64.65   0.00 -11.05  -0.91   0.00   0.00   0.00  52.69
-------------------------------------------------------------------------------
Segment Leq : 52.69 dBA

Total Leq All Segments: 60.07 dBA
```

```
Results segment # 1: HurontSB (night)
-----------------------------------
Source height = 1.34 m

ROAD (0.00 + 48.82 + 0.00) = 48.82 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    27     90   0.00  58.78   0.00  -5.40  -4.56   0.00   0.00   0.00  48.82
-------------------------------------------------------------------------------
Segment Leq : 48.82 dBA

Results segment # 2: HurontNB (night)
-----------------------------------
Source height = 1.34 m

ROAD (0.00 + 48.20 + 0.00) = 48.20 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    27     90   0.00  58.78   0.00  -6.02  -4.56   0.00   0.00   0.00  48.20
-------------------------------------------------------------------------------

Segment Leq : 48.20 dBA

Results segment # 3: LakeshEB (night)
-----------------------------------
Source height = 1.23 m

ROAD (0.00 + 46.38 + 0.00) = 46.38 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -56     90   0.00  58.13   0.00 -10.84  -0.91   0.00   0.00   0.00  46.38
-------------------------------------------------------------------------------

Segment Leq : 46.38 dBA

Results segment # 4: LakeshWB (night)
-----------------------------------

Source height = 1.23 m

ROAD (0.00 + 46.17 + 0.00) = 46.17 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -56     90   0.00  58.13   0.00 -11.05  -0.91   0.00   0.00   0.00  46.17
-------------------------------------------------------------------------------

Segment Leq : 46.17 dBA

Total Leq All Segments: 53.56 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 60.07
                           (NIGHT): 53.56
```

```
STAMSON 5.04        NORMAL REPORT        Date: 21-08-2024 10:07:04
MINISTRY OF ENVIRONMENT, CONSERVATION AND PARKS / NOISE ASSESSMENT

Filename: r5.te                Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: HurontSB (day/night)
-------------------------------------------
Car traffic volume  :  8914/990   veh/TimePeriod  *
Medium truck volume :   369/41    veh/TimePeriod  *
Heavy truck volume  :   302/34    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):  10650
    Percentage of Annual Growth        :   2.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   3.85
    Heavy Truck  % of Total Volume     :   3.15
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 1: HurontSB (day/night)
-----------------------------------------
Angle1   Angle2           :  21.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  71.00 / 71.00  m
Receiver height           :  75.00 / 75.00  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Road data, segment # 2: HurontNB (day/night)
-------------------------------------------
Car traffic volume  :  8914/990   veh/TimePeriod  *
Medium truck volume :   369/41    veh/TimePeriod  *
Heavy truck volume  :   302/34    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):  10650
    Percentage of Annual Growth        :   2.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   3.85
    Heavy Truck  % of Total Volume     :   3.15
    Day (16 hrs) % of Total Volume     :  90.00
```

```
Data for Segment # 2: HurontNB (day/night)
-----------------------------------------
Angle1   Angle2           :  21.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  80.00 / 80.00  m
Receiver height           :  75.00 / 75.00  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Road data, segment # 3: LakeshEB (day/night)
-------------------------------------------
Car traffic volume  : 15518/1724  veh/TimePeriod  *
Medium truck volume :   449/50    veh/TimePeriod  *
Heavy truck volume  :   368/41    veh/TimePeriod  *
Posted speed limit  :    40 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):  18150
    Percentage of Annual Growth        :   5.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   2.75
    Heavy Truck  % of Total Volume     :   2.25
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 3: LakeshEB (day/night)
-----------------------------------------
Angle1   Angle2           : -62.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 192.00 / 192.00 m
Receiver height           :  75.00 / 75.00  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Road data, segment # 4: LakeshWB (day/night)
-------------------------------------------
Car traffic volume  : 15518/1724  veh/TimePeriod  *
Medium truck volume :   449/50    veh/TimePeriod  *
Heavy truck volume  :   368/41    veh/TimePeriod  *
Posted speed limit  :    40 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):  18150
    Percentage of Annual Growth        :   5.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   2.75
    Heavy Truck  % of Total Volume     :   2.25
    Day (16 hrs) % of Total Volume     :  90.00
```

```
Data for Segment # 4: LakeshWB (day/night)
------------------------------------------
Angle1   Angle2           : -62.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 201.00 / 201.00 m
Receiver height           :  75.00 / 75.00  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Results segment # 1: HurontSB (day)
-----------------------------------
Source height = 1.33 m

ROAD (0.00 + 54.36 + 0.00) = 54.36 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    21     90   0.00  65.28   0.00  -6.75  -4.16   0.00   0.00   0.00  54.36
-------------------------------------------------------------------------------
Segment Leq : 54.36 dBA

Results segment # 2: HurontNB (day)
-----------------------------------
Source height = 1.33 m

ROAD (0.00 + 53.84 + 0.00) = 53.84 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    21     90   0.00  65.28   0.00  -7.27  -4.16   0.00   0.00   0.00  53.84
-------------------------------------------------------------------------------
Segment Leq : 53.84 dBA

Results segment # 3: LakeshEB (day)
-----------------------------------
Source height = 1.23 m

ROAD (0.00 + 52.85 + 0.00) = 52.85 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -62     90   0.00  64.65   0.00 -11.07  -0.73   0.00   0.00   0.00  52.85
-------------------------------------------------------------------------------
Segment Leq : 52.85 dBA

Results segment # 4: LakeshWB (day)
-----------------------------------
Source height = 1.23 m

ROAD (0.00 + 52.65 + 0.00) = 52.65 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -62     90   0.00  64.65   0.00 -11.27  -0.73   0.00   0.00   0.00  52.65
-------------------------------------------------------------------------------
Segment Leq : 52.65 dBA

Total Leq All Segments: 59.50 dBA
```

```
Results segment # 1: HurontSB (night)
-------------------------------------
Source height = 1.34 m

ROAD (0.00 + 47.86 + 0.00) = 47.86 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    21     90   0.00  58.78   0.00  -6.75  -4.16   0.00   0.00   0.00  47.86
-------------------------------------------------------------------------------
Segment Leq : 47.86 dBA

Results segment # 2: HurontNB (night)
-------------------------------------

Source height = 1.34 m

ROAD (0.00 + 47.34 + 0.00) = 47.34 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    21     90   0.00  58.78   0.00  -7.27  -4.16   0.00   0.00   0.00  47.34
-------------------------------------------------------------------------------
Segment Leq : 47.34 dBA

Results segment # 3: LakeshEB (night)
-------------------------------------

Source height = 1.23 m

ROAD (0.00 + 46.32 + 0.00) = 46.32 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -62     90   0.00  58.13   0.00 -11.07  -0.73   0.00   0.00   0.00  46.32
-------------------------------------------------------------------------------

Segment Leq : 46.32 dBA

Results segment # 4: LakeshWB (night)
-------------------------------------

Source height = 1.23 m

ROAD (0.00 + 46.12 + 0.00) = 46.12 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -62     90   0.00  58.13   0.00 -11.27  -0.73   0.00   0.00   0.00  46.12
-------------------------------------------------------------------------------

Segment Leq : 46.12 dBA

Total Leq All Segments: 52.99 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 59.50
                           (NIGHT): 52.99
```

```
STAMSON 5.04        NORMAL REPORT        Date: 21-08-2024 10:07:15
MINISTRY OF ENVIRONMENT, CONSERVATION AND PARKS / NOISE ASSESSMENT

Filename: r6.te                Time Period: Day/Night 16/8 hours
Description:

Rail data, segment # 1: CN (day/night)
-------------------------------------
Train            ! Trains      ! Speed !# loc !# Cars! Eng  !Cont
Type             !             !(km/h) !/Train!/Train! type !weld
-----------------+-------------+-------+------+------+------+----
* 1. WayF        !   0.0/7.1   ! 100.0 !  4.0 ! 25.0 !Diesel! Yes
* 2. Pass        !  18.4/2.8   ! 150.0 !  2.0 ! 10.0 !Diesel! Yes
  3. GO1         ! 354.0/54.0  ! 137.0 !  1.0 !  5.0 !Diesel! Yes

* The identified number of trains have been adjusted for
  future growth using the following parameters:

Train type:         ! Unadj. ! Annual % ! Years of !
 No  Name           ! Trains ! Increase !  Growth  !
--------------------+--------+----------+----------+
  1. WayF           !   0.0/5.0   !    2.50  !   14.00  !
  2. Pass           !  13.0/2.0   !    2.50  !   14.00  !

Data for Segment # 1: CN (day/night)
------------------------------------
Angle1   Angle2           : -90.00 deg   59.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 169.00 / 169.00 m
Receiver height           :  75.00 / 83.00  m
Topography                :      1       (Flat/gentle slope; no barrier)
No Whistle
Reference angle           :   0.00

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

LOCOMOTIVE (0.00 + 70.19 + 0.00) = 70.19 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------
   -90     59   0.00  81.53 -10.52  -0.82   0.00   0.00   0.00  70.19
-------------------------------------------------------------------

WHEEL (0.00 + 60.83 + 0.00) = 60.83 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------
   -90     59   0.00  72.17 -10.52  -0.82   0.00   0.00   0.00  60.83
-------------------------------------------------------------------

Segment Leq : 70.67 dBA

Total Leq All Segments: 70.67 dBA (62.51 dBA Corrected)
```

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

LOCOMOTIVE (0.00 + 66.24 + 0.00) = 66.24 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90     59   0.00  77.58 -10.52  -0.82   0.00   0.00   0.00  66.24
-------------------------------------------------------------------------

WHEEL (0.00 + 56.97 + 0.00) = 56.97 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90     59   0.00  68.30 -10.52  -0.82   0.00   0.00   0.00  56.97
-------------------------------------------------------------------------

Segment Leq : 66.73 dBA

Total Leq All Segments: 66.73 dBA (58.50 dBA Corrected)

Road data, segment # 1: HurontSB (day/night)
--------------------------------------------
Car traffic volume  :  8914/990   veh/TimePeriod  *
Medium truck volume :   369/41    veh/TimePeriod  *
Heavy truck volume  :   302/34    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):  10650
    Percentage of Annual Growth        :   2.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   3.85
    Heavy Truck  % of Total Volume     :   3.15
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 1: HurontSB (day/night)
------------------------------------------
Angle1   Angle2           : -90.00 deg   -38.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  67.00 / 67.00  m
Receiver height           :  75.00 / 75.00  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

```
Road data, segment # 2: HurontNB (day/night)
---------------------------------------------
Car traffic volume  :  8914/990   veh/TimePeriod  *
Medium truck volume :   369/41    veh/TimePeriod  *
Heavy truck volume  :   302/34    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):  10650
    Percentage of Annual Growth        :   2.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   3.85
    Heavy Truck  % of Total Volume     :   3.15
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 2: HurontNB (day/night)
------------------------------------------
Angle1   Angle2           : -90.00 deg   -38.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  75.00 / 75.00  m
Receiver height           :  75.00 / 75.00  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

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

Source height = 1.33 m

ROAD (0.00 + 53.38 + 0.00) = 53.38 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90    -38   0.00  65.28   0.00  -6.50  -5.39   0.00   0.00   0.00  53.38
-------------------------------------------------------------------------------

Segment Leq : 53.38 dBA

Results segment # 2: HurontNB (day)
-----------------------------------
Source height = 1.33 m

ROAD (0.00 + 52.89 + 0.00) = 52.89 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90    -38   0.00  65.28   0.00  -6.99  -5.39   0.00   0.00   0.00  52.89
-------------------------------------------------------------------------------
Segment Leq : 52.89 dBA

Total Leq All Segments: 56.15 dBA
```

Results segment # 1: HurontSB (night)

Source height = 1.34 m

ROAD (0.00 + 46.88 + 0.00) = 46.88 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-38	0.00	58.78	0.00	-6.50	-5.39	0.00	0.00	0.00	46.88

Segment Leq : 46.88 dBA

Results segment # 2: HurontNB (night)

Source height = 1.34 m

ROAD (0.00 + 46.39 + 0.00) = 46.39 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-38	0.00	58.78	0.00	-6.99	-5.39	0.00	0.00	0.00	46.39

Segment Leq : 46.39 dBA

Total Leq All Segments: 49.65 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 70.82 **(63.41 dBA Corrected)**
(NIGHT): 66.81 **(59.03 dBA Corrected)**

```
STAMSON 5.04        NORMAL REPORT        Date: 22-08-2024 09:23:58
MINISTRY OF ENVIRONMENT, CONSERVATION AND PARKS / NOISE ASSESSMENT

Filename: ola1.te              Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: HurontSB (day/night)
-------------------------------------------
Car traffic volume  :  8914/990   veh/TimePeriod  *
Medium truck volume :   369/41    veh/TimePeriod  *
Heavy truck volume  :   302/34    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):  10650
    Percentage of Annual Growth        :   2.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   3.85
    Heavy Truck  % of Total Volume     :   3.15
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 1: HurontSB (day/night)
-------------------------------------------
Angle1   Angle2           : -62.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  46.00 / 46.00  m
Receiver height           :   1.50 / 1.50   m
Topography                :      4       (Elevated; with barrier)
Barrier angle1            : -62.00 deg   Angle2 : 90.00 deg
Barrier height            :   0.00 m
Elevation                 :   8.70 m
Barrier receiver distance :   6.00 / 6.00   m
Source elevation          :   0.00 m
Receiver elevation        :   8.70 m
Barrier elevation         :   8.70 m
Reference angle           :   0.00

Road data, segment # 2: HurontNB (day/night)
-------------------------------------------
Car traffic volume  :  8914/990   veh/TimePeriod  *
Medium truck volume :   369/41    veh/TimePeriod  *
Heavy truck volume  :   302/34    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):  10650
    Percentage of Annual Growth        :   2.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   3.85
    Heavy Truck  % of Total Volume     :   3.15
    Day (16 hrs) % of Total Volume     :  90.00
```

```
Data for Segment # 2: HurontNB (day/night)
-----------------------------------------
Angle1   Angle2           : -62.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  55.00 / 55.00  m
Receiver height           :   1.50 / 1.50   m
Topography                :      4       (Elevated; with barrier)
Barrier angle1            : -62.00 deg   Angle2 : 90.00 deg
Barrier height            :   0.00 m
Elevation                 :   8.70 m
Barrier receiver distance :   6.00 / 6.00   m
Source elevation          :   0.00 m
Receiver elevation        :   8.70 m
Barrier elevation         :   8.70 m
Reference angle           :   0.00

Road data, segment # 3: LakeshWB (day/night)
-------------------------------------------
Car traffic volume  : 15518/1724  veh/TimePeriod  *
Medium truck volume :   449/50    veh/TimePeriod  *
Heavy truck volume  :   368/41    veh/TimePeriod  *
Posted speed limit  :    40 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):  18150
    Percentage of Annual Growth        :   2.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   2.75
    Heavy Truck  % of Total Volume     :   2.25
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 3: LakeshWB (day/night)
-----------------------------------------
Angle1   Angle2           : -90.00 deg   8.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 186.00 / 186.00 m
Receiver height           :   1.50 / 1.50   m
Topography                :      4       (Elevated; with barrier)
Barrier angle1            : -90.00 deg   Angle2 : 8.00 deg
Barrier height            :   0.00 m
Elevation                 :   8.70 m
Barrier receiver distance :  20.00 / 20.00  m
Source elevation          :   0.00 m
Receiver elevation        :   8.70 m
Barrier elevation         :   8.70 m
Reference angle           :   0.00
```

```
Road data, segment # 4: LakeshEB (day/night)
-------------------------------------------
Car traffic volume  : 15518/1724  veh/TimePeriod  *
Medium truck volume :   449/50    veh/TimePeriod  *
Heavy truck volume  :   368/41    veh/TimePeriod  *
Posted speed limit  :    40 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):  18150
    Percentage of Annual Growth        :   2.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   2.75
    Heavy Truck  % of Total Volume     :   2.25
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 4: LakeshEB (day/night)
-------------------------------------------
Angle1   Angle2           : -90.00 deg   8.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 194.00 / 194.00 m
Receiver height           :   1.50 / 1.50   m
Topography                :      4       (Elevated; with barrier)
Barrier angle1            : -90.00 deg   Angle2 : 8.00 deg
Barrier height            :   0.00 m
Elevation                 :   8.70 m
Barrier receiver distance :  20.00 / 20.00  m
Source elevation          :   0.00 m
Receiver elevation        :   8.70 m
Barrier elevation         :   8.70 m
Reference angle           :   0.00

Results segment # 1: HurontSB (day)
-----------------------------------
Source height = 1.33 m

Barrier height for grazing incidence
-----------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.33 !        1.50 !        0.34 !         9.04

ROAD (0.00 + 56.98 + 0.00) = 56.98 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -62     90   0.40  65.28   0.00  -6.83  -1.46   0.00   0.00  -4.58  52.40*
   -62     90   0.40  65.28   0.00  -6.83  -1.46   0.00   0.00   0.00  56.98
-------------------------------------------------------------------------------

 * Bright Zone !

Segment Leq : 56.98 dBA
```

Results segment # 2: HurontNB (day)

Source height = 1.33 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.33	1.50	0.53	9.23

ROAD (0.00 + 55.89 + 0.00) = 55.89 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-62	90	0.40	65.28	0.00	-7.92	-1.46	0.00	0.00	-3.94	51.95*
-62	90	0.40	65.28	0.00	-7.92	-1.46	0.00	0.00	0.00	55.89

* Bright Zone !

Segment Leq : 55.89 dBA

Results segment # 3: LakeshWB (day)

Source height = 1.23 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.23	1.50	0.53	9.23

ROAD (0.00 + 51.08 + 0.00) = 51.08 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	8	0.00	64.65	0.00	-10.93	-2.64	0.00	0.00	-4.71	46.37*
-90	8	0.00	64.65	0.00	-10.93	-2.64	0.00	0.00	0.00	51.08

* Bright Zone !

Segment Leq : 51.08 dBA

```
Results segment # 4: LakeshEB (day)
-----------------------------------

Source height = 1.23 m

Barrier height for grazing incidence
-----------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.23 !        1.50 !        0.57 !         9.27

ROAD (0.00 + 50.89 + 0.00) = 50.89 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90      8   0.00  64.65   0.00 -11.12  -2.64   0.00   0.00  -4.66  46.23*
   -90      8   0.00  64.65   0.00 -11.12  -2.64   0.00   0.00   0.00  50.89
-------------------------------------------------------------------------------

 * Bright Zone !

Segment Leq : 50.89 dBA

Total Leq All Segments: 60.56 dBA

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

Source height = 1.34 m

Barrier height for grazing incidence
-----------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.34 !        1.50 !        0.34 !         9.04

ROAD (0.00 + 50.48 + 0.00) = 50.48 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -62     90   0.40  58.78   0.00  -6.83  -1.46   0.00   0.00  -4.58  45.90*
   -62     90   0.40  58.78   0.00  -6.83  -1.46   0.00   0.00   0.00  50.48
-------------------------------------------------------------------------------

 * Bright Zone !

Segment Leq : 50.48 dBA
```

Results segment # 2: HurontNB (night)

Source height = 1.34 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.34	1.50	0.53	9.23

ROAD (0.00 + 49.39 + 0.00) = 49.39 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-62	90	0.40	58.78	0.00	-7.92	-1.46	0.00	0.00	-3.94	45.45*
-62	90	0.40	58.78	0.00	-7.92	-1.46	0.00	0.00	0.00	49.39

* Bright Zone !

Segment Leq : 49.39 dBA

Results segment # 3: LakeshWB (night)

Source height = 1.23 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.23	1.50	0.54	9.24

ROAD (0.00 + 44.55 + 0.00) = 44.55 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	8	0.00	58.13	0.00	-10.93	-2.64	0.00	0.00	-4.71	39.84*
-90	8	0.00	58.13	0.00	-10.93	-2.64	0.00	0.00	0.00	44.55

* Bright Zone !

Segment Leq : 44.55 dBA

```
Results segment # 4: LakeshEB (night)
-------------------------------------

Source height = 1.23 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.23 !        1.50 !        0.57 !         9.27

ROAD (0.00 + 44.37 + 0.00) = 44.37 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90      8   0.00  58.13   0.00 -11.12  -2.64   0.00   0.00  -4.66  39.71*
   -90      8   0.00  58.13   0.00 -11.12  -2.64   0.00   0.00   0.00  44.37
-------------------------------------------------------------------------------

 * Bright Zone !

Segment Leq : 44.37 dBA

Total Leq All Segments: 54.06 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 60.56
                           (NIGHT): 54.06
```

```
STAMSON 5.04        NORMAL REPORT        Date: 22-08-2024 09:04:11
MINISTRY OF ENVIRONMENT, CONSERVATION AND PARKS / NOISE ASSESSMENT

Filename: ola2.te              Time Period: Day/Night 16/8 hours
Description:

Rail data, segment # 1: CNR (day/night)
---------------------------------------
Train            ! Trains      ! Speed !# loc !# Cars! Eng  !Cont
Type             !             !(km/h) !/Train!/Train! type !weld
-----------------+-------------+-------+------+------+------+----
  1. WayF        !   0.0/1.0   ! 100.0 !  4.0 ! 25.0 !Diesel! Yes
  2. Pass        !  13.0/1.0   ! 150.0 !  2.0 ! 10.0 !Diesel! Yes
  3. GO1         ! 161.0/1.0   ! 153.0 !  1.0 ! 12.0 !Diesel! Yes
  4. GO2         !  53.0/1.0   ! 153.0 !  2.0 ! 12.0 !Diesel! Yes

Data for Segment # 1: CNR (day/night)
-------------------------------------
Angle1   Angle2           :  -7.00 deg   31.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 205.00 / 205.00 m
Receiver height           :   1.50 / 4.50   m
Topography                :      2       (Flat/gentle slope; with barrier)
No Whistle
Barrier angle1            :  -7.00 deg   Angle2 : 31.00 deg
Barrier height            :   0.00 m
Barrier receiver distance :  15.00 / 15.00  m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00

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

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       4.00 !        1.50 !        1.68 !         1.68
       0.50 !        1.50 !        1.43 !         1.43
LOCOMOTIVE (0.00 + 63.41 + 0.00) = 63.41 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
    -7     31   0.00  81.52 -11.36  -6.75   0.00   0.00   0.00  63.41*
    -7     31   0.00  81.52 -11.36  -6.75   0.00   0.00   0.00  63.41
-------------------------------------------------------------------------
 * Bright Zone !

WHEEL (0.00 + 55.80 + 0.00) = 55.80 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
    -7     31   0.00  73.91 -11.36  -6.75   0.00   0.00  -0.02  55.78*
    -7     31   0.00  73.91 -11.36  -6.75   0.00   0.00   0.00  55.80
-------------------------------------------------------------------------
 * Bright Zone !
Segment Leq : 64.10 dBA

Total Leq All Segments: 64.10 dBA (55.94 dBA Corrected)
```

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

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       4.00 !        4.50 !        4.46 !         4.46
       0.50 !        4.50 !        4.21 !         4.21

LOCOMOTIVE (0.00 + 49.94 + 0.00) = 49.94 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
    -7     31   0.00  68.05 -11.36  -6.75   0.00   0.00   0.00  49.94*
    -7     31   0.00  68.05 -11.36  -6.75   0.00   0.00   0.00  49.94
-------------------------------------------------------------------------

 * Bright Zone !

WHEEL (0.00 + 41.34 + 0.00) = 41.34 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
    -7     31   0.00  59.45 -11.36  -6.75   0.00   0.00   0.00  41.34*
    -7     31   0.00  59.45 -11.36  -6.75   0.00   0.00   0.00  41.34
-------------------------------------------------------------------------

 * Bright Zone !

Segment Leq : 50.50 dBA

Total Leq All Segments: 50.50 dBA

Road data, segment # 1: HurontSB (day/night)
--------------------------------------------
Car traffic volume  :  8914/990   veh/TimePeriod  *
Medium truck volume :   369/41    veh/TimePeriod  *
Heavy truck volume  :   302/34    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):  10650
    Percentage of Annual Growth        :   2.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   3.85
    Heavy Truck  % of Total Volume     :   3.15
    Day (16 hrs) % of Total Volume     :  90.00
```

```
Data for Segment # 1: HurontSB (day/night)
-------------------------------------------
Angle1   Angle2           : -83.00 deg   50.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  35.00 / 35.00  m
Receiver height           :   1.50 / 1.50   m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -83.00 deg   Angle2 : 50.00 deg
Barrier height            :   0.00 m
Barrier receiver distance :   3.00 / 3.00   m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00

Road data, segment # 2: HurontNB (day/night)
---------------------------------------------
Car traffic volume  :  8914/990   veh/TimePeriod  *
Medium truck volume :   369/41    veh/TimePeriod  *
Heavy truck volume  :   302/34    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):  10650
    Percentage of Annual Growth        :   2.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   3.85
    Heavy Truck  % of Total Volume     :   3.15
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 2: HurontNB (day/night)
-------------------------------------------
Angle1   Angle2           : -83.00 deg   50.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  43.00 / 43.00  m
Receiver height           :   1.50 / 1.50   m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -83.00 deg   Angle2 : 50.00 deg
Barrier height            :   0.00 m
Barrier receiver distance :   3.00 / 3.00   m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00
```

```
Results segment # 1: HurontSB (day)
-----------------------------------

Source height = 1.33 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.33 !        1.50 !        1.49 !         1.49

ROAD (0.00 + 56.99 + 0.00) = 56.99 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -83     50   0.66  65.28   0.00  -6.11  -2.17   0.00   0.00  -0.02  56.97*
   -83     50   0.66  65.28   0.00  -6.11  -2.17   0.00   0.00   0.00  56.99
-------------------------------------------------------------------------------

 * Bright Zone !

Segment Leq : 56.99 dBA

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

Source height = 1.33 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.33 !        1.50 !        1.49 !         1.49

ROAD (0.00 + 55.51 + 0.00) = 55.51 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -83     50   0.66  65.28   0.00  -7.59  -2.17   0.00   0.00  -0.02  55.49*
   -83     50   0.66  65.28   0.00  -7.59  -2.17   0.00   0.00   0.00  55.51
-------------------------------------------------------------------------------

 * Bright Zone !

Segment Leq : 55.51 dBA

Total Leq All Segments: 59.32 dBA
```

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

Source height = 1.34 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.34 !        1.50 !        1.49 !         1.49

ROAD (0.00 + 50.49 + 0.00) = 50.49 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -83     50   0.66  58.78   0.00  -6.11  -2.17   0.00   0.00  -0.02  50.47*
   -83     50   0.66  58.78   0.00  -6.11  -2.17   0.00   0.00   0.00  50.49
-------------------------------------------------------------------------------

 * Bright Zone !

Segment Leq : 50.49 dBA

Results segment # 2: HurontNB (night)
-------------------------------------

Source height = 1.34 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.34 !        1.50 !        1.49 !         1.49

ROAD (0.00 + 49.01 + 0.00) = 49.01 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -83     50   0.66  58.78   0.00  -7.59  -2.17   0.00   0.00  -0.02  48.99*
   -83     50   0.66  58.78   0.00  -7.59  -2.17   0.00   0.00   0.00  49.01
-------------------------------------------------------------------------------

 * Bright Zone !

Segment Leq : 49.01 dBA

Total Leq All Segments: 52.82 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 65.35 (60.96 dBA Corrected)
                           (NIGHT): 54.83
```

APPENDIX E

STATIONARY NOISE LEVEL CALCULATIONS

Point Sources

Name	Sel.	M.	ID	Result. PWL			Type	Lw / Li		Correction				Operating Time			K0	Freq.	Direct.	Height		Coordinates		
				Day	Evening	Night		Value	norm.	Day	Evening	Night	Area	Day	Special	Night						X	Y	Z
				(dBA)	(dBA)	(dBA)			dB(A)	dB(A)	dB(A)	dB(A)	(m²)	(min)	(min)	(min)	(dB)	(Hz)		(m)		(m)	(m)	(m)
RefPlus CLD021-5 (2nd fan does not run)		~	Unmit_COND1	89.4	89.4	89.4	Lw	COND1		0.0	0.0	0.0					0.0		(none)	1.60	g	17614376.52	4823462.51	11.30
RefPlus TVD-038-5		~	Unmit_COND4	90.2	90.2	90.2	Lw	COND4		0.0	0.0	0.0					0.0		(none)	2.00	g	17614371.67	4823481.51	11.70
Trane TTR042C100A3		~	Unmit_AC3	79.1	79.1	79.1	Lw	AC3		0.0	0.0	0.0					0.0		(none)	1.00	g	17614357.82	4823492.30	10.70
AC Unit (+ 5 dB tonality)		~	Unmit_AC4	85.1	85.1	85.1	Lw	AC4		5.0	5.0	5.0					0.0		(none)	1.10	g	17614360.77	4823495.30	10.80
Condenser At Grade Trane RAUA-2506MA		~	Unmit_COND_AG	92.8	92.8	92.8	Lw	COND_AG		0.0	0.0	0.0					0.0		(none)	1.00	r	17614353.44	4823494.73	1.00
Condenser At GradeTrane RAUA-2506MA		~	CAL	92.8	92.8	92.8	Lw	COND_AG		0.0	0.0	0.0					0.0		(none)	1.00	r	17614353.10	4823495.07	1.00
Condenser At Grade Trane RAUA-2506MA		~	C1Mit_COND_AG	78.0	78.0	78.0	Lw	COND_AG	78.0	0.0	0.0	0.0					0.0		(none)	1.00	r	17614353.44	4823494.73	1.00
RefPlus CLD021-5 (2nd fan does not run)		~	C1Mit_COND1	82.0	82.0	82.0	Lw	COND1	82.0	0.0	0.0	0.0					0.0		(none)	1.60	g	17614376.52	4823462.51	11.30
RefPlus TVD-038-5		~	C1Mit_COND4	80.0	80.0	80.0	Lw	COND4	80.0	0.0	0.0	0.0					0.0		(none)	2.00	g	17614371.67	4823481.51	11.70
Trane TTR042C100A3		~	C1Mit_AC3	79.1	79.1	79.1	Lw	AC3		0.0	0.0	0.0					0.0		(none)	1.00	g	17614357.82	4823492.30	10.70
AC Unit (+ 5 dB tonality)		~	C1Mit_AC4	70.1	70.1	70.1	Lw	AC4		5.0	5.0	5.0					0.0		(none)	1.10	g	17614360.77	4823495.30	10.80
Condenser At Grade Trane RAUA-2506MA			C4Mit_COND_AG	92.8	92.8	92.8	Lw	COND_AG		0.0	0.0	0.0					0.0		(none)	1.00	r	17614353.44	4823494.73	1.00
RefPlus TVD-038-5			C4Mit_COND4	90.2	90.2	90.2	Lw	COND4		0.0	0.0	0.0					0.0		(none)	2.00	g	17614371.67	4823481.51	11.70
RefPlus CLD021-5 (2nd fan does not run)			C4Mit_COND1	89.4	89.4	89.4	Lw	COND1		0.0	0.0	0.0					0.0		(none)	1.60	g	17614376.52	4823462.51	11.30
Trane TTR042C100A3			C4Mit_AC3	79.1	79.1	79.1	Lw	AC3		0.0	0.0	0.0					0.0		(none)	1.00	g	17614357.82	4823492.30	10.70
AC Unit (+ 5 dB tonality)			C4Mit_AC4	85.1	85.1	85.1	Lw	AC4		5.0	5.0	5.0					0.0		(none)	1.10	g	17614360.77	4823495.30	10.80

Sound Level Library

Name	ID	Type	Octave Band Spectrum (dB)											Source
			Weight.	31.5	63	125	250	500	1000	2000	4000	8000	A	lin	
RefPlus CLD021-5 Condenser (1/2 fans)	COND1	Lw		89.5	94.3	95.7	89.8	87.4	83.5	77.8	75.5	74.5	89.4	99.6	Sound Measurements 2022-10-24
RefPlus CLD021-5 Condenser (1/2 fans)	COND2	Lw		77.0	81.9	84.5	78.3	72.5	69.3	64.4	58.5	50.0	75.8	87.7	Sound Measurements 2022-11-02
AC Unit	AC4	Lw		75.5	80.3	89.8	81.1	76.4	73.3	69.3	66.4	64.3	80.1	91.1	Sound Measurements 2022-11-02
RefPlus TVD-038-5 Condenser	COND4	Lw		84.0	89.7	95.0	88.9	88.1	85.4	80.8	75.4	69.2	90.2	98.0	Sound Measurements 2022-11-02
Trane 4TTR4042 (Assumed similar to TTR042)	TTR4042	Lw			81.0	72.0	69.0	69.0	66.0	60.0	57.0	54.0	70.7	82.1	Product Data
Trane TTR042	AC3	Lw		73.4	78.0	86.4	78.0	72.3	71.6	73.6	67.2	63.5	79.1	88.1	Sound Measurements 2022-11-02
Trane RAUA-2506MA	COND_AG	Lw		88.6	89.9	96.0	95.9	91.8	85.9	79.7	74.6	69.2	92.8	100.6	Sound Measurements 2022-11-02

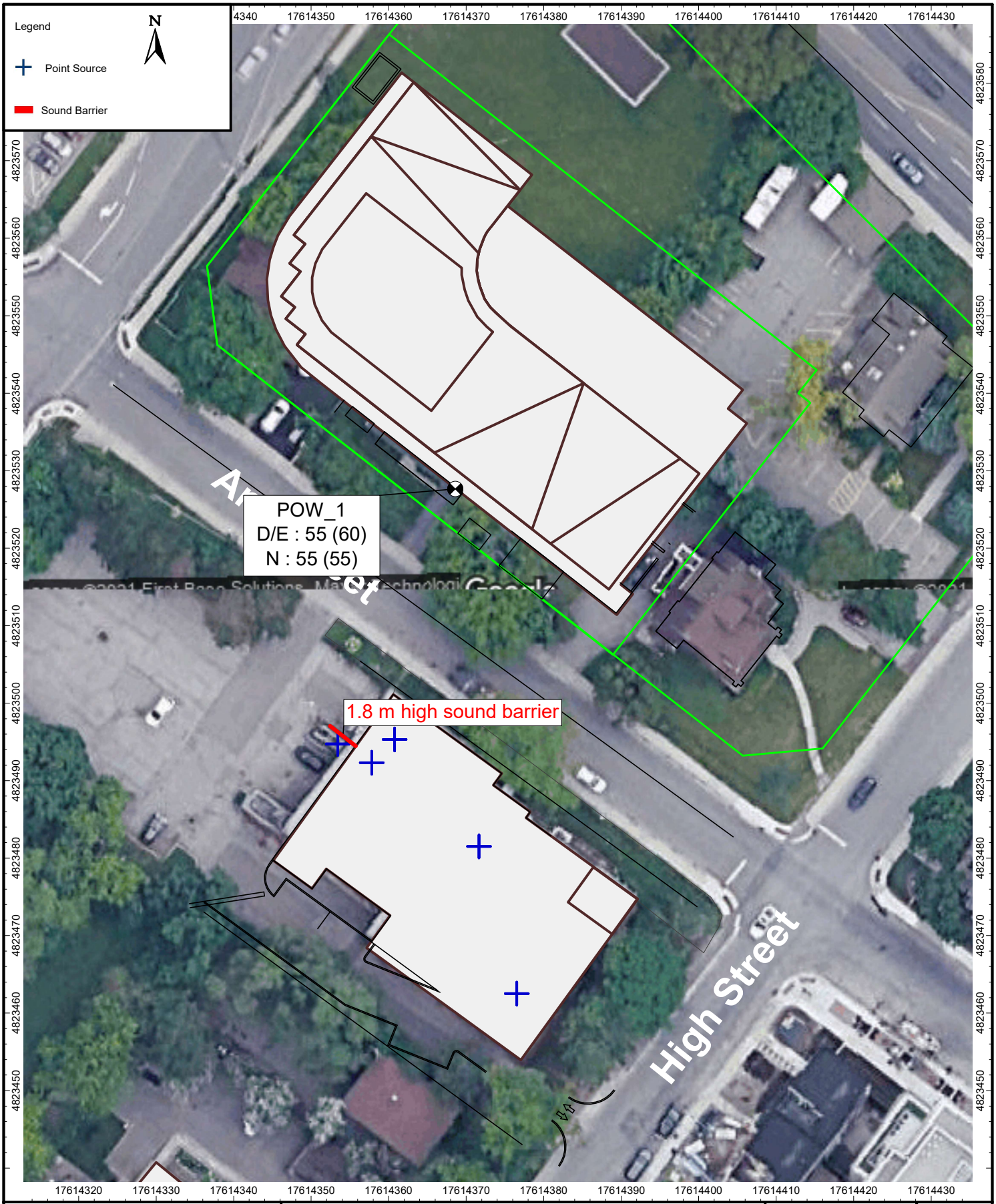
Sound Reduction Index Library

Name	ID	Octave Band Spectrum (dB)										Source
		31.5	63	125	250	500	1000	2000	4000	8000	Rw	
Combustion Muffler Calculated	MUF_CALC	0.0	22.0	37.0	40.0	38.0	37.0	32.0	22.0	18.0	36	
Required Silencer for Cooling Air Intake and Exhaust Opening	INEX_CALC	0.0	6.0	14.0	21.0	26.0	29.0	29.0	23.0	12.0	28	Calculated
Parking Plenum	PARK_PLEN	0.0	1.5	1.5	10.9	7.8	7.9	7.8	13.5	2.2	8	Duct Analysis
Generator Exhaust Plenum	GEN_EX_PLENUM		2.0	2.0	6.0	5.0	5.0	4.0	4.0	3.0	5	Calculated
Generator Room Ducts to Roof	GEN_SMALL_DUCT		1.0	0.0	1.0	2.0	3.0	3.0	3.0	3.0	3	Calculated

Calculation Configuration

Configuration	
Parameter	Value
General	
Max. Error (dB)	0.00
Max. Search Radius (m)	2000.00
Min. Dist Src to Rcvr	0.00
Partition	
Raster Factor	0.50
Max. Length of Section (m)	1000.00
Min. Length of Section (m)	1.00
Min. Length of Section (%)	0.00
Proj. Line Sources	On
Proj. Area Sources	On
Ref. Time	
Daytime Penalty (dB)	0.00
Recr. Time Penalty (dB)	6.00
Night-time Penalty (dB)	10.00
DTM	
Standard Height (m)	0.00
Model of Terrain	Triangulation
Reflection	
max. Order of Reflection	2

Configuration	
Parameter	Value
Search Radius Src	100.00
Search Radius Rcvr	100.00
Max. Distance Source - Rcvr	1000.00 1000.00
Min. Distance Rvcr - Reflector	1.00 1.00
Min. Distance Source - Reflector	0.10
Industrial (ISO 9613 (1996))	
Lateral Diffraction	some Obj
Obst. within Area Src do not shield	On
Screening	Excl. Ground Att. over Barrier
	Dz with limit (20/25)
Barrier Coefficients C1,2,3	3.0 20.0 0.0
Temperature (°C)	10
rel. Humidity (%)	70
Ground Absorption G	0.00
Wind Speed for Dir. (m/s)	3.0
Roads (RLS-90)	
Strictly acc. to RLS-90	
Railways (Schall 03 (1990))	
Strictly acc. to Schall 03 / Schall-Transrapid	
Aircraft (???)	
Strictly acc. to AzB	



VALCOUSTICS
Canada Ltd.
consulting acoustical engineers

Title	Date	Figure
Predicted Sound Levels (dBA) - Class 4 Mitigation	**Aug. 12, 2024**	**E1**
Project Name: **10 West, Mississauga**	Project No.: **121-0145**	

C:\Users\athyagarajan\Box\WIP - Canada\2021\1210145\000\Analysis\Cadna\24-07-04 Mit to Class 4\2024-07-29 10 West - updated building heights.cna

Date Plotted: 22.08.24

Receiver
Name: POW_1
ID: POW_1
X: 17614368.60 m
Y: 4823527.64 m
Z: 10.50 m

Point Source, ISO 9613, Name: "Condenser At Grade Trane RAUA-2506MA", ID: "C4Mit_COND_AG"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
1	17614353.44	4823494.73	1.00	0	DEN	32	49.2	0.0	0.0	0.0	0.0	42.5	0.0	-3.0	0.0	0.0	3.0	0.0	0.0	6.7
1	17614353.44	4823494.73	1.00	0	DEN	63	63.7	0.0	0.0	0.0	0.0	42.5	0.0	-3.0	0.0	0.0	3.7	0.0	0.0	20.5
1	17614353.44	4823494.73	1.00	0	DEN	125	79.9	0.0	0.0	0.0	0.0	42.5	0.0	-2.8	0.0	0.0	4.9	0.0	0.0	35.3
1	17614353.44	4823494.73	1.00	0	DEN	250	87.3	0.0	0.0	0.0	0.0	42.5	0.0	-2.5	0.0	0.0	6.2	0.0	0.0	41.1
1	17614353.44	4823494.73	1.00	0	DEN	500	88.6	0.0	0.0	0.0	0.0	42.5	0.1	-2.5	0.0	0.0	7.8	0.0	0.0	40.7
1	17614353.44	4823494.73	1.00	0	DEN	1000	85.9	0.0	0.0	0.0	0.0	42.5	0.1	-2.7	0.0	0.0	9.9	0.0	0.0	36.1
1	17614353.44	4823494.73	1.00	0	DEN	2000	80.9	0.0	0.0	0.0	0.0	42.5	0.4	-2.8	0.0	0.0	12.2	0.0	0.0	28.7
1	17614353.44	4823494.73	1.00	0	DEN	4000	75.6	0.0	0.0	0.0	0.0	42.5	1.2	-2.8	0.0	0.0	14.7	0.0	0.0	20.0
1	17614353.44	4823494.73	1.00	0	DEN	8000	68.1	0.0	0.0	0.0	0.0	42.5	4.4	-2.8	0.0	0.0	17.4	0.0	0.0	6.6
2	17614353.44	4823494.73	1.00	1	DEN	125	79.9	0.0	0.0	0.0	0.0	42.7	0.0	-2.8	0.0	0.0	8.3	0.0	2.0	29.7
2	17614353.44	4823494.73	1.00	1	DEN	250	87.3	0.0	0.0	0.0	0.0	42.7	0.0	-2.5	0.0	0.0	8.6	0.0	2.0	36.5
2	17614353.44	4823494.73	1.00	1	DEN	500	88.6	0.0	0.0	0.0	0.0	42.7	0.1	-2.5	0.0	0.0	9.6	0.0	2.0	36.7
2	17614353.44	4823494.73	1.00	1	DEN	1000	85.9	0.0	0.0	0.0	0.0	42.7	0.1	-2.7	0.0	0.0	11.4	0.0	2.0	32.4
2	17614353.44	4823494.73	1.00	1	DEN	2000	80.9	0.0	0.0	0.0	0.0	42.7	0.4	-2.8	0.0	0.0	13.5	0.0	2.0	25.2
2	17614353.44	4823494.73	1.00	1	DEN	4000	75.6	0.0	0.0	0.0	0.0	42.7	1.3	-2.8	0.0	0.0	15.9	0.0	2.0	16.6
2	17614353.44	4823494.73	1.00	1	DEN	8000	68.1	0.0	0.0	0.0	0.0	42.7	4.5	-2.8	0.0	0.0	18.5	0.0	2.0	3.2
3	17614353.44	4823494.73	1.00	1	DEN	32	49.2	0.0	0.0	0.0	0.0	43.3	0.0	-3.0	0.0	0.0	8.0	0.0	2.0	-1.1
3	17614353.44	4823494.73	1.00	1	DEN	63	63.7	0.0	0.0	0.0	0.0	43.3	0.0	-3.0	0.0	0.0	8.2	0.0	2.0	13.2
3	17614353.44	4823494.73	1.00	1	DEN	125	79.9	0.0	0.0	0.0	0.0	43.3	0.0	-2.8	0.0	0.0	8.4	0.0	2.0	29.0
3	17614353.44	4823494.73	1.00	1	DEN	250	87.3	0.0	0.0	0.0	0.0	43.3	0.0	-2.5	0.0	0.0	8.7	0.0	2.0	35.7
3	17614353.44	4823494.73	1.00	1	DEN	500	88.6	0.0	0.0	0.0	0.0	43.3	0.1	-2.4	0.0	0.0	9.8	0.0	2.0	35.8
3	17614353.44	4823494.73	1.00	1	DEN	1000	85.9	0.0	0.0	0.0	0.0	43.3	0.2	-2.7	0.0	0.0	11.7	0.0	2.0	31.5
3	17614353.44	4823494.73	1.00	1	DEN	2000	80.9	0.0	0.0	0.0	0.0	43.3	0.4	-2.8	0.0	0.0	13.9	0.0	2.0	24.1
3	17614353.44	4823494.73	1.00	1	DEN	4000	75.6	0.0	0.0	0.0	0.0	43.3	1.4	-2.8	0.0	0.0	16.3	0.0	2.0	15.4
3	17614353.44	4823494.73	1.00	1	DEN	8000	68.1	0.0	0.0	0.0	0.0	43.3	4.8	-2.8	0.0	0.0	19.1	0.0	2.0	1.7
4	17614353.44	4823494.73	1.00	2	DEN	125	79.9	0.0	0.0	0.0	0.0	43.5	0.0	-2.8	0.0	0.0	8.4	0.0	4.0	26.8
4	17614353.44	4823494.73	1.00	2	DEN	250	87.3	0.0	0.0	0.0	0.0	43.5	0.0	-2.5	0.0	0.0	8.8	0.0	4.0	33.5
4	17614353.44	4823494.73	1.00	2	DEN	500	88.6	0.0	0.0	0.0	0.0	43.5	0.1	-2.5	0.0	0.0	9.9	0.0	4.0	33.6
4	17614353.44	4823494.73	1.00	2	DEN	1000	85.9	0.0	0.0	0.0	0.0	43.5	0.2	-2.7	0.0	0.0	11.8	0.0	4.0	29.2
4	17614353.44	4823494.73	1.00	2	DEN	2000	80.9	0.0	0.0	0.0	0.0	43.5	0.4	-2.8	0.0	0.0	13.9	0.0	4.0	21.9
4	17614353.44	4823494.73	1.00	2	DEN	4000	75.6	0.0	0.0	0.0	0.0	43.5	1.4	-2.8	0.0	0.0	16.4	0.0	4.0	13.1
4	17614353.44	4823494.73	1.00	2	DEN	8000	68.1	0.0	0.0	0.0	0.0	43.5	4.9	-2.8	0.0	0.0	19.1	0.0	4.0	-0.7

Point Source, ISO 9613, Name: "RefPlus TVD-038-5", ID: "C4Mit_COND4"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5	17614371.67	4823481.51	11.70	0	DEN	32	44.6	0.0	0.0	0.0	0.0	44.3	0.0	-3.0	0.0	0.0	0.0	0.0	0.0	3.3
5	17614371.67	4823481.51	11.70	0	DEN	63	63.5	0.0	0.0	0.0	0.0	44.3	0.0	-3.0	0.0	0.0	0.0	0.0	0.0	22.2
5	17614371.67	4823481.51	11.70	0	DEN	125	78.9	0.0	0.0	0.0	0.0	44.3	0.0	-2.7	0.0	0.0	0.0	0.0	0.0	37.3
5	17614371.67	4823481.51	11.70	0	DEN	250	80.3	0.0	0.0	0.0	0.0	44.3	0.0	-2.7	0.0	0.0	0.0	0.0	0.0	38.7
5	17614371.67	4823481.51	11.70	0	DEN	500	84.9	0.0	0.0	0.0	0.0	44.3	0.1	-2.7	0.0	0.0	0.0	0.0	0.0	43.3
5	17614371.67	4823481.51	11.70	0	DEN	1000	85.4	0.0	0.0	0.0	0.0	44.3	0.2	-2.7	0.0	0.0	0.0	0.0	0.0	43.6
5	17614371.67	4823481.51	11.70	0	DEN	2000	82.0	0.0	0.0	0.0	0.0	44.3	0.4	-2.7	0.0	0.0	0.0	0.0	0.0	40.0
5	17614371.67	4823481.51	11.70	0	DEN	4000	76.4	0.0	0.0	0.0	0.0	44.3	1.5	-2.7	0.0	0.0	0.0	0.0	0.0	33.3
5	17614371.67	4823481.51	11.70	0	DEN	8000	68.1	0.0	0.0	0.0	0.0	44.3	5.4	-2.7	0.0	0.0	0.0	0.0	0.0	21.2
6	17614371.67	4823481.51	11.70	1	DEN	32	44.6	0.0	0.0	0.0	0.0	44.9	0.0	-3.0	0.0	0.0	0.0	0.0	2.0	0.7
6	17614371.67	4823481.51	11.70	1	DEN	63	63.5	0.0	0.0	0.0	0.0	44.9	0.0	-3.0	0.0	0.0	0.0	0.0	2.0	19.6
6	17614371.67	4823481.51	11.70	1	DEN	125	78.9	0.0	0.0	0.0	0.0	44.9	0.0	-2.8	0.0	0.0	0.0	0.0	2.0	34.7
6	17614371.67	4823481.51	11.70	1	DEN	250	80.3	0.0	0.0	0.0	0.0	44.9	0.1	-2.8	0.0	0.0	0.0	0.0	2.0	36.1
6	17614371.67	4823481.51	11.70	1	DEN	500	84.9	0.0	0.0	0.0	0.0	44.9	0.1	-2.8	0.0	0.0	0.0	0.0	2.0	40.7
6	17614371.67	4823481.51	11.70	1	DEN	1000	85.4	0.0	0.0	0.0	0.0	44.9	0.2	-2.8	0.0	0.0	0.0	0.0	2.0	41.1
6	17614371.67	4823481.51	11.70	1	DEN	2000	82.0	0.0	0.0	0.0	0.0	44.9	0.5	-2.8	0.0	0.0	0.0	0.0	2.0	37.4

Point Source, ISO 9613, Name: "RefPlus TVD-038-5", ID: "C4Mit_COND4"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
6	17614371.67	4823481.51	11.70	1	DEN	4000	76.4	0.0	0.0	0.0	0.0	44.9	1.6	-2.8	0.0	0.0	0.0	0.0	2.0	30.7
6	17614371.67	4823481.51	11.70	1	DEN	8000	68.1	0.0	0.0	0.0	0.0	44.9	5.8	-2.8	0.0	0.0	0.0	0.0	2.0	18.3

Point Source, ISO 9613, Name: "AC Unit (+ 5 dB tonality)", ID: "C4Mit_AC4"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
7	17614360.77	4823495.30	10.80	0	DEN	32	41.1	0.0	0.0	0.0	0.0	41.4	0.0	-3.0	0.0	0.0	0.0	0.0	0.0	2.7
7	17614360.77	4823495.30	10.80	0	DEN	63	59.1	0.0	0.0	0.0	0.0	41.4	0.0	-3.0	0.0	0.0	0.0	0.0	0.0	20.7
7	17614360.77	4823495.30	10.80	0	DEN	125	78.7	0.0	0.0	0.0	0.0	41.4	0.0	-2.7	0.0	0.0	0.0	0.0	0.0	39.9
7	17614360.77	4823495.30	10.80	0	DEN	250	77.5	0.0	0.0	0.0	0.0	41.4	0.0	-2.7	0.0	0.0	0.0	0.0	0.0	38.7
7	17614360.77	4823495.30	10.80	0	DEN	500	78.2	0.0	0.0	0.0	0.0	41.4	0.1	-2.7	0.0	0.0	0.0	0.0	0.0	39.4
7	17614360.77	4823495.30	10.80	0	DEN	1000	78.3	0.0	0.0	0.0	0.0	41.4	0.1	-2.7	0.0	0.0	0.0	0.0	0.0	39.4
7	17614360.77	4823495.30	10.80	0	DEN	2000	75.5	0.0	0.0	0.0	0.0	41.4	0.3	-2.7	0.0	0.0	0.0	0.0	0.0	36.4
7	17614360.77	4823495.30	10.80	0	DEN	4000	72.4	0.0	0.0	0.0	0.0	41.4	1.1	-2.7	0.0	0.0	0.0	0.0	0.0	32.6
7	17614360.77	4823495.30	10.80	0	DEN	8000	68.3	0.0	0.0	0.0	0.0	41.4	3.9	-2.7	0.0	0.0	0.0	0.0	0.0	25.6
8	17614360.77	4823495.30	10.80	1	DEN	32	41.1	0.0	0.0	0.0	0.0	42.4	0.0	-3.0	0.0	0.0	0.0	0.0	2.0	-0.2
8	17614360.77	4823495.30	10.80	1	DEN	63	59.1	0.0	0.0	0.0	0.0	42.4	0.0	-3.0	0.0	0.0	0.0	0.0	2.0	17.8
8	17614360.77	4823495.30	10.80	1	DEN	125	78.7	0.0	0.0	0.0	0.0	42.4	0.0	-2.8	0.0	0.0	0.0	0.0	2.0	37.1
8	17614360.77	4823495.30	10.80	1	DEN	250	77.5	0.0	0.0	0.0	0.0	42.4	0.0	-2.8	0.0	0.0	0.0	0.0	2.0	35.9
8	17614360.77	4823495.30	10.80	1	DEN	500	78.2	0.0	0.0	0.0	0.0	42.4	0.1	-2.8	0.0	0.0	0.0	0.0	2.0	36.6
8	17614360.77	4823495.30	10.80	1	DEN	1000	78.3	0.0	0.0	0.0	0.0	42.4	0.1	-2.8	0.0	0.0	0.0	0.0	2.0	36.6
8	17614360.77	4823495.30	10.80	1	DEN	2000	75.5	0.0	0.0	0.0	0.0	42.4	0.4	-2.8	0.0	0.0	0.0	0.0	2.0	33.6
8	17614360.77	4823495.30	10.80	1	DEN	4000	72.4	0.0	0.0	0.0	0.0	42.4	1.2	-2.8	0.0	0.0	0.0	0.0	2.0	29.7
8	17614360.77	4823495.30	10.80	1	DEN	8000	68.3	0.0	0.0	0.0	0.0	42.4	4.3	-2.8	0.0	0.0	0.0	0.0	2.0	22.4

Point Source, ISO 9613, Name: "RefPlus CLD021-5 (2nd fan does not run)", ID: "C4Mit_COND1"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
9	17614376.52	4823462.51	11.30	0	DEN	32	50.1	0.0	0.0	0.0	0.0	47.3	0.0	-3.0	0.0	0.0	0.0	0.0	0.0	5.8
9	17614376.52	4823462.51	11.30	0	DEN	63	68.1	0.0	0.0	0.0	0.0	47.3	0.0	-3.0	0.0	0.0	0.0	0.0	0.0	23.8
9	17614376.52	4823462.51	11.30	0	DEN	125	79.6	0.0	0.0	0.0	0.0	47.3	0.0	-2.8	0.0	0.0	0.0	0.0	0.0	35.0
9	17614376.52	4823462.51	11.30	0	DEN	250	81.2	0.0	0.0	0.0	0.0	47.3	0.1	-2.8	0.0	0.0	0.0	0.0	0.0	36.6
9	17614376.52	4823462.51	11.30	0	DEN	500	84.2	0.0	0.0	0.0	0.0	47.3	0.1	-2.8	0.0	0.0	0.0	0.0	0.0	39.5
9	17614376.52	4823462.51	11.30	0	DEN	1000	83.5	0.0	0.0	0.0	0.0	47.3	0.2	-2.8	0.0	0.0	0.0	0.0	0.0	38.7
9	17614376.52	4823462.51	11.30	0	DEN	2000	79.0	0.0	0.0	0.0	0.0	47.3	0.6	-2.8	0.0	0.0	0.0	0.0	0.0	33.8
9	17614376.52	4823462.51	11.30	0	DEN	4000	76.5	0.0	0.0	0.0	0.0	47.3	2.2	-2.8	0.0	0.0	0.0	0.0	0.0	29.8
9	17614376.52	4823462.51	11.30	0	DEN	8000	73.4	0.0	0.0	0.0	0.0	47.3	7.7	-2.8	0.0	0.0	0.0	0.0	0.0	21.2
10	17614376.52	4823462.51	11.30	1	DEN	32	50.1	0.0	0.0	0.0	0.0	54.3	0.0	-3.0	0.0	0.0	0.0	0.0	2.0	-3.2
10	17614376.52	4823462.51	11.30	1	DEN	63	68.1	0.0	0.0	0.0	0.0	54.3	0.0	-3.0	0.0	0.0	0.0	0.0	2.0	14.8
10	17614376.52	4823462.51	11.30	1	DEN	125	79.6	0.0	0.0	0.0	0.0	54.3	0.1	-2.9	0.0	0.0	0.0	0.0	2.0	26.2
10	17614376.52	4823462.51	11.30	1	DEN	250	81.2	0.0	0.0	0.0	0.0	54.3	0.2	-2.9	0.0	0.0	0.0	0.0	2.0	27.7
10	17614376.52	4823462.51	11.30	1	DEN	500	84.2	0.0	0.0	0.0	0.0	54.3	0.3	-2.9	0.0	0.0	0.0	0.0	2.0	30.5
10	17614376.52	4823462.51	11.30	1	DEN	1000	83.5	0.0	0.0	0.0	0.0	54.3	0.5	-2.9	0.0	0.0	0.0	0.0	2.0	29.6
10	17614376.52	4823462.51	11.30	1	DEN	2000	79.0	0.0	0.0	0.0	0.0	54.3	1.4	-2.9	0.0	0.0	0.0	0.0	2.0	24.2
10	17614376.52	4823462.51	11.30	1	DEN	4000	76.5	0.0	0.0	0.0	0.0	54.3	4.8	-2.9	0.0	0.0	0.0	0.0	2.0	18.3
10	17614376.52	4823462.51	11.30	1	DEN	8000	73.4	0.0	0.0	0.0	0.0	54.3	17.1	-2.9	0.0	0.0	0.0	0.0	2.0	3.0
11	17614376.52	4823462.51	11.30	1	DEN	32	50.1	0.0	0.0	0.0	0.0	47.7	0.0	-3.0	0.0	0.0	0.0	0.0	2.0	3.4
11	17614376.52	4823462.51	11.30	1	DEN	63	68.1	0.0	0.0	0.0	0.0	47.7	0.0	-3.0	0.0	0.0	0.0	0.0	2.0	21.4
11	17614376.52	4823462.51	11.30	1	DEN	125	79.6	0.0	0.0	0.0	0.0	47.7	0.0	-2.8	0.0	0.0	0.0	0.0	2.0	32.7
11	17614376.52	4823462.51	11.30	1	DEN	250	81.2	0.0	0.0	0.0	0.0	47.7	0.1	-2.8	0.0	0.0	0.0	0.0	2.0	34.2
11	17614376.52	4823462.51	11.30	1	DEN	500	84.2	0.0	0.0	0.0	0.0	47.7	0.1	-2.8	0.0	0.0	0.0	0.0	2.0	37.2
11	17614376.52	4823462.51	11.30	1	DEN	1000	83.5	0.0	0.0	0.0	0.0	47.7	0.3	-2.8	0.0	0.0	0.0	0.0	2.0	36.3
11	17614376.52	4823462.51	11.30	1	DEN	2000	79.0	0.0	0.0	0.0	0.0	47.7	0.7	-2.8	0.0	0.0	0.0	0.0	2.0	31.4
11	17614376.52	4823462.51	11.30	1	DEN	4000	76.5	0.0	0.0	0.0	0.0	47.7	2.2	-2.8	0.0	0.0	0.0	0.0	2.0	27.4
11	17614376.52	4823462.51	11.30	1	DEN	8000	73.4	0.0	0.0	0.0	0.0	47.7	8.0	-2.8	0.0	0.0	0.0	0.0	2.0	18.5
12	17614376.52	4823462.51	11.30	2	DEN	32	50.1	0.0	0.0	0.0	0.0	54.5	0.0	-3.0	0.0	0.0	0.0	0.0	4.0	-5.4
12	17614376.52	4823462.51	11.30	2	DEN	63	68.1	0.0	0.0	0.0	0.0	54.5	0.0	-3.0	0.0	0.0	0.0	0.0	4.0	12.6
12	17614376.52	4823462.51	11.30	2	DEN	125	79.6	0.0	0.0	0.0	0.0	54.5	0.1	-3.0	0.0	0.0	0.0	0.0	4.0	24.0
12	17614376.52	4823462.51	11.30	2	DEN	250	81.2	0.0	0.0	0.0	0.0	54.5	0.2	-3.0	0.0	0.0	0.0	0.0	4.0	25.5
12	17614376.52	4823462.51	11.30	2	DEN	500	84.2	0.0	0.0	0.0	0.0	54.5	0.3	-3.0	0.0	0.0	0.0	0.0	4.0	28.3
12	17614376.52	4823462.51	11.30	2	DEN	1000	83.5	0.0	0.0	0.0	0.0	54.5	0.5	-3.0	0.0	0.0	0.0	0.0	4.0	27.4
12	17614376.52	4823462.51	11.30	2	DEN	2000	79.0	0.0	0.0	0.0	0.0	54.5	1.4	-3.0	0.0	0.0	0.0	0.0	4.0	22.0
12	17614376.52	4823462.51	11.30	2	DEN	4000	76.5	0.0	0.0	0.0	0.0	54.5	4.9	-3.0	0.0	0.0	0.0	0.0	4.0	16.0

Point Source, ISO 9613, Name: "RefPlus CLD021-5 (2nd fan does not run)", ID: "C4Mit_COND1"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
12	17614376.52	4823462.51	11.30	2	DEN	8000	73.4	0.0	0.0	0.0	0.0	54.5	17.5	-3.0	0.0	0.0	0.0	0.0	4.0	0.3

Point Source, ISO 9613, Name: "Trane TTR042C100A3", ID: "C4Mit_AC3"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
13	17614357.82	4823492.30	10.70	0	DEN	32	34.0	0.0	0.0	0.0	0.0	42.4	0.0	-3.0	0.0	0.0	0.0	0.0	0.0	-5.4
13	17614357.82	4823492.30	10.70	0	DEN	63	51.8	0.0	0.0	0.0	0.0	42.4	0.0	-3.0	0.0	0.0	0.0	0.0	0.0	12.5
13	17614357.82	4823492.30	10.70	0	DEN	125	70.3	0.0	0.0	0.0	0.0	42.4	0.0	-2.8	0.0	0.0	0.0	0.0	0.0	30.7
13	17614357.82	4823492.30	10.70	0	DEN	250	69.4	0.0	0.0	0.0	0.0	42.4	0.0	-2.8	0.0	0.0	0.0	0.0	0.0	29.8
13	17614357.82	4823492.30	10.70	0	DEN	500	69.1	0.0	0.0	0.0	0.0	42.4	0.1	-2.8	0.0	0.0	0.0	0.0	0.0	29.5
13	17614357.82	4823492.30	10.70	0	DEN	1000	71.6	0.0	0.0	0.0	0.0	42.4	0.1	-2.8	0.0	0.0	0.0	0.0	0.0	31.9
13	17614357.82	4823492.30	10.70	0	DEN	2000	74.8	0.0	0.0	0.0	0.0	42.4	0.4	-2.8	0.0	0.0	0.0	0.0	0.0	34.9
13	17614357.82	4823492.30	10.70	0	DEN	4000	68.2	0.0	0.0	0.0	0.0	42.4	1.2	-2.8	0.0	0.0	0.0	0.0	0.0	27.5
13	17614357.82	4823492.30	10.70	0	DEN	8000	62.4	0.0	0.0	0.0	0.0	42.4	4.3	-2.8	0.0	0.0	0.0	0.0	0.0	18.6
14	17614357.82	4823492.30	10.70	1	DEN	32	34.0	0.0	0.0	0.0	0.0	43.2	0.0	-3.0	0.0	0.0	0.0	0.0	2.0	-8.2
14	17614357.82	4823492.30	10.70	1	DEN	63	51.8	0.0	0.0	0.0	0.0	43.2	0.0	-3.0	0.0	0.0	0.0	0.0	2.0	9.6
14	17614357.82	4823492.30	10.70	1	DEN	125	70.3	0.0	0.0	0.0	0.0	43.2	0.0	-2.7	0.0	0.0	0.0	0.0	2.0	27.8
14	17614357.82	4823492.30	10.70	1	DEN	250	69.4	0.0	0.0	0.0	0.0	43.2	0.0	-2.7	0.0	0.0	0.0	0.0	2.0	26.9
14	17614357.82	4823492.30	10.70	1	DEN	500	69.1	0.0	0.0	0.0	0.0	43.2	0.1	-2.7	0.0	0.0	0.0	0.0	2.0	26.6
14	17614357.82	4823492.30	10.70	1	DEN	1000	71.6	0.0	0.0	0.0	0.0	43.2	0.1	-2.7	0.0	0.0	0.0	0.0	2.0	29.0
14	17614357.82	4823492.30	10.70	1	DEN	2000	74.8	0.0	0.0	0.0	0.0	43.2	0.4	-2.7	0.0	0.0	0.0	0.0	2.0	31.9
14	17614357.82	4823492.30	10.70	1	DEN	4000	68.2	0.0	0.0	0.0	0.0	43.2	1.3	-2.7	0.0	0.0	0.0	0.0	2.0	24.4
14	17614357.82	4823492.30	10.70	1	DEN	8000	62.4	0.0	0.0	0.0	0.0	43.2	4.8	-2.7	0.0	0.0	0.0	0.0	2.0	15.2

APPENDIX F
COMMENTS FROM METROLINX

METROLINX

To: Sue Hinton, Planner City of Mississauga

From: Farah Faroque, Intern
Adjacent Developments GO Expansion - Third Party Projects Review
Metrolinx

Date: December 14th, 2022

Re: **OZ/OPA 22-3 W1 - 17 & 19 Ann St and 84 & 90 High St E and 91 Park St E**

Metrolinx has reviewed the second submission for Official Plan Amendment & Zoning By-Law Amendment Application for the proposed 10 West building comprising of 17 & 19 Ann St and 84 & 90 High St E and 91 Park St E. It is Metrolinx's understanding that the proposal consists of a 22-storey mixed use building with residential and commercial uses as well as the retention of two historic buildings to be used for residential and commercial uses. Metrolinx's comments on the Application are noted below:

- The subject property is located within 300 meters of Metrolinx's Oakville Subdivision which carries Metrolinx's Lakeshore West GO Train service.

- As per Metrolinx comments on the first submission, it was noted that the Proponent would reach out to Metrolinx to initiate the environmental easement registration process. This condition has not yet been fulfilled. Please reach out to Leah.ChishimbaSimwanza@Metrolinx.com to initiate the process as per the original comment below:
    - The Owner shall grant Metrolinx an environmental easement for operational emissions, which is to be registered on title for all uses within 300 metres of the rail right-of-way. Included is a copy of the form of easement for the Proponent's information. The Proponent may contact Leah.ChishimbaSimwanza@Metrolinx.com with questions and to initiate the registration process. Registration of the easement will be required prior to clearance of Site Plan Approval. (It should be noted that the registration process can take up to 6 weeks).

- Metrolinx is in receipt of the Environmental Noise Feasibility Study prepared by Valcoustics dated December 14, 2021. Metrolinx provides the following comments:

    - Metrolinx has updated their Rail data forecasting as of December 2022. Please update the Study to reflect the most current data from the Oakville Subdivision/ Lakeshore West Corridor. The proponent shall submit the study for review and satisfaction of Metrolinx. The proponent may obtain Metrolinx's most up to date rail forecast by submitting a request to raildatarequests@metrolinx.com. However, please note that we have attached the most recent rail data that should be used for your convenience.

Furthermore,

- Metrolinx notes Appendix C (of the Study) shows that a growth rate of 2.5% projected to 10 years was applied.
- Please note that the most recently provided rail data as of December 2022 has already been projected until 2032 and a growth rate should not be applied.
- As such, please revise the report to not include the growth rate.

- We note that Metrolinx warning clause has been included however, Metrolinx has updated their warning clause as of November 2022. Please revise the Report to replace the warning clause with the following:
    - The Proponent shall provide confirmation to Metrolinx, that following warning clause will be inserted into all Development Agreements, Offers to Purchase, and Agreements of Purchase and Sale or Lease of each unit within 300 metres of the Railway Corridor
        - **Warning:** The Applicant is advised that the subject land is located within Metrolinx's 300 metres railway corridor zone of influence and as such is advised that Metrolinx and its assigns and successors in interest has or have a right-of-way within 300 metres from the subject land. The Applicant is further advised that there may be alterations to or expansions of the rail or other transit facilities on such right-of-way in the future including the possibility that Metrolinx or any railway entering into an agreement with Metrolinx to use the right-of-way or their assigns or successors as aforesaid may expand or alter their operations, which expansion or alteration may affect the environment of the occupants in the vicinity, notwithstanding the inclusion of any noise and vibration attenuating measures in the design of the development and individual lots, blocks or units.

Should you have any questions or concerns, please do not hesitate to contact me.

Best regards,
Farah Faroque
Intern, Third Party Projects Review
Metrolinx
20 Bay Street Suite 600, Toronto

METROLINX

Form of Easement

WHEREAS the Transferor is the owner of those lands legally described in the Properties section of the Transfer Easement to which this Schedule is attached (the "**Easement Lands**");

IN CONSIDERATION OF the sum of TWO DOLLARS ($2.00) and such other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged by the Transferor, the Transferor transfers to the Transferee, and its successors and assigns, a permanent and perpetual non-exclusive easement or right and interest in the nature of a permanent and perpetual non-exclusive easement over, under, along and upon the whole of the Easement Lands and every part thereof for the purposes of discharging, emitting, releasing or venting thereon or otherwise affecting the Easement Lands at any time during the day or night with noise, vibration and other sounds and emissions of every nature and kind whatsoever, including fumes, odours, dust, smoke, gaseous and particulate matter, electromagnetic interference and stray current but excluding spills, arising from or out of, or in connection with, any and all present and future railway or other transit facilities and operations upon the lands of the Transferee and including, without limitation, all such facilities and operations presently existing and all future renovations, additions, expansions and other changes to such facilities and all future expansions, extensions, increases, enlargement and other changes to such operations (herein collectively called the "**Operational Emissions**").

THIS Easement and all rights and obligations arising from same shall extend to, be binding upon and enure to the benefit of the parties hereto and their respective officers, directors, shareholders, agents, employees, servants, tenants, sub-tenants, customers, licensees and other operators, occupants and invitees and each of its or their respective heirs, executors, legal personal representatives, successors and assigns. The covenants and obligations of each party hereto, if more than one person, shall be joint and several.

Easement in gross.

METROLINX

Rail Data for 17 & 19 Ann St and 84 & 90 high St E and 91 Park St E (December 2022)

*Please note that this rail data is forecasted to 2032.

The subject lands (17 & 19 Ann st and 84 & 90 high St E and 91 Park St E, Mississauga) are located within 300 metres, adjacent to Metrolinx's Oakville Subdivision (which carries Lakeshore West GO rail service).

It's anticipated that GO rail service on this Subdivision will be comprised of diesel and electric trains. The GO rail fleet combination on this Subdivision will consist of up to 1 locomotive and 5 passenger cars. The typical GO rail weekday train volume forecast near the subject lands, including both revenue and equipment trips is in the order of 408 trains. The planned detailed trip breakdown is listed below:

	1 Diesel Locomotive	1 Electric Locomotive		1 Diesel Locomotive	1 Electric Locomotive
Day (0700-2300)	132	222	Night (2300-0700)	20	34

The current track design speed near the subject lands is 85mph (137 km/h).

There are *anti-whistling by-laws* in affect at Revus Ave and at Stavebank Rd at grade-crossing.

With respect to future electrified rail service, Metrolinx is committed to finding the most sustainable solution for electrifying the GO rail network and we are currently working towards the next phase.

Options have been studied as part of the Transit Project Assessment Process (TPAP) for the GO Expansion program, currently in the procurement phase. The successful proponent team will be responsible for selecting and delivering the right trains and infrastructure to unlock the benefits of GO Expansion. The contract is in a multi-year procurement process and teams have submitted their bids to Infrastructure Ontario and Metrolinx for evaluation and contract award. GO Expansion construction will get underway in late 2022 or 2023.

However, we can advise that train noise is dominated by the powertrain at lower speeds and by the wheel- track interaction at higher speeds. Hence, the noise level and spectrum of electric trains is expected to be very similar at higher speeds, if not identical, to those of equivalent diesel trains.

Given the above considerations, it would be prudent at this time, for the purposes of acoustical analyses for development in proximity to Metrolinx corridors, to assume that the acoustical characteristics of electrified and diesel trains are equivalent. In light of the aforementioned information, acoustical models should employ diesel train parameters as the basis for analyses. We anticipate that additional information regarding specific operational parameters for electrified trains will become available in the future once the proponent team is selected.

Operational information is subject to change and may be influenced by, among other factors, service planning priorities, operational considerations, funding availability and passenger demand.

It should be noted that this information only pertains to Metrolinx rail service. It would be prudent to contact other rail operators in the area directly for rail traffic information pertaining to non-Metrolinx rail service.