Noise Impact Study, 255 Lakehurst Circle Road, Trent Lakes

July 22, 2025

Prepared for:
Municipality of Trent Lakes

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Executive Summary

Cambium Inc. was retained by Municipality of Trent Lakes to satisfy their due diligence in the completion of a noise impact study for the proposed outdoor event space to be located at 255 Lakehurst Circle Road, Trent Lakes, Ontario. The purpose of this study is to provide an assessment of the potential noise impacts from the proposed operations of the site onto the nearby residential properties.

The existing Lakehurst Hall, an event venue, is located on a separate parcel at 259 Lakehurst Circle Road. The hall impacts are not included in this assessment as NPC-300 considers only the sources of noise within one property line. This report is only intended to support and provide noise information for the addition of an outdoor event space to the property at 255 Lakehurst Circle Road. The outdoor event space and the hall operations may at times interact and the parking lot is considered as shared, but this proposal will not change the general description of hall operations or the land use of that parcel. The hall does, however, inform the ambient noise environment of the site and the nearby land use.

As a reasonable worst-case scenario, the primary operations of the proposed development potentially include the following noise sources: outdoor amplified music or voices, and the movement and activity associated with guest vehicles.

This site is one that is considered exempt from NPC-300 and typically to be dealt with via local noise bylaw. As such Cambium has produced a report that assesses the site using various references of conditions for the noise sources and the related potential controls. Cambium has applied the provincial standard and its noise limits as much as reasonably possible to the site as a best practice to allow a method to address the concerns of the municipality related to noise. The intention of the report is to lay out a number of options to allow the planning authority to make a decision with regard to the site.

All parties should be aware that noise due to gatherings and parking lots are typically expected by NPC-300 to be dealt with via local municipal noise by-law. Noise from construction is also generally exempt from provincial noise guidelines related to land use compatibility and is largely constrained by municipal noise by-laws.

Cambium has recommended sound level limits and noise control measures that should be enforced for certain site activities to maintain compliance.

Cambium concludes the site as presented can operate in compliance with provincial noise guidelines and local noise control by-laws provided mitigation and recommendations are enforced, and is therefore a feasible land use from a noise perspective.

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1.0 Introduction

Cambium Inc. (Cambium) was retained by Municipality of Trent Lakes to satisfy their due diligence in the completion of a noise impact study for the proposed outdoor event space to be located at 255 Lakehurst Circle Road, Trent Lakes, Ontario (The Site). The purpose of this study is to provide an assessment of the potential noise impacts from the proposed operations of the site onto the nearby residential properties.

The existing Lakehurst Hall, an event venue, is located on a separate adjacent parcel at 259 Lakehurst Circle Road and is not included in the assessment of this proposed development as NPC-300 considers only the sources of noise within one property line. This report is intended to support and provide noise information for the addition of an outdoor event space to the property at 255 Lakehurst Circle Road.

Construction noise is generally considered independently from the operational noise of a site. Since the specific construction methods are not yet defined, construction noise is not considered within this report. Note however that construction activities should obey the local noise bylaw.

This noise impact study references the Municipality of Trent Lakes By-Law (The Noise By-law) (Municipality of Trent Lakes, 2023).

Cambium will reference parts of the Ontario Ministry of Environment, Conservation, and Parks (The Ministry) document *NPC-300 – Environmental Noise Guideline – Stationary and Transportation Sources – Approval and Planning* (NPC-300) (Ontario Ministry of the Environment, Conservation, and Parks, 2017), for definitions, technical guidance, and industry best practice, however, NPC-300 is not directly applicable to this site, either as it is currently, or the proposed redevelopment. The operations of the site are not considered to be stationary noise sources within the NPC-300 guideline. NPC-300 considers these types of noise sources to be normally addressed in a qualitative manner in municipal noise bylaws. Cambium has applied NPC-300 as much as reasonably possible to the analysis of these sources as it is the recommended guidance for assessing noise impacts in the context of land use compatibility

and in the absences of specific guidance from the local noise bylaw in order to provide the planning authority with a basis for decision making regarding the proposed development.

We assessed the proposed development's noise impacts onto the surroundings. As a reasonable worst-case scenario, the primary operations of the proposed development potentially include the following noise sources: outdoor amplified music or voices, and the movement and activity associated with guest vehicles. We also offer comparison to various references of conditions for the noise sources and the related potential controls.

To allow for understanding and decision making regarding the proposed redevelopment, Cambium has also taken the approach of comparing; the likely existing potential noise impacts against the proposed redevelopment's noise impacts, to assess the significance of any changes in noise level. Specifically, how the proposed outdoor venue compares to the existing Lakehurst Hall likely noise impacts.

This is similar to assessment methods used in Environmental Assessments where a build vs no-build condition is compared to quantify noise impacts.

2.0 Description of Proposed Development

The Site is located at 255 Lakehurst Circle Road, Trent Lakes. The existing property currently includes a parking lot and surrounding green space. This report is intended to support the addition of an outdoor event space in the form of a small amphitheatre to the southeast of the parking lot.

The existing Lakehurst Hall, an event venue, is located on a separate parcel at 259 Lakehurst Circle Road and is not specifically included in the assessment of this proposed development. The outdoor event space and the hall operations may at times interact and the parking lot is considered as shared, but this proposal will not change the general description of hall operations or the land use of that parcel. The hall does, however, inform the ambient noise environment of the site and the nearby land use.

The Site is in an area zoned for development (D), adjacent to land zoned for a community facility (CF) use. The nearby land use and receptors are in areas with rural (RU), hamlet residential (HR), and development (D) zones. The site and receptors are therefore best defined as Class 3 (Rural). This determination was made following the procedures of NPC-300 with the support of local land use, and Cambium's site measurements.

A site location plan showing nearby transportation noise sources is provided on Figure 1.

The operations of the Site will generally be open and active during daytime hours, however, for the purposes of assessment, and to be conservative, Cambium has assumed the possibility that the Site may have active operations during the evening and nighttime. Note that this assessment does not suggest the site will operate all through the night, Cambium has simply included all time-periods to be conservative and to inform decision making.

Noise sources associated with the operation of the site are described in section 3.2.

3.0 Impact of the Proposed Development onto the Environment

The development is in the preliminary design stages; therefore, this assessment is intended to confirm the site may comply with NPC-300 and local by-laws at the nearby sensitive receptors. Any additional road traffic because of this proposed development is not expected to be significant in comparison to existing traffic levels in the area with respect to noise.

The Municipality of Trent Lakes Noise By-Law may be applicable to certain activities at the site. The specifics of the by-law are detailed in section 3.1.3 and 3.1.4.

It is noted again that most of the operations proposed on site would not normally be assessed using NPC-300, however Cambium has partially applied it as a best practice guidance to assess the site. Typically, it is anticipated this type of operation would be primarily controlled by local noise by-laws.

3.1 Assessment Criteria

The Site and surrounding receptors are generally best defined as a noise Class 3 area based on local land use and site measurements. The site and all receptors have been characterized to conform to NPC-300.

The Ministry NPC-300 exclusionary sound level limits for Class 3 areas are described below.

Embedded Table 1 Time Period Ministry Exclusionary Sound Level Limit (dBA)

		Sound Level Limit – L_{eq} (dBA)		
		Day (07:00 – 19:00)	Evening (19:00-23:00)	Night (23:00 – 07:00)
Class 3 Plane of Window Noise Sensitive Spaces	Steady L_{eq}	45	40	40
Class 3 Outdoor Points of Reception	Steady L_{eq}	45	40	-

Within NPC-300, the sound level limit as received at a POR for stationary sources in a Class 3 area is the higher of either the Ministry exclusionary sound level limit (as described above), or the quietest one-hour equivalent background sound level (L_{eq}) for each of the time periods described in the table above.

The following sections support the class designation and an elevated quietest one-hour equivalent sound level (Leq) at some receptors.

3.1.1 Ambient Traffic Noise

Traffic noise assessment was conducted using predictive calculations of road noise developed by the Ministry: *Ontario Road Noise Analysis Method for Environment and Transportation* (ORNAMENT) (MOE, 1999).

The 2023 traffic data used for the road noise assessment was published by the Municipality of Trent Lakes. Percentages of medium (4%) and heavy (1%) trucks were estimated with direction from the Municipality of Trent Lakes.

Traffic data and ORNAMENT calculations are provided in Appendix C.

Embedded Table 2 Traffic Noise Impacts

Source	Min Hourly Traffic Volume [1]	Traffic Breakdown [2]			Receptor	Notes	Approximate Impact due to background traffic (dBA) [3]
		Min. Hourly Cars	Min. Hourly Med. Trucks	Min. Hourly Heavy Trucks			
POR01_A	20	19	1	0	15 m from Lakehurst Circle Rd. - Front	4.5 m Height	49.31

1 - AADT from Trent lakes (2023). *Hourly volume calculated from AADT using method described in Typical Hourly Traffic Distribution for Noise Modelling, Canadian Acoustics 2008 (lowest hour of time period used)*

2 - Medium (4%) and heavy (1%) truck percentage per direction from Trent Lakes

3 - ORNAMENT contains a calculation lower limit of 40 vehicles. In order to calculate a representative evening traffic impact, number of vehicles was multiplied, then the resulting impact was logarithmically divided by the same factor.

Based upon these results it is reasonable to use the calculated sound levels to support an elevated equivalent sound level at some receptors in close proximity to Lakehurst Circle Road as shown below.

3.1.2 Adjusted Limits

The results from our traffic calculations support an elevated lowest one-hour equivalent sound level, as presented in the table below.

Embedded Table 3 Time Period Adjusted Sound Level Limits (dBA)

		Sound Level Limit – L_{eq} (dBA)		
		Day (07:00 – 19:00)	Evening (19:00-23:00)	Night (23:00 – 07:00)
Plane of Window	Steady L_{eq}	**49**	40	40
OLA	Steady L_{eq}	**49**	40	-

- Bolded values elevated by traffic to be greater than exclusionary limits.

The only receptors that are eligible for adjusted limits are those as close as 15 metres from Lakehurst Circle Road as are represented by POR01_A, POR01_C and POR01_D.

3.1.3 Municipal Noise By-Law – Related to NPC-300

The Municipality of Trent Lakes Noise By-Law may be applicable to certain activities at the site, and makes the following general prohibition:

> *"No Person shall make, cause or permit the creation of Unreasonable Noise, … that is clearly audible at a point of reception anywhere within the Municipality at any time."*

The Noise By-Law generally defines unreasonable noise as:

> *"Sound that can be heard at a Point of Reception that unreasonably interferes with the comfort, peace, rest, enjoyment, or convenience of any reasonable Person."*

Further:

> *"The making, allowing, creation or maintenance of loud, unnecessary, or unusual noises which are continuously heard for a period of thirty (30) minutes or more or intermittently over a period of one (1) hour or more, constitute Unreasonable Noise."*

While these qualitative terms are subjective, it is assumed that compliance with the NPC-300 exclusionary sound level limits would also achieve compliance with the by-law definition. The NPC-300 limits are intended to ensure that there is no "adverse effect" as defined in the Environmental Protection Act.

The bylaw does not define the term "clearly audible", it is assumed this would be up to the perception of the specific officer enforcing the bylaw. Clearly audible can sometimes be

defined technically by comparing the noise impact of a sound, to the ambient sound in the area.

The Noise By-Law lists noise sources that are deemed to fulfill the above definition, such as:

> *"Sound from an Electronic Device including, but not limited to, radio, speaker, television, loud speaker or musical instrument, that is clearly audible at a Point of Reception between the hours of 11:00 p.m. of one day to 7:00 a.m. of the next day."*

And;

> *"Noise created by yelling, shouting, hooting, or similar noises made by a human, that is clearly audible at a Point of Reception; between the hours of 11:00 p.m. of one day to 7:00 a.m. of the next day."*

It is generally assumed by Cambium that compliance with Ministry sound level limits would imply that the Facility is not creating unreasonable noise onto nearby land uses. However, the bylaw will apply to the site and the time-of-day restrictions should apply regardless of predicted sound levels. Specifically, that sound should not be clearly audible from amplified devices, or human voices from 11:00 pm to 7:00 am.

These by-law prohibitions should also be applied to the Site during construction.

Cambium must note that compliance with NPC-300 does not mean that the Facility will not be audible at the points of reception, it means that the sound levels should be low enough that they are not likely to constitute 'Unreasonable Noise'. It is typically accepted that complete inaudibility of a source is an unreasonably restrictive design target.

3.1.4 Municipal Noise By-Law – Related to Significance of Change

The current site uses on the adjacent property, the community all, have been in place and operating for some time. Therefore, it can be standard practice to make a comparison of the noise impacts due to the proposed design, with the noise impacts of the existing operations. This comparison can help define the significance of change related to noise impacts.

The general prohibitions of the Noise By-Law and some definitions were listed in the section above. Again, the main criteria of the Noise By-Law seems to be the term “Unreasonable Noise’” which is qualitative, and the bylaw provides no quantitative sound level limits (such as a sound level limit in decibels). In similar contexts in Ontario, it is common to assess the likelihood of disturbance by quantifying the change in noise levels that a proposed use may create and using that as a descriptor.

As outlined Ministry guidance; *Noise Guidelines for Landfill Sites* (Ontario Ministry of the Environment, 1998) and other typical applications, changes in sound level are typically assigned the following descriptions:

- An increase in sound level of 3 dB or less is considered insignificant
- An increase in sound level greater than 3 dB and less than 5 dB are considered noticeable
- An increase in sound level greater than 5 dB and less than 10 dB are considered significant
- An increase in sound level greater than 10 dB are considered very significant.

3.2 Noise Source Summary

Some of the proposed operations of the development are not currently active, therefore direct measurements of all the proposed operations were not feasible. Cambium conducted a site inspection and a noise measurement program of the Lakehurst Hall. Also, based on Cambium’s experience with similar projects and in discussion with the project team, we applied manufacturer’s specifications and our Cambium noise source library to further develop the representative ‘worst-case’ design. The definitions of NPC-300 indicate that general parking lot vehicle activity is not considered a significant noise source. Part of Cambium’s approach to this assessment is to offer a series of various references of conditions for the noise sources and the related potential controls compared to possible interpretations of limits.

Representative potential sources are summarized in Table 1 and detailed below. The locations of these representative noise sources can be found on Figure 2.

Other variable or infrequent noise sources such as garbage removal or snow management will generally be unchanged by the re-development plan and therefore are not included in this assessment.

3.2.1 Proposed Use – NPC-300 Assessment

With respect to an assessment against the sound level limits of NPC-300, the following noise sources are considered.

- TR01 - This point source represents a potential large idling vehicle, engine, or equivalent equipment, operating in the parking area.
- TR02 – This moving source represents potential moving vehicles, trucks, or buses arriving and departing from the parking areas on site.
- SP01 – This point source represents the potential noise emissions from outdoor music or voice at the proposed outdoor event space. As described in section 4.1, the ‘maximum allowable’ sound level of this noise source has been calibrated to achieve compliance with the applicable NPC-300 limits without additional barriers.
- SP01_X - This point source represents a menu of the potential noise emissions from outdoor music or voice at the proposed outdoor event space. See section 3.4.1.1 for more context.
    - SP01_A – Represents voice noise at approximately 60 dBA (SPL at 8m).
    - SP01_B - Represents amplified voice noise at approximately 65 dBA (SPL at 8m).
    - SP01_C - Represents music noise at approximately 70 dBA (SPL at 8m).
    - SP01_D - Represents amplified music noise at approximately 75 dBA (SPL at 8m).

3.2.2 Additional Noise Sources Considered in 'Significance of Change' Assessment

3.2.2.1 Ambient Noise Sources

These sources are included as an assessment of the existing predicted noise impacts of the Lakehurst Hall activities. As these are located on a separate parcel, they are not part of the current development application. However, the hall operations do inform the ambient noise environment of the site and the nearby land use.

- H_EF01 – This point source represents a kitchen exhaust fan serving the Lakehurst Hall.
- H_CD01, H_CD02 – These point sources represent the air conditioning condenser units serving the Lakehurst Hall.
- H_TR01 - This point source represents an idling vehicle, engine, or equivalent equipment, operating in the parking area.
- H_TR02 – This moving source represents moving vehicles, trucks, or buses arriving and departing from the parking areas on site.
- H_DR01 – This point source represents the noise emissions from indoor amplified music through the main door of the Lakehurst Hall.
- H_NW01, H_EW02, H_WW01 - These point sources represent the noise emissions from indoor amplified music in the Lakehurst Hall, transmitted through the north wall, east wall, and west wall respectively. As described in section 3.4.1.1, these sound power levels were calibrated to reflect an indoor sound pressure level (SPL) of 90 dBA to represents a reasonable level of operation.
- RD01 – This line source represents an ambient traffic noise from Lakehurst Circle Road. Traffic was assessed based on the 'lowest hour' data and using predictive calculations of road noise developed by the Ministry: *Ontario Road Noise Analysis Method for Environment and Transportation* (ORNAMENT) (MOE, 1999). Traffic data and ORNAMENT calculations are provided in Appendix C.

3.2.2.2 Proposed New Operations and Noise Sources

This source represents the significant change to the area's noise sources. These are specifically the new sources that would be introduced by the outdoor event space.

- SP01_X - This point source represents a menu of the potential noise emissions from outdoor music or voice at the proposed outdoor event space. See section 3.4.1.1 for more context.
  - SP01_A – Represents voice noise at approximately 60 dBA (SPL at 8m).
  - SP01_B - Represents amplified voice noise at approximately 65 dBA (SPL at 8m).
  - SP01_C - Represents music noise at approximately 70 dBA (SPL at 8m).
  - SP01_D - Represents amplified music noise at approximately 75 dBA (SPL at 8m).

3.3 Point of Reception Summary

Cambium attended the Site on June 17, 2024. Six nearby dwellings were identified as being representative of the most sensitive receptors in the vicinity of the Site, labeled as POR01 through POR06 and depicted on Figure 1. Ministry noise guidelines state a "Point of Reception" (POR) is a sensitive noise receptor which could include residential buildings, hotels, schools, daycare centers, places of worship, and hospitals.

The existing Lakehurst Hall event venue, located on a separate parcel at 259 Lakehurst Circle Road, is not considered as a sensitive noise receptor in the context of this report. While it could be considered as a 'community center', the hall does not support 'noise sensitive spaces' per the definitions in NPC-300.

For assessment purposes we selected the points with the predictable worst-case noise impacts as follows:

- POR01_A – POR07_A all represent plane of window receptors for residential buildings located from 237 to 290 Lakehurst Circle Road, north, east, and west of the Site.

- POR01_B – POR07_B are outdoor living area PORs at the same residential buildings, located at the property line in the direction of the Site.
- POR01_C, POR02_C, and POR06_C all represent alternate outdoor living area PORs at the same residential buildings, located at the property line in the direction of the Site.
- POR01_D and POR02_D represent alternate outdoor living area PORs at the same residential buildings, located at the property line in the direction of the Site.

Receptor heights were either 1.5 m for OLA, or first storey plane of window receptors, 4.5 m for second storey receptors, and an additional 3 m in height for each storey taller.

Due to the nature of noise propagation, sound levels generally decrease with distance from the source, therefore this selection of receptors will ensure that sound levels in all directions are addressed.

3.4 Impact Assessment

The acoustic analysis at the PORs incorporates the noise emission points as described in Section 3.2. Cambium has based sound power levels for equipment on measurements on site, measurements at similar sites for generally assumed equipment, engineering calculations, and/or manufacturer's specifications.

The corresponding sound power level calculations from each noise producing source are detailed in Appendix A. The assumed, most conservative, sound power levels in accordance with the Ministry's requirement for "worst case" noise source sound power levels are summarized in Table 1.

3.4.1.1 Sound Power Level

Sound power levels were based on calculations from measurements at the site and at similar sites, engineering calculations, and manufacturer's specifications; the supporting information can be found in Appendix A. We completed all measurements following Ministry guidance for measurements including satisfactory weather conditions and pre-post calibrations.

- In order to calculate the Lakehurst Hall noise source references (H_NW01, H_EW02, H_WW01, and H_DR01), pink noise was emitted, indoor, within the Lakehurst Hall event space at a high sound pressure level, approximately 105 dBA. This sound level is beneficial to create measurable transmission through the building walls, but is unrealistic in terms of the actual operations of the hall. Therefore, the resulting Lakehurst Hall noise source sound power levels were calibrated to reflect an indoor sound pressure level of 90 dBA. This sound indoor sound pressure level represents a reasonable operation.
    - For context and to support the above values, it should be considered that, with certain considerations, the regulations of the Ontario Ministry of Labour, Training, and Skills Development (and O.Reg 381/15) generally require that workers are not exposed to sound levels greater than a time-weighted average exposure level of 85 dBA over an 8-hour workday.
    - Also, for context, consider that the World Health Organization (WHO) publication; WHO Global standard for safe listening venues & events (World Health Organization (WHO) , 2022) defines a safety ‘upper limit’ of 100 dBA over a 15-minute period.
    - The WHO also states that combined yearly exposure to ‘leisure noise’ sound levels greater than 70 dBA over 24 hours, can be associated with health effects.

3.4.1.2 Tonality Assessment

Some types of sound have a special quality which may tend to increase their audibility and potential disturbance or annoyance. For tonal sound, the Ministry NPC-104 guideline stipulates that a penalty of five A-weighted decibels (dBA) is to be added to the measured sound level if the sound has a “pronounced audible tonal quality such as a whine, screech, buzz or hum”.

Sources that have been identified to be tonal would be indicated as such in Table 1 and if identified, a penalty of five dB has been added to the sources’ sound power levels in the model.

Generally, we do not expect the sources to be tonal in nature. However,

- Since the primary potential noise source of the outdoor event space (SP01) could be amplified music or voice, Cambium has considered a 5 dB penalty included to account for the possible annoyance.
- In order to calculate the Lakehurst Hall noise sources (H_NW01, H_EW02, H_WW01, and H_DR01), pink noise was emitted, indoor, within the Lakehurst Hall event space at a high level. Pink noise is not tonal. It is a random signal, filtered to have equal energy per octave and is therefore perceived by the human ear as being balanced throughout the frequency spectrum. However, since the source will in fact be music and not pink noise during operation, Cambium has applied a 5 dB penalty to account for the possible annoyance.

3.4.1.3 Variable Operations of Noise Sources

Some variable operations, or exclusive operating scenarios are described in section 3.2 with the corresponding noise source. For the purposes of assessment, and to be conservative, Cambium has assumed the Facility's potential operating hours may include day, evening, and night. However, certain activities will be limited by noise by-law prohibitions. For assessment purposes all sources were assumed to operate continuously and simultaneously with the exception of the following.

- The air conditioning equipment (H_CD01, H_CD02) are modelled as being active 75% of any given hour during nighttime hours (23:00 – 07:00). This reflects cooler nighttime temperatures and typical operating cycles for this type of equipment.
- The potential idle engine (TR01) is modelled as being active 50% of any given hour during daytime hours (07:00 – 19:00), and 25% of any given hour during evening and nighttime hours (19:00 – 23:00 and 23:00 – 07:00). This reflects general 'no idle' practices.
- The moving vehicle noise source (TR02) has been modelled as active at a speed of 10 km/hr, with two vehicles per any given daytime hour (07:00 – 19:00), and one vehicle any given evening or nighttime hour (19:00 – 23:00 and 23:00 – 07:00).

3.5 Noise Impact Calculation Procedure

The noise impact calculations were performed using the Softnoise *Predictor Type 7810 version 2023* (Predictor) environmental noise prediction and control software. The calculations completed by this software are based on established prediction methods accepted by the Ministry; mainly ISO 9613-2 *Acoustics – Attenuation of Sound during Propagation Outdoors – Part 2: General Method of Calculation* (ISO, 1996). Predictor is an internationally marketed software package that offers calculation algorithms that comply with ISO 9613-2.

The Predictor software tool is a proprietary noise calculation package used to calculate, assess, predict, and display environmental noise. This software utilizes calculation algorithms and 3D visualization of the predicted noise emissions, often referred to as acoustic mapping. The software calculates the resultant noise level and takes into account a range of factors affecting the propagation of sound including:

- Sources with direct line of site to receivers ignore barriers,
- Negative ground attenuation over barriers is not subtracted,
- The Facility layout, which includes the position and elevation of each building, major equipment and other facades in the propagation path,
- The natural topography and vegetation,
- The magnitude of the noise source in terms of octave band sound power,
- The distance between the source and the POR,
- The presence of reflecting surfaces and,
- The hardness of the ground between the sources and the POR.

3.6 Calculation Assumptions

We have assessed the plane of window receptor at 1.5 metres and at the perimeter of the residence, representing the plane of a first storey exterior room door or window within which, a person may be exposed to sound if open. If the residence is multi-storey, we model the plane

of window receptor at 4.5 metres for secondary storey, or 7.5 metres for third storey, etc. Any outdoor living area receptors were assessed at a height of 1.5 metres.

The noise impact modelling included a general ground factor assumption of one, which is fully absorptive to account for the vegetated surroundings. Specific hard ground areas at and near to the site were modeled with a ground factor of 0.0 which is fully reflective.

This version of Predictor allows for settings to ignore barrier effects if line of sight is not broken, as well as avoiding overestimating barrier effect due to porous ground in the case of a negative Agr value in Equation 12 of the ISO 9613-2 calculation method. We activated these settings:

- The terrain was modelled according to Ontario Base Map sources; and with consideration for the landscaping of the proposed development.
- Onsite or adjacent buildings were considered and were incorporated into the model as being mostly reflective, no other offsite sources of sound were considered.

Due to the numerous conservative assumptions that have been made, this assessment is likely an over-prediction.

3.7 Acoustic Assessment Summary

The sound power levels used in this assessment are representative and indicate the allowable sound power levels based on preliminary design information.

The sound pressure level contour plot files and the predicted sound levels at the receptors are provided in Appendix B.

The above assessment considered a worst-case point of reception for all receptors, and a worst-case sound level from operations, thereby indicating conservative estimates for potential noise impact.

4.0 Recommendations and Noise Controls

In summary Cambium has made the following recommendations:

- Layout of equipment and building features may affect noise impacts, and therefore the controls required. The site should be laid out generally as shown in this report or calculations may require revision.
- The power levels used in this assessment are representative and indicate the allowable sound power levels based on preliminary design information.
    - This analysis should be updated by a qualified person to confirm compliance with NPC-300 during the detailed design stage. Alternatively, the final design may be reviewed in comparison to the sound levels and equipment layout used in this report to confirm compliance.

4.1 In the NPC-300 Assessment – No Additional Barriers

As described in section 3.1.3, it may be reasonable to assume that compliance with Ministry NPC-300 sound level limits would imply that the Facility is not creating unreasonable noise onto nearby land uses.

Under this reference, the total ‘controlled’ noise impacts from the development at each receptor are presented in Table 2. Sound pressure level contour plot files and the predicted sound levels at the receptors are provided in Appendix B. As indicated in Table 2, the development noise impact at each established POR is predicted to be less than the applicable criteria set by the Ministry, provided the controls and recommendations of this report are followed.

- The noise emissions from music or speech at the outdoor event area as represented by noise source SP01, was back calculated by the noise modelling results. In consideration of the potential site noise impacts under this scenario, it is recommended that the following noise level limits be considered the maximum allowable sound level for the outdoor event

area in relation to the environmental noise emissions of this noise scenario, during the respective time-periods.

- A noise limit of 62 dBA sound pressure level at 8 meters from the source should be considered the maximum allowable sound level during daytime hours as defined by NPC-300 (07:00 to 19:00).
- A noise limit of 57 dBA sound pressure level at 8 meters from the source should be considered the maximum allowable sound level during evening and nighttime hours as defined by NPC-300 (19:00 to 07:00).
    - Note that the venue does not intend to operate the sound system for that full time-period, these reference time periods relate to the compliance standard.

4.1.1 In the NPC-300 Assessment – with Additional Barriers

Alternately, if the menu of the potential noise emissions from outdoor music or voice at the proposed outdoor event space are applied to the NPC-300 assessment, various additional barriers or controls are required for compliance with the NPC-300 Limits.

SP01_A – Represents voice noise at approximately 60 dBA (SPL at 8m).

- The potential noise emissions from the outdoor venue (SP01_A) are active only during daytime hours (07:00 – 19:00).

SP01_B - Represents amplified voice noise at approximately 65 dBA (SPL at 8m).

- The potential noise emissions from the outdoor venue (SP01_A) are active only during daytime hours (07:00 – 19:00).
- A property line barrier (BR02_B) is required, with a height of 2.75 m, screening the dwelling and outdoor point of reception to the east (POR02_A and POR02_C).

SP01_C - Represents music noise at approximately 70 dBA (SPL at 8m).

- The potential noise emissions from the outdoor venue (SP01_A) are active only during daytime hours (07:00 – 19:00).

- A property line barrier (BR02_B) is required, with a height of 2.75 m, screening the dwelling and outdoor point of reception to the east (POR02_A and POR02_C).
- A property line barrier (BR02_C) is required, with a height of 4.25 m, screening the outdoor point of reception to the east (POR02_B).
- A 'band shell' type barrier (BR03) is required, with a height of 3 m, screening the outdoor points of reception to the east and west (POR02_C and POR06_C).
- A property line barrier (BR04) is required adjacent to the road, with a height of 2 m, screening the outdoor point of reception to the north (POR01_B).

SP01_D - Represents amplified music noise at approximately 75 dBA (SPL at 8m).

- The level of noise impacts from this 'menu' item of amplified music (SP01_D) are likely unfeasible to control with standard barrier design to reach compliance with the applicable NPC-300 limits.
- Cambium would suggest that if compliance with NPC-300 is desired, then amplified music should not be considered in the amphitheatre.

The various predicted sound levels at the receptors are compared in Table 3 for a menu of the potential noise emissions from outdoor music or voice at the proposed outdoor event space. The locations of potential resulting noise barriers are indicated in Figure 3.

4.2 In the Significance of Change Assessment

As described in section 3.1.4, it may be reasonable to assess the likelihood of disturbance by quantifying the change in noise levels that a proposed use may create and using that as a descriptor.

Under this reference, the predicted sound levels at the receptors are compared in Table 4 for a menu of the potential noise emissions from outdoor music or voice at the proposed outdoor event space. The resulting 'significance of change' descriptions are provided for each noise emissions type and at each point of reception.

5.0 Closing

Cambium Inc. was retained by Municipality of Trent Lakes to satisfy their due diligence in the completion of a noise impact study for the proposed outdoor event space to be located at 255 Lakehurst Circle Road, Trent Lakes, Ontario. The purpose of this study is to provide an assessment of the potential noise impacts from the proposed operations of the site onto the nearby residential properties to allow for the Planning Authority to make informed decisions with regards to the likely noise impacts.

Cambium concludes that there are methods available that would allow the site to operate in compliance with provincial noise guidelines.

We have also shown by comparison methodology that with certain restrictions the noise impact of the proposal would not result in impacts exceeding those likely experienced due to the existing operations of the Lakehurst Hall, which is a useful insight based on the fact that the Lakehurst hall does not appear to have a record of noise complaints.

This study in no way exempts the site from the local noise bylaw. The neighbours will have recourse under the local noise bylaw to complain in the event of unreasonable noise impacts. The operations of the site could be further restricted depending on complaints after operations begin.

It is not possible for Cambium to technically confirm that there will be no complaints under the noise bylaw, since it is subjective. However, compliance with our recommendations would reduce the likelihood of complaints. However, depending on the chosen operating scenario that likelihood may be higher or lower.

Respectfully submitted,

Cambium Inc.

DocuSigned by:
3A05F657DA6D472...

Trevor Copeland, P.Eng.
Senior Project Manager

Signed by:

2025-07-23

DocuSigned by:
235B4FD342E04DA...

Trevor Ross, P.Eng.
Acoustic Specialist

\\cambiumincstorage.file.core.windows.net\projects\19900 to 19999\19935-001 Municipality-Trent Lakes - EIS - Lakehurst Hall Trail\Deliverables\REPORT - Noise\Final\2025-07-22 RPT - NIS - 255 Lakehurst Circle Rd.docx

6.0 References

ISO. (1996). *ISO 9613-2 Acoustics - Attenuation of Sound During Propagation Outdoors - Part 2: General Method of Calculation.* International Organization for Standardization.

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World Health Organization (WHO) . (2022). *WHO Global Standard for Safe Listening Venues & Events.*

7.0 Standard Limitations

Limited Warranty

In performing work on behalf of a client, Cambium relies on its client to provide instructions on the scope of its retainer and, on that basis, Cambium determines the precise nature of the work to be performed. Cambium undertakes all work in accordance with applicable accepted industry practices and standards. Unless required under local laws, other than as expressly stated herein, no other warranties or conditions, either expressed or implied, are made regarding the services, work or reports provided.

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The findings and results presented in reports prepared by Cambium are based on the materials and information provided by the client to Cambium and on the facts, conditions and circumstances encountered by Cambium during the performance of the work requested by the client. In formulating its findings and results into a report, Cambium assumes that the information and materials provided by the client or obtained by Cambium from the client or otherwise are factual, accurate and represent a true depiction of the circumstances that exist. Cambium relies on its client to inform Cambium if there are changes to any such information and materials. Cambium does not review, analyze or attempt to verify the accuracy or completeness of the information or materials provided, or circumstances encountered, other than in accordance with applicable accepted industry practice. Cambium will not be responsible for matters arising from incomplete, incorrect or misleading information or from facts or circumstances that are not fully disclosed to or that are concealed from Cambium during the provision of services, work or reports.

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Site Assessments

A site assessment is created using data and information collected during the investigation of a site and based on conditions encountered at the time and particular locations at which fieldwork is conducted. The information, sample results and data collected represent the conditions only at the specific times at which and at those specific locations from which the information, samples and data were obtained and the information, sample results and data may vary at other locations and times. To the extent that Cambium's work or report considers any locations or times other than those from which information, sample results and data was specifically received, the work or report is based on a reasonable extrapolation from such information, sample results and data but the actual conditions encountered may vary from those extrapolations.

Only conditions at the site and locations chosen for study by the client are evaluated; no adjacent or other properties are evaluated unless specifically requested by the client. Any physical or other aspects of the site chosen for study by the client, or any other matter not specifically addressed in a report prepared by Cambium, are beyond the scope of the work performed by Cambium and such matters have not been investigated or addressed.

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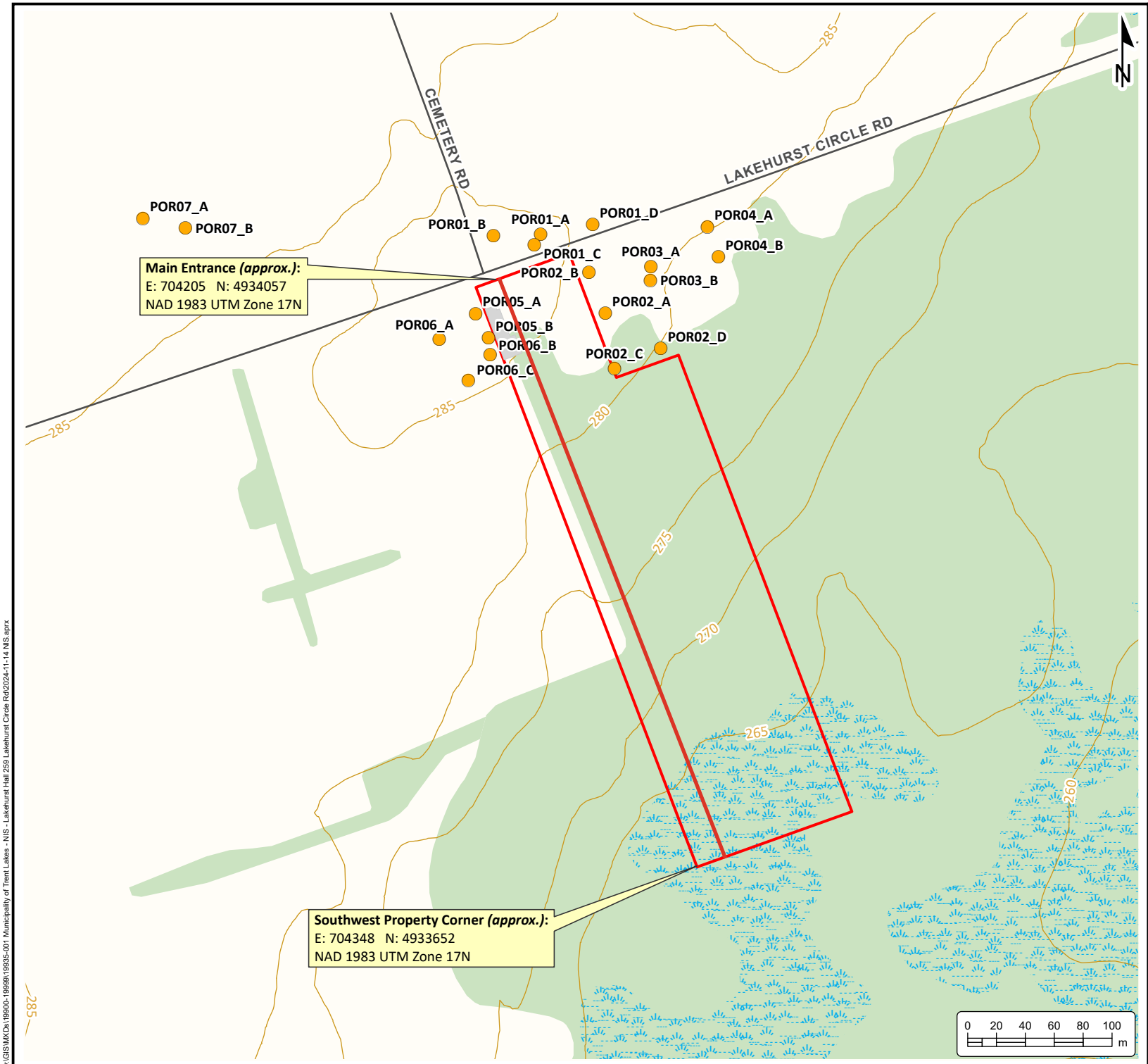
Personal Liability

The client expressly agrees that Cambium employees shall have no personal liability to the client with respect to a claim, whether in contract, tort and/or other cause of action in law. Furthermore, the client agrees that it will bring no proceedings nor take any action in any court of law against Cambium employees in their personal capacity.

Appended Figures



NOISE IMPACT STUDY

MUNICIPALITY OF TRENT LAKES
259 Lakehurst Circle Road
Trent Lakes, Ontario

LEGEND

- Receiver
- Minor Road
- Contour (5m Interval)
- Unevaluated Wetland
- Wooded Area
- Building
- Site (approximate)
- Airport

Notes:
- This document contains information licensed under the Open Government License - Ontario.
- Distances on this plan are in metres and can be converted to feet by dividing by 0.3048.
- Cambium Inc. makes every effort to ensure this map is free from errors but cannot be held responsible for any damages due to error or omissions. This map should not be used for navigation or legal purposes. It is intended for general reference use only.

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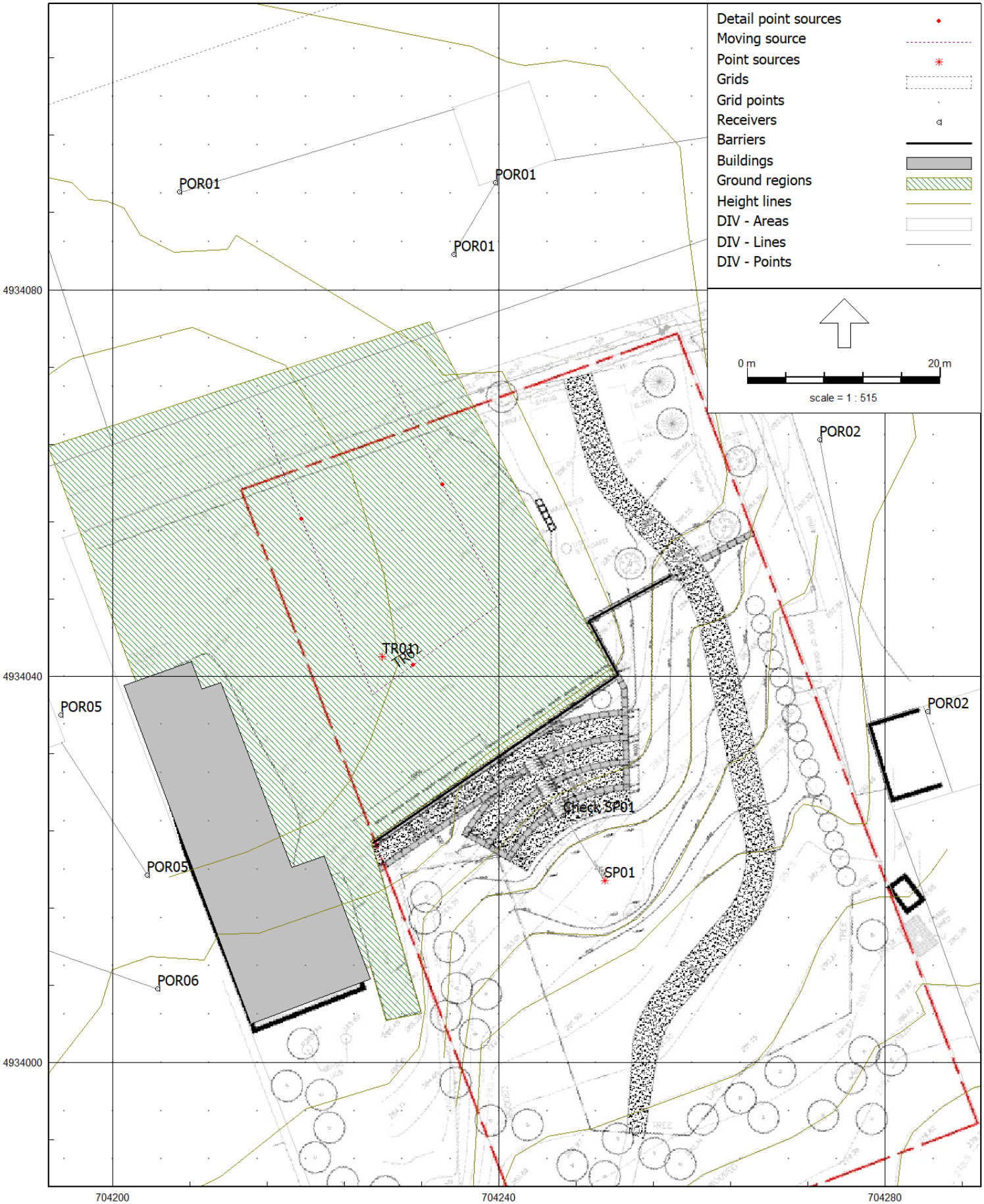
SITE LOCATION PLAN

Project No.: 19935-001		Date: November 2024	Rev.:
Scale: 1:3,686		Projection: NAD 1983 UTM Zone 17N	
Created by: DBC	Checked by: TMC	Figure: 1	

O:\GIS\MXDs\19900-19999\19935-001 Municipality of Trent Lakes - NIS - Lakehurst Hall 259 Lakehurst Circle Rd\2024-11-14 NIS.aprx

Figure 2 - Steady - NPC-300

Cambium Inc., Canada



ISO 9613, [2025-04 Report - 03 - Steady - NPC-300 - UnMit] , Predictor V2023 rev 1 Licensed to Cambium Inc., Canada

Figure 3

Cambium Inc., Canada

Steady - NPC-300_D - Mit

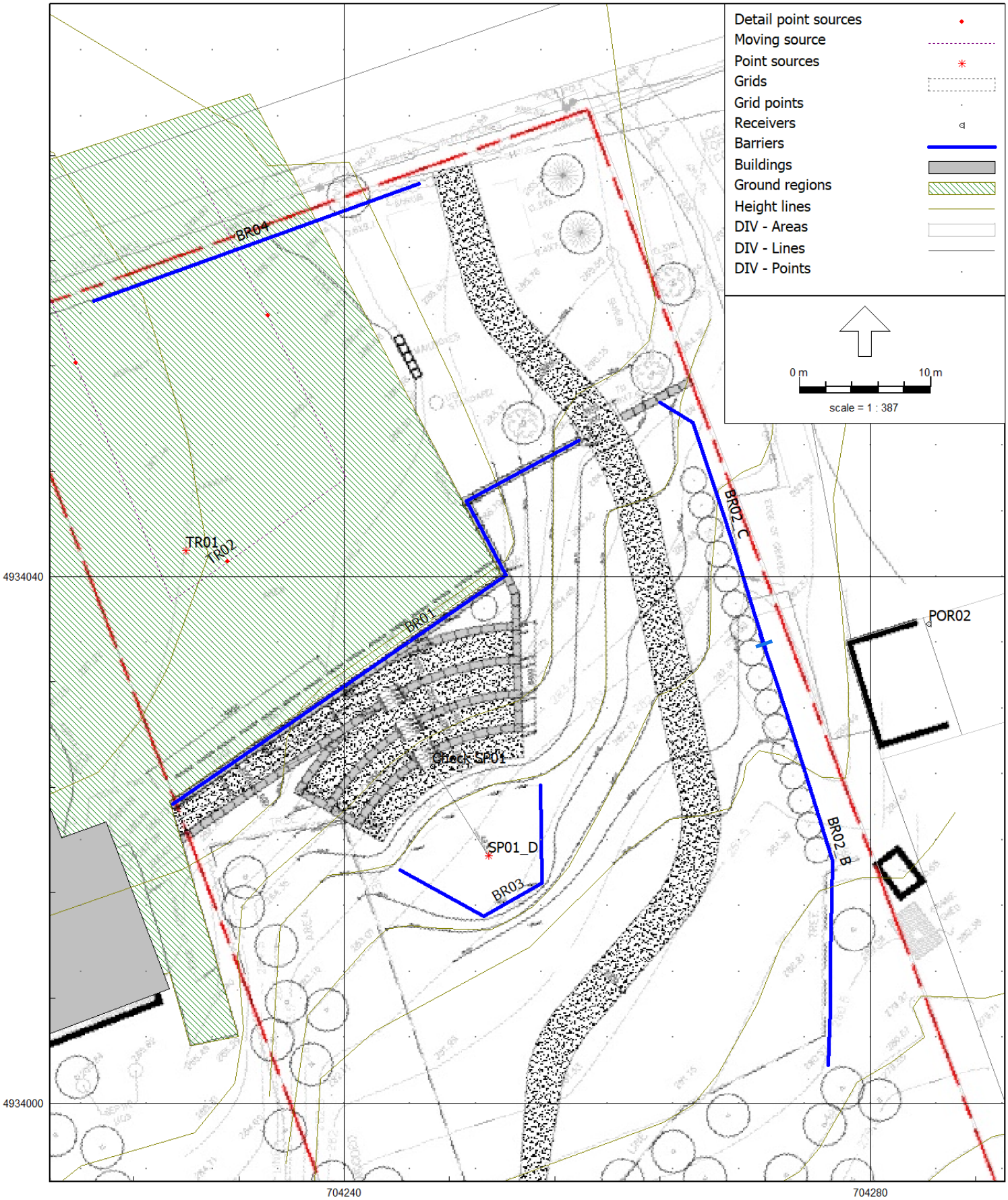
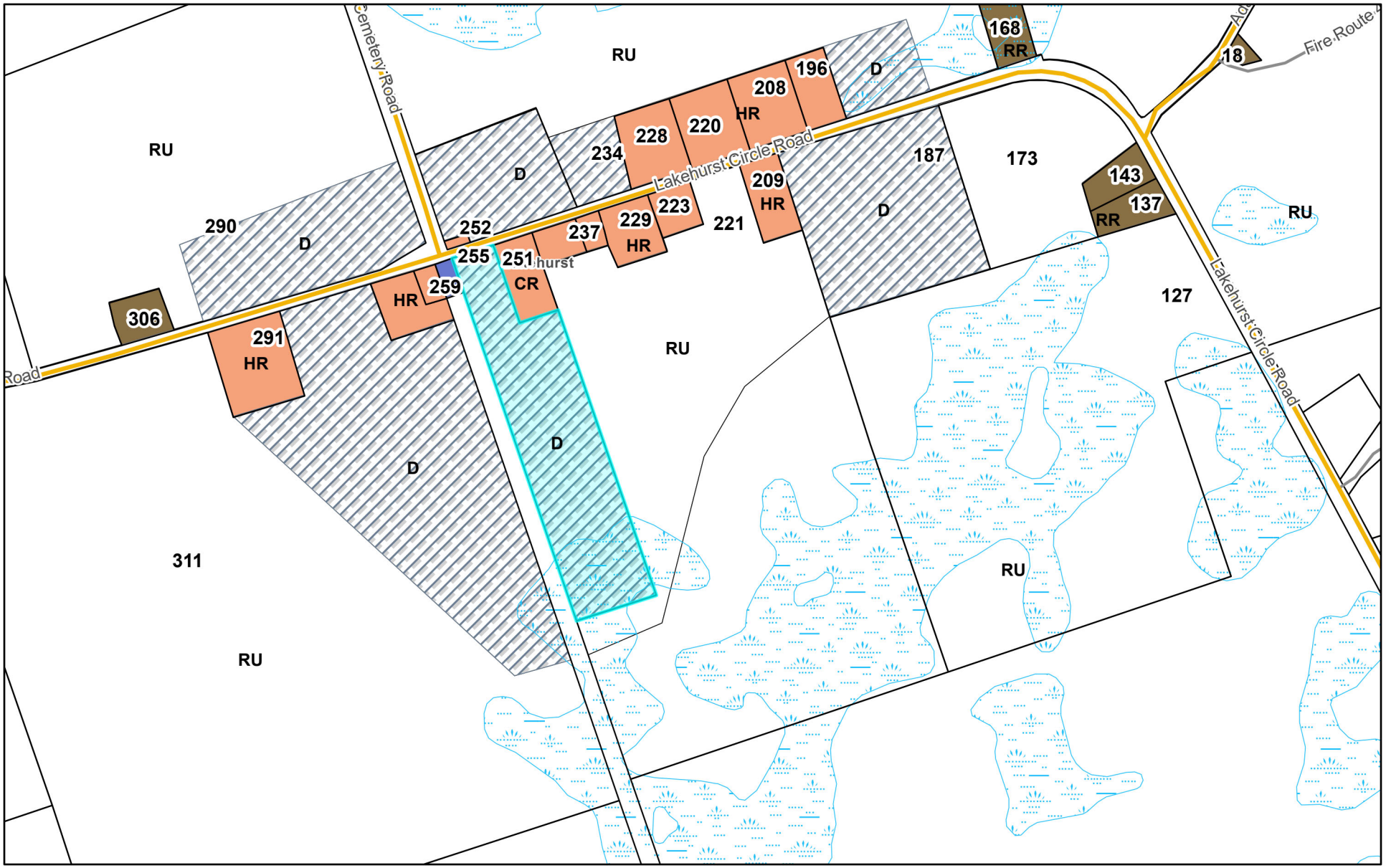


Figure 4 - Zoning

County of Peterborough Map



7/23/2025, 9:48:36 AM

1:8,540

0 0.05 0.1 0.2 mi

0 0.07 0.15 0.3 km

Roads

Township Road

Private Road

Parcel Fabric

Wetland

Non-Evaluated

Trent Lakes Zoning By-Law

Rural Residential Zone

Hamlet Residential Zone

Community Facility Zone

Rural Zone

Development Zone

Peterborough County GIS Viewer

This map is a user generated static output from an Internet mapping site and is for reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable. THIS MAP IS NOT TO BE USED FOR NAVIGATION.

Appended Tables

Table 1 - Noise Source Summary Table

Source ID	Description	A-Weighted Sound Power Level After Reduction								Total	Data Source	Equipment Location	Effective Operating Times/Limits (%) or PWL reduction for sound system	Proposed Noise Control[1]	Noise Quality[2]	Source Location	UTM Easting	UTM Northing	Height Above Rooftop or Ground
		63	125	250	500	1000	2000	4000	8000	dBA									
SP01	Outdoor Event	--	--	--	93	--	--	--	--	93	Cambium Noise Source Library - Adjusted	Outdoor Space	100, 5 dB, 5 dB	**Reduction**	**T**	At Grade	704251	4934019	1.5
SP01_A	Outdoor Event - Voice	--	--	--	90.5	--	--	--	--	90.5	Cambium Noise Source Library and General References	Outdoor Space	100, -, -	**Various Potential Options**	**T**	At Grade	704251	4934019	1.5
SP01_B	Outdoor Event - Amplified Voice	--	--	--	95.5	--	--	--	--	95.5		Outdoor Space	100, -, -		**T**	At Grade	704251	4934019	1.5
SP01_C	Outdoor Event - Music	--	--	--	100.5	--	--	--	--	100.5		Outdoor Space	100, -, -		**T**	At Grade	704251	4934019	1.5
SP01_D	Outdoor Event - Amplified Music	--	--	--	105.5	--	--	--	--	105.5		Outdoor Space	100, -, -		**T**	At Grade	704251	4934019	1.5
TR01	Idle Engine	68	75	78	76	76	74	68	60	83	Cambium Noise Source Library	Parking Lot	50, 25, 25	N/A	SS	At Grade	704228	4934042	1.0
TR02	Moving Vehicles	85	84	85	88	92	90	83	72	96	Cambium Noise Source Library	Parking Lot	100, 100, 100	N/A	SS	At Grade	704215	4934068	2.5
H_EF01	Hall - Kitchen Exhaust Fan	53	59	71	75	74	71	63	55	79	Cambium Site Measurements	Main Building	100,100,100	N/A	SS	Wall	704226	4934012	3.5
H_CD01	Hall - A/C Condenser - West	59	56	67	70	73	69	67	61	77	Cambium Site Measurements	Main Building	100,100,75	N/A	SS	Wall	704215	4934004	1.0
H_CD02	Hall - A/C Condenser - East	55	56	60	71	74	71	69	61	78	Cambium Site Measurements	Main Building	100,100,75	N/A	SS	Wall	704226	4934008	3.0
H_DR01	Hall - Main Door - Closed	55	72	76	79	79	73	72	61	84	Cambium Site Measurements and Noise Testing	Main Building	100,100,100	**Representative**	**T**	Wall	704209	4934040	1.5
H_NW01	Hall - North Wall	57	72	81	75	72	63	65	52	83		Main Building	100,100,100		**T**	Wall	704202	4934039	-
H_EW02	Hall - East Wall and Windows - Closed	74	81	92	88	82	77	72	56	94		Main Building	100,100,100		**T**	Wall	704218	4934021	-
H_WW01	Hall - West Wall	71	83	91	83	79	73	61	50	92		Main Building	100,100,100		**T**	Wall	704209	4934018	-

[1] Noise Control Descriptions:

N/A	Not applicable
S	Silencer
B	Barrier
E	Enclosure

[2] Noise Quality Descriptions:

SS	Steady State
T	Tonal
I	Impulse
QS	Quasi Steady

Table 2 - Acoustic Assessment Summary - Steady State_Outdoor - Threshold of Control - NPC-300 - (SP01 = Approx. Voice/Amp.Voice)

Point of Reception ID	Point of Reception Information					Noise Characteristic	Daytime (dBA)	Evening (dBA)	Nighttime (dBA)	Verified by Acoustic Audit (Yes or No)	Daytime Limit (dBA)	Evening Limit (dBA)	Nighttime Limit (dBA)	Compliant with Limit
	Description*	UTM Easting	UTM Northing	Height POW	Height OLA									
POR01_A	252 Lakehurst Circle Rd	704240	4934091	4.5	-	Steady State Leq	43	39	39	N	**49**	40	40	Yes
POR01_B	OLA	704207	4934090	-	1.5	Steady State Leq	41	37	-	N	45	40	-	Yes
POR01_C	OLA	704235	4934084	-	1.5	Steady State Leq	44	40	-	N	**49**	40	-	Yes
POR01_D	OLA	704276	4934098	-	1.5	Steady State Leq	38	33	-	N	**49**	40	-	Yes
POR02_A	251 Lakehurst Circle Rd	704284	4934036	1.5	-	Steady State Leq	45	40	40	N	45	40	40	Yes
POR02_B	OLA	704273	4934064	-	1.5	Steady State Leq	43	39	-	N	45	40	-	Yes
POR02_C	OLA	704291	4933998	-	1.5	Steady State Leq	43	38	-	N	45	40	-	Yes
POR02_D	OLA	704323	4934012	-	1.5	Steady State Leq	38	33	-	N	45	40	-	Yes
POR03_A	245 Lakehurst Circle Rd	704316	4934069	4.5	-	Steady State Leq	40	36	36	N	45	40	40	Yes
POR03_B	OLA	704316	4934059	-	1.5	Steady State Leq	37	33	-	N	45	40	-	Yes
POR04_A	237 Lakehurst Circle Rd	704355	4934096	4.5	-	Steady State Leq	36	31	31	N	45	40	40	Yes
POR04_B	OLA	704363	4934075	-	1.5	Steady State Leq	32	28	-	N	45	40	-	Yes
POR05_A	263 Lakehurst Circle Rd	704195	4934036	2.0	-	Steady State Leq	39	35	35	N	45	40	40	Yes
POR05_B	OLA	704204	4934019	-	1.5	Steady State Leq	34	30	-	N	45	40	-	Yes
POR06_A	265 Lakehurst Circle Rd	704169	4934018	4.5	-	Steady State Leq	36	32	32	N	45	40	40	Yes
POR06_B	OLA	704205	4934008	-	1.5	Steady State Leq	32	28	-	N	45	40	-	Yes
POR06_C	OLA	704190	4933990	-	1.5	Steady State Leq	39	34	-	N	45	40	-	Yes
POR07_A	290 Lakehurst Circle Rd	703964	4934102	4.5	-	Steady State Leq	27	23	23	N	45	40	40	Yes
POR07_B	OLA	703994	4934095	-	1.5	Steady State Leq	25	21	-	N	45	40	-	Yes

Table 3A - Acoustic Assessment Summary - Steady State_Outdoor - NPC-300 With Barriers - (SP01_A = Voice)

Point of Reception ID	Point of Reception Information					Noise Characteristic	Daytime (dBA)	Verified by Acoustic Audit (Yes or No)	Daytime Limit (dBA)	Compliant with Limit
	Description*	UTM Easting	UTM Northing	Height POW	Height OLA					
POR01_A	252 Lakehurst Circle Rd	704240	4934091	4.5	-	Steady State Leq	42	N	**49**	Yes
POR01_B	OLA	704207	4934090	-	1.5	Steady State Leq	40	N	45	Yes
POR01_C	OLA	704235	4934084	-	1.5	Steady State Leq	43	N	**49**	Yes
POR01_D	OLA	704276	4934098	-	1.5	Steady State Leq	36	N	**49**	Yes
POR02_A	251 Lakehurst Circle Rd	704284	4934036	1.5	-	Steady State Leq	43	N	45	Yes
POR02_B	OLA	704273	4934064	-	1.5	Steady State Leq	41	N	45	Yes
POR02_C	OLA	704291	4933998	-	1.5	Steady State Leq	41	N	45	Yes
POR02_D	OLA	704323	4934012	-	1.5	Steady State Leq	35	N	45	Yes
POR03_A	245 Lakehurst Circle Rd	704316	4934069	4.5	-	Steady State Leq	38	N	45	Yes
POR03_B	OLA	704316	4934059	-	1.5	Steady State Leq	35	N	45	Yes
POR04_A	237 Lakehurst Circle Rd	704355	4934096	4.5	-	Steady State Leq	34	N	45	Yes
POR04_B	OLA	704363	4934075	-	1.5	Steady State Leq	31	N	45	Yes
POR05_A	263 Lakehurst Circle Rd	704195	4934036	2.0	-	Steady State Leq	38	N	45	Yes
POR05_B	OLA	704204	4934019	-	1.5	Steady State Leq	33	N	45	Yes
POR06_A	265 Lakehurst Circle Rd	704169	4934018	4.5	-	Steady State Leq	35	N	45	Yes
POR06_B	OLA	704205	4934008	-	1.5	Steady State Leq	31	N	45	Yes
POR06_C	OLA	704190	4933990	-	1.5	Steady State Leq	37	N	45	Yes
POR07_A	290 Lakehurst Circle Rd	703964	4934102	4.5	-	Steady State Leq	25	N	45	Yes
POR07_B	OLA	703994	4934095	-	1.5	Steady State Leq	24	N	45	Yes

Table 3B - Acoustic Assessment Summary - Steady State_Outdoor - NPC-300 With Barriers - (SP01_B = Amplified Voice)

Point of Reception ID	Point of Reception Information					Noise Characteristic	Daytime (dBA)	Verified by Acoustic Audit (Yes or No)	Daytime Limit (dBA)	Compliant with Limit
	Description*	UTM Easting	UTM Northing	Height POW	Height OLA					
POR01_A	252 Lakehurst Circle Rd	704240	4934091	4.5	-	Steady State Leq	44	N	**49**	Yes
POR01_B	OLA	704207	4934090	-	1.5	Steady State Leq	42	N	45	Yes
POR01_C	OLA	704235	4934084	-	1.5	Steady State Leq	45	N	**49**	Yes
POR01_D	OLA	704276	4934098	-	1.5	Steady State Leq	39	N	**49**	Yes
POR02_A	251 Lakehurst Circle Rd	704284	4934036	1.5	-	Steady State Leq	45	N	45	Yes
POR02_B	OLA	704273	4934064	-	1.5	Steady State Leq	45	N	45	Yes
POR02_C	OLA	704291	4933998	-	1.5	Steady State Leq	45	N	45	Yes
POR02_D	OLA	704323	4934012	-	1.5	Steady State Leq	40	N	45	Yes
POR03_A	245 Lakehurst Circle Rd	704316	4934069	4.5	-	Steady State Leq	42	N	45	Yes
POR03_B	OLA	704316	4934059	-	1.5	Steady State Leq	39	N	45	Yes
POR04_A	237 Lakehurst Circle Rd	704355	4934096	4.5	-	Steady State Leq	38	N	45	Yes
POR04_B	OLA	704363	4934075	-	1.5	Steady State Leq	34	N	45	Yes
POR05_A	263 Lakehurst Circle Rd	704195	4934036	2.0	-	Steady State Leq	40	N	45	Yes
POR05_B	OLA	704204	4934019	-	1.5	Steady State Leq	36	N	45	Yes
POR06_A	265 Lakehurst Circle Rd	704169	4934018	4.5	-	Steady State Leq	38	N	45	Yes
POR06_B	OLA	704205	4934008	-	1.5	Steady State Leq	34	N	45	Yes
POR06_C	OLA	704190	4933990	-	1.5	Steady State Leq	41	N	45	Yes
POR07_A	290 Lakehurst Circle Rd	703964	4934102	4.5	-	Steady State Leq	29	N	45	Yes
POR07_B	OLA	703994	4934095	-	1.5	Steady State Leq	26	N	45	Yes

Table 3C - Acoustic Assessment Summary - Steady State_Outdoor - NPC-300 With Barriers - (SP01_C = Music)

Point of Reception ID	Point of Reception Information					Noise Characteristic	Daytime (dBA)	Verified by Acoustic Audit (Yes or No)	Daytime Limit (dBA)	Compliant with Limit
	Description*	UTM Easting	UTM Northing	Height POW	Height OLA					
POR01_A	252 Lakehurst Circle Rd	704240	4934091	4.5	-	Steady State Leq	48	N	**49**	Yes
POR01_B	OLA	704207	4934090	-	1.5	Steady State Leq	42	N	45	Yes
POR01_C	OLA	704235	4934084	-	1.5	Steady State Leq	45	N	**49**	Yes
POR01_D	OLA	704276	4934098	-	1.5	Steady State Leq	44	N	**49**	Yes
POR02_A	251 Lakehurst Circle Rd	704284	4934036	1.5	-	Steady State Leq	43	N	45	Yes
POR02_B	OLA	704273	4934064	-	1.5	Steady State Leq	45	N	45	Yes
POR02_C	OLA	704291	4933998	-	1.5	Steady State Leq	42	N	45	Yes
POR02_D	OLA	704323	4934012	-	1.5	Steady State Leq	42	N	45	Yes
POR03_A	245 Lakehurst Circle Rd	704316	4934069	4.5	-	Steady State Leq	41	N	45	Yes
POR03_B	OLA	704316	4934059	-	1.5	Steady State Leq	42	N	45	Yes
POR04_A	237 Lakehurst Circle Rd	704355	4934096	4.5	-	Steady State Leq	39	N	45	Yes
POR04_B	OLA	704363	4934075	-	1.5	Steady State Leq	38	N	45	Yes
POR05_A	263 Lakehurst Circle Rd	704195	4934036	2.0	-	Steady State Leq	43	N	45	Yes
POR05_B	OLA	704204	4934019	-	1.5	Steady State Leq	40	N	45	Yes
POR06_A	265 Lakehurst Circle Rd	704169	4934018	4.5	-	Steady State Leq	43	N	45	Yes
POR06_B	OLA	704205	4934008	-	1.5	Steady State Leq	39	N	45	Yes
POR06_C	OLA	704190	4933990	-	1.5	Steady State Leq	45	N	45	Yes
POR07_A	290 Lakehurst Circle Rd	703964	4934102	4.5	-	Steady State Leq	34	N	45	Yes
POR07_B	OLA	703994	4934095	-	1.5	Steady State Leq	31	N	45	Yes

Table 3D - Acoustic Assessment Summary - Steady State_Outdoor - NPC-300 With Barriers - (SP01_D = Amplified Music)

Point of Reception ID	Point of Reception Information					Noise Characteristic	Daytime (dBA)	Verified by Acoustic Audit (Yes or No)	Daytime Limit (dBA)	Compliant with Limit
	Description*	UTM Easting	UTM Northing	Height POW	Height OLA					
POR01_A	252 Lakehurst Circle Rd	704240	4934091	4.5	-	Steady State Leq	53	N	**49**	No
POR01_B	OLA	704207	4934090	-	1.5	Steady State Leq	46	N	45	No
POR01_C	OLA	704235	4934084	-	1.5	Steady State Leq	49	N	**49**	Yes
POR01_D	OLA	704276	4934098	-	1.5	Steady State Leq	49	N	**49**	Yes
POR02_A	251 Lakehurst Circle Rd	704284	4934036	1.5	-	Steady State Leq	48	N	45	No
POR02_B	OLA	704273	4934064	-	1.5	Steady State Leq	50	N	45	No
POR02_C	OLA	704291	4933998	-	1.5	Steady State Leq	47	N	45	No
POR02_D	OLA	704323	4934012	-	1.5	Steady State Leq	47	N	45	No
POR03_A	245 Lakehurst Circle Rd	704316	4934069	4.5	-	Steady State Leq	45	N	45	Yes
POR03_B	OLA	704316	4934059	-	1.5	Steady State Leq	46	N	45	No
POR04_A	237 Lakehurst Circle Rd	704355	4934096	4.5	-	Steady State Leq	44	N	45	Yes
POR04_B	OLA	704363	4934075	-	1.5	Steady State Leq	42	N	45	Yes
POR05_A	263 Lakehurst Circle Rd	704195	4934036	2.0	-	Steady State Leq	47	N	45	No
POR05_B	OLA	704204	4934019	-	1.5	Steady State Leq	45	N	45	Yes
POR06_A	265 Lakehurst Circle Rd	704169	4934018	4.5	-	Steady State Leq	48	N	45	No
POR06_B	OLA	704205	4934008	-	1.5	Steady State Leq	43	N	45	Yes
POR06_C	OLA	704190	4933990	-	1.5	Steady State Leq	50	N	45	No
POR07_A	290 Lakehurst Circle Rd	703964	4934102	4.5	-	Steady State Leq	38	N	45	Yes
POR07_B	OLA	703994	4934095	-	1.5	Steady State Leq	36	N	45	Yes

Table 4A - Acoustic Assessment Summary - Steady State_Outdoor - Significance of Change (SP01_A = Voice)

Point of Reception ID	Point of Reception Information					Noise Characteristic	Current Predicted Impact All Activities (dBA)			Proposed Impact (dBA)			Predicted Change (Proposed vs Current) (dBA)			Perceived Increase in Sound Level		
	Description*	UTM Easting	UTM Northing	Height POW	Height OLA		Daytime (dBA)	Evening (dBA)	Nighttime (dBA)	Daytime (dBA)	Evening (dBA)	Nighttime (dBA)	Daytime (dBA)	Evening (dBA)	Nighttime (dBA)	Daytime (0700-1900)	Evening (1900-2300)	Night (2300-0700)
POR01_A	252 Lakehurst Circle Rd	704240	4934091	4.5	-	Steady State Leq	51	44	42	51	45	43	0	1	1	Insignificant	Insignificant	Insignificant
POR01_B	OLA	704207	4934090	-	1.5	Steady State Leq	48	42	-	48	43	-	0	1	-	Insignificant	Insignificant	-
POR01_C	OLA	704235	4934084	-	1.5	Steady State Leq	53	46	-	53	46	-	0	0	-	Insignificant	Insignificant	-
POR01_D	OLA	704276	4934098	-	1.5	Steady State Leq	53	44	-	53	45	-	0	0	-	Insignificant	Insignificant	-
POR02_A	251 Lakehurst Circle Rd	704284	4934036	1.5	-	Steady State Leq	43	38	36	46	44	44	3	6	7	Insignificant	Significant	Significant
POR02_B	OLA	704273	4934064	-	1.5	Steady State Leq	48	41	-	48	43	-	1	2	-	Insignificant	Insignificant	-
POR02_C	OLA	704291	4933998	-	1.5	Steady State Leq	40	37	-	43	42	-	3	5	-	Noticeable	Significant	-
POR02_D	OLA	704323	4934012	-	1.5	Steady State Leq	40	35	-	41	38	-	1	3	-	Insignificant	Noticeable	-
POR03_A	245 Lakehurst Circle Rd	704316	4934069	4.5	-	Steady State Leq	46	39	36	46	41	40	1	2	4	Insignificant	Insignificant	Noticeable
POR03_B	OLA	704316	4934059	-	1.5	Steady State Leq	44	37	-	44	38	-	0	2	-	Insignificant	Insignificant	-
POR04_A	237 Lakehurst Circle Rd	704355	4934096	4.5	-	Steady State Leq	48	39	35	48	40	37	0	1	2	Insignificant	Insignificant	Insignificant
POR04_B	OLA	704363	4934075	-	1.5	Steady State Leq	44	36	-	44	36	-	0	1	-	Insignificant	Insignificant	-
POR05_A	263 Lakehurst Circle Rd	704195	4934036	2.0	-	Steady State Leq	50	46	45	50	46	45	0	0	0	Insignificant	Insignificant	Insignificant
POR05_B	OLA	704204	4934019	-	1.5	Steady State Leq	52	52	-	52	52	-	0	0	-	Insignificant	Insignificant	-
POR06_A	265 Lakehurst Circle Rd	704169	4934018	4.5	-	Steady State Leq	46	39	37	46	40	38	0	1	1	Insignificant	Insignificant	Insignificant
POR06_B	OLA	704205	4934008	-	1.5	Steady State Leq	44	43	-	45	43	-	0	0	-	Insignificant	Insignificant	-
POR06_C	OLA	704190	4933990	-	1.5	Steady State Leq	42	39	-	43	41	-	1	2	-	Insignificant	Insignificant	-
POR07_A	290 Lakehurst Circle Rd	703964	4934102	4.5	-	Steady State Leq	38	29	25	38	30	27	0	1	2	Insignificant	Insignificant	Insignificant
POR07_B	OLA	703994	4934095	-	1.5	Steady State Leq	37	29	-	37	29	-	0	0	-	Insignificant	Insignificant	-

Table 4B - Acoustic Assessment Summary - Steady State_Outdoor - Significance of Change (SP01_B = Amplified Voice)

Point of Reception ID	Point of Reception Information					Noise Characteristic	Current Predicted Impact All Activities (dBA)			Proposed Impact (dBA)			Predicted Change (Proposed vs Current) (dBA)			Perceived Increase in Sound Level		
	Description*	UTM Easting	UTM Northing	Height POW	Height OLA		Daytime (dBA)	Evening (dBA)	Nighttime (dBA)	Daytime (dBA)	Evening (dBA)	Nighttime (dBA)	Daytime (dBA)	Evening (dBA)	Nighttime (dBA)	Daytime (0700-1900)	Evening (1900-2300)	Night (2300-0700)
POR01_A	252 Lakehurst Circle Rd	704240	4934091	4.5	-	Steady State Leq	51	44	42	52	46	45	0	2	3	Insignificant	Insignificant	Insignificant
POR01_B	OLA	704207	4934090	-	1.5	Steady State Leq	48	42	-	49	44	-	1	2	-	Insignificant	Insignificant	-
POR01_C	OLA	704235	4934084	-	1.5	Steady State Leq	53	46	-	53	47	-	0	1	-	Insignificant	Insignificant	-
POR01_D	OLA	704276	4934098	-	1.5	Steady State Leq	53	44	-	53	45	-	0	1	-	Insignificant	Insignificant	-
POR02_A	251 Lakehurst Circle Rd	704284	4934036	1.5	-	Steady State Leq	43	38	36	49	48	48	6	10	12	Significant	Very Significant	Very Significant
POR02_B	OLA	704273	4934064	-	1.5	Steady State Leq	48	41	-	49	46	-	2	5	-	Insignificant	Noticeable	-
POR02_C	OLA	704291	4933998	-	1.5	Steady State Leq	40	37	-	47	46	-	6	9	-	Significant	Significant	-
POR02_D	OLA	704323	4934012	-	1.5	Steady State Leq	40	35	-	43	41	-	3	6	-	Insignificant	Significant	-
POR03_A	245 Lakehurst Circle Rd	704316	4934069	4.5	-	Steady State Leq	46	39	36	47	44	43	2	5	7	Insignificant	Significant	Significant
POR03_B	OLA	704316	4934059	-	1.5	Steady State Leq	44	37	-	45	41	-	1	4	-	Insignificant	Noticeable	-
POR04_A	237 Lakehurst Circle Rd	704355	4934096	4.5	-	Steady State Leq	48	39	35	48	42	39	0	2	4	Insignificant	Insignificant	Noticeable
POR04_B	OLA	704363	4934075	-	1.5	Steady State Leq	44	36	-	44	38	-	0	2	-	Insignificant	Insignificant	-
POR05_A	263 Lakehurst Circle Rd	704195	4934036	2.0	-	Steady State Leq	50	46	45	50	46	46	0	0	0	Insignificant	Insignificant	Insignificant
POR05_B	OLA	704204	4934019	-	1.5	Steady State Leq	52	52	-	52	52	-	0	0	-	Insignificant	Insignificant	-
POR06_A	265 Lakehurst Circle Rd	704169	4934018	4.5	-	Steady State Leq	46	39	37	47	41	40	0	2	3	Insignificant	Insignificant	Insignificant
POR06_B	OLA	704205	4934008	-	1.5	Steady State Leq	44	43	-	45	43	-	0	0	-	Insignificant	Insignificant	-
POR06_C	OLA	704190	4933990	-	1.5	Steady State Leq	42	39	-	45	43	-	2	4	-	Insignificant	Noticeable	-
POR07_A	290 Lakehurst Circle Rd	703964	4934102	4.5	-	Steady State Leq	38	29	25	38	31	29	0	2	4	Insignificant	Insignificant	Noticeable
POR07_B	OLA	703994	4934095	-	1.5	Steady State Leq	37	29	-	38	30	-	0	1	-	Insignificant	Insignificant	-

Table 4C - Acoustic Assessment Summary - Steady State_Outdoor - Significance of Change (SP01_C = Music)

Point of Reception ID	Point of Reception Information					Noise Characteristic	Current Predicted Impact All Activities (dBA)			Proposed Impact (dBA)			Predicted Change (Proposed vs Current) (dBA)			Perceived Increase in Sound Level		
	Description*	UTM Easting	UTM Northing	Height POW	Height OLA		Daytime (dBA)	Evening (dBA)	Nighttime (dBA)	Daytime (dBA)	Evening (dBA)	Nighttime (dBA)	Daytime (dBA)	Evening (dBA)	Nighttime (dBA)	Daytime (0700-1900)	Evening (1900-2300)	Night (2300-0700)
POR01_A	252 Lakehurst Circle Rd	704240	4934091	4.5	-	Steady State Leq	51	44	42	53	49	48	1	5	6	Insignificant	Noticeable	Significant
POR01_B	OLA	704207	4934090	-	1.5	Steady State Leq	48	42	-	50	46	-	2	4	-	Insignificant	Noticeable	-
POR01_C	OLA	704235	4934084	-	1.5	Steady State Leq	53	46	-	54	49	-	1	4	-	Insignificant	Noticeable	-
POR01_D	OLA	704276	4934098	-	1.5	Steady State Leq	53	44	-	53	47	-	0	2	-	Insignificant	Insignificant	-
POR02_A	251 Lakehurst Circle Rd	704284	4934036	1.5	-	Steady State Leq	43	38	36	53	53	53	10	15	16	Very Significant	Very Significant	Very Significant
POR02_B	OLA	704273	4934064	-	1.5	Steady State Leq	48	41	-	51	50	-	4	9	-	Noticeable	Significant	-
POR02_C	OLA	704291	4933998	-	1.5	Steady State Leq	40	37	-	51	51	-	11	14	-	Very Significant	Very Significant	-
POR02_D	OLA	704323	4934012	-	1.5	Steady State Leq	40	35	-	46	45	-	6	11	-	Significant	Very Significant	-
POR03_A	245 Lakehurst Circle Rd	704316	4934069	4.5	-	Steady State Leq	46	39	36	50	48	47	4	9	12	Noticeable	Significant	Very Significant
POR03_B	OLA	704316	4934059	-	1.5	Steady State Leq	44	37	-	47	45	-	3	8	-	Noticeable	Significant	-
POR04_A	237 Lakehurst Circle Rd	704355	4934096	4.5	-	Steady State Leq	48	39	35	49	44	43	1	5	8	Insignificant	Noticeable	Significant
POR04_B	OLA	704363	4934075	-	1.5	Steady State Leq	44	36	-	45	40	-	1	4	-	Insignificant	Noticeable	-
POR05_A	263 Lakehurst Circle Rd	704195	4934036	2.0	-	Steady State Leq	50	46	45	50	47	47	1	1	1	Insignificant	Insignificant	Insignificant
POR05_B	OLA	704204	4934019	-	1.5	Steady State Leq	52	52	-	52	52	-	0	0	-	Insignificant	Insignificant	-
POR06_A	265 Lakehurst Circle Rd	704169	4934018	4.5	-	Steady State Leq	46	39	37	47	44	43	1	4	6	Insignificant	Noticeable	Significant
POR06_B	OLA	704205	4934008	-	1.5	Steady State Leq	44	43	-	45	44	-	1	1	-	Insignificant	Insignificant	-
POR06_C	OLA	704190	4933990	-	1.5	Steady State Leq	42	39	-	48	47	-	5	8	-	Significant	Significant	-
POR07_A	290 Lakehurst Circle Rd	703964	4934102	4.5	-	Steady State Leq	38	29	25	39	34	33	1	5	8	Insignificant	Noticeable	Significant
POR07_B	OLA	703994	4934095	-	1.5	Steady State Leq	37	29	-	38	32	-	1	3	-	Insignificant	Noticeable	-

Table 4D - Acoustic Assessment Summary - Steady State_Outdoor - Significance of Change (SP01_D = Amplified Music)

Point of Reception ID	Point of Reception Information					Noise Characteristic	Current Predicted Impact All Activities (dBA)			Proposed Impact (dBA)			Predicted Change (Proposed vs Current) (dBA)			Perceived Increase in Sound Level		
	Description*	UTM Easting	UTM Northing	Height POW	Height OLA		Daytime (dBA)	Evening (dBA)	Nighttime (dBA)	Daytime (dBA)	Evening (dBA)	Nighttime (dBA)	Daytime (dBA)	Evening (dBA)	Nighttime (dBA)	Daytime (0700-1900)	Evening (1900-2300)	Night (2300-0700)
POR01_A	252 Lakehurst Circle Rd	704240	4934091	4.5	-	Steady State Leq	51	44	42	55	53	53	3	8	10	Noticeable	Significant	Very Significant
POR01_B	OLA	704207	4934090	-	1.5	Steady State Leq	48	42	-	52	50	-	4	8	-	Noticeable	Significant	-
POR01_C	OLA	704235	4934084	-	1.5	Steady State Leq	53	46	-	55	53	-	3	7	-	Insignificant	Significant	-
POR01_D	OLA	704276	4934098	-	1.5	Steady State Leq	53	44	-	54	50	-	1	5	-	Insignificant	Significant	-
POR02_A	251 Lakehurst Circle Rd	704284	4934036	1.5	-	Steady State Leq	43	38	36	58	58	58	15	20	21	Very Significant	Very Significant	Very Significant
POR02_B	OLA	704273	4934064	-	1.5	Steady State Leq	48	41	-	55	54	-	7	14	-	Significant	Very Significant	-
POR02_C	OLA	704291	4933998	-	1.5	Steady State Leq	40	37	-	56	56	-	16	19	-	Very Significant	Very Significant	-
POR02_D	OLA	704323	4934012	-	1.5	Steady State Leq	40	35	-	50	50	-	10	15	-	Very Significant	Very Significant	-
POR03_A	245 Lakehurst Circle Rd	704316	4934069	4.5	-	Steady State Leq	46	39	36	53	52	52	7	14	16	Significant	Very Significant	Very Significant
POR03_B	OLA	704316	4934059	-	1.5	Steady State Leq	44	37	-	50	49	-	6	13	-	Significant	Very Significant	-
POR04_A	237 Lakehurst Circle Rd	704355	4934096	4.5	-	Steady State Leq	48	39	35	51	48	48	3	9	13	Insignificant	Significant	Very Significant
POR04_B	OLA	704363	4934075	-	1.5	Steady State Leq	44	36	-	47	44	-	3	8	-	Insignificant	Significant	-
POR05_A	263 Lakehurst Circle Rd	704195	4934036	2.0	-	Steady State Leq	50	46	45	51	49	49	1	3	3	Insignificant	Noticeable	Noticeable
POR05_B	OLA	704204	4934019	-	1.5	Steady State Leq	52	52	-	53	53	-	1	1	-	Insignificant	Insignificant	-
POR06_A	265 Lakehurst Circle Rd	704169	4934018	4.5	-	Steady State Leq	46	39	37	49	47	47	3	8	10	Noticeable	Significant	Very Significant
POR06_B	OLA	704205	4934008	-	1.5	Steady State Leq	44	43	-	47	46	-	2	3	-	Insignificant	Noticeable	-
POR06_C	OLA	704190	4933990	-	1.5	Steady State Leq	42	39	-	52	52	-	9	12	-	Significant	Very Significant	-
POR07_A	290 Lakehurst Circle Rd	703964	4934102	4.5	-	Steady State Leq	38	29	25	41	38	38	3	9	13	Insignificant	Significant	Very Significant
POR07_B	OLA	703994	4934095	-	1.5	Steady State Leq	37	29	-	39	36	-	2	7	-	Insignificant	Significant	-

Appendix A

Noise Source Supporting Information

Raw Measurement Data

Source ID	1/3rd Octave Centre Frequency (Hz), Sound Pressure Level (dB)																							
	50	63	80	100	125	160	200	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150	4000	5000	6300	8000	10000
EF01	53.0	52.4	55.6	48.7	48.5	50.4	49.9	48.7	57.0	54.5	49.7	50.4	48.3	48.2	47.1	45.5	43.5	40.8	37.9	36.2	34.8	32.7	28.8	26.5
CD01	53.2	62.6	59.6	48.3	49.2	43.9	48.2	51.8	50.7	47.8	48.8	47.7	48.1	50.1	46.4	43.6	43.0	43.0	41.1	40.6	40.7	39.6	35.2	34.7
CD02	51.3	60.0	51.9	47.3	50.0	44.0	42.0	46.3	42.9	46.5	49.5	50.2	48.7	50.0	47.8	44.3	44.2	46.4	44.8	43.5	40.4	39.0	36.5	36.1
NW01	58.1	60.7	64.0	67.7	63.0	67.5	69.5	70.5	63.5	58.3	56.9	55.0	54.1	49.0	46.4	41.8	40.3	39.4	41.0	45.3	39.8	35.4	28.7	21.2
DR01	62.4	66.0	67.7	74.1	69.2	73.6	70.8	67.9	66.8	62.2	67.3	67.9	65.0	62.9	60.5	56.3	55.7	56.6	57.6	55.6	52.1	48.3	46.1	39.9
WW01	67.1	71.8	76.2	76.0	72.8	75.5	78.9	73.3	67.0	65.8	60.5	59.0	58.9	51.8	50.4	47.9	48.3	45.9	40.0	33.6	29.8	27.8	27.4	26.8
EW01	65.5	71.5	72.6	71.6	70.8	71.6	77.7	75.1	69.9	65.7	61.1	62.1	56.7	52.7	48.6	46.8	47.5	45.7	42.9	40.1	40.7	33.3	28.6	24.3
EW01	62.7	68.5	73.3	68.2	65.5	67.5	71.4	73.1	68.4	63.3	59.7	59.1	54.7	49.9	46.7	44.4	44.0	43.3	40.9	38.7	38.4	36.3	29.1	23.9
EW01	61.6	62.9	70.1	70.0	64.3	65.2	63.5	66.5	63.2	59.3	55.3	53.0	50.6	46.6	42.9	41.3	41.4	41.0	39.1	37.4	34.0	28.7	26.3	21.7
EW01	62.8	58.8	70.3	66.1	63.9	62.9	65.5	66.2	60.6	53.4	50.2	49.9	46.8	43.5	38.5	39.0	38.8	38.4	36.5	34.2	31.6	25.7	23.9	17.9
EW02	72.3	73.1	71.1	70.9	71.3	71.1	73.8	72.4	69.8	66.5	64.3	61.7	57.8	52.5	49.8	48.7	49.8	49.2	47.0	42.9	41.1	32.8	27.7	22.0
EW02	68.9	70.4	73.5	67.7	66.4	68.1	70.3	73.7	68.8	63.9	61.6	59.4	55.3	50.5	48.9	47.0	46.7	46.2	44.6	40.4	39.1	31.5	26.6	20.6
EW02	65.5	62.6	71.9	74.0	66.0	65.8	67.0	67.4	63.8	58.4	56.9	54.4	51.7	46.6	44.3	43.4	43.8	42.8	39.5	35.8	32.4	30.9	24.2	19.6
EW02	59.2	63.1	70.8	68.1	63.3	63.4	65.6	66.8	60.0	54.8	50.5	49.0	45.6	42.1	40.0	38.5	40.1	37.7	36.1	34.5	29.0	27.9	24.2	17.7
EW03	56.8	53.4	66.0	61.7	61.0	60.1	60.3	61.1	58.0	51.6	47.6	43.8	39.8	36.1	34.5	34.1	33.0	33.3	35.1	36.5	32.3	30.2	26.6	19.2
TR01	54.4	65.7	54.4	60.7	55.1	58.0	49.7	55.0	53.9	47.5	45.4	46.2	44.8	43.4	42.5	42.0	39.1	37.9	36.2	32.9	31.9	30.2	28.1	26.6
TR02	84.3	82.4	67.0	70.8	69.2	70.7	67.2	60.9	60.7	61.8	61.4	60.9	59.9	64.0	61.3	61.6	58.1	56.1	54.8	51.6	48.4	45.8	42.2	39.5
RD01	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SP01_A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SP01_B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SP01_C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SP01_D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Point Source Sound Power Level Calculations

*[1]Lw=Lp+20*log(r)+11-10*log(Q)*

*Lp(total)=10*log(10(Lp(31Hz)/10)+10(Lp(63Hz)/10)+…+10(Lp(8kHz)/10))*

r is distance measurement was taken, Q is directivity index

						SPL (dB)		PWL (dB)									
File Name	Source ID	Total Measurement Distance (m)	Directivity Factor (Q)	Quasi Steady (Yes/No)	Tonal (Yes/No)	Total (dB)	Total (dBA)	63	125	250	500	1000	2000	4000	8000	Total (dB)	Total (dBA)
20240617003	EF01	4.5	2	No	No	**64**	58	80	75	79	78	74	69	62	56	**85**	79
20240617005	CD01	4.0	2	No	No	**66**	57	85	72	75	73	73	68	66	62	**86**	77
20240617007	CD02	4.0	2	No	No	**63**	58	81	73	69	74	74	70	68	62	**83**	78
Cal, Tonal	NW01	-	-	-	-	-	-	70	75	78	66	60	49	51	40	**80**	71
20240617017	DR01	2.0	4	No	No	**81**	73	82	89	85	82	79	72	71	62	**92**	84
Cal, Tonal	WW01	-	-	-	-	-	-	80	82	82	70	62	54	43	34	**86**	75
Cal, Tonal	EW02	-	-	-	-	-	-	84	80	84	74	65	59	54	41	**88**	77
L_00049	TR01	10.0	2	No	No	**69**	55	94	91	86	79	76	73	67	61	**97**	83
L_00001	TR02	7.0	2	No	No	**87**	71	111	100	94	91	92	89	82	73	**112**	96
0	RD01	15.0	2	No	No	**14**	12	84	72	66	63	64	61	54	45	**84**	69
Ref_01	SP01_A	8.0	2	No	Yes	-	60	-	-	-	-	-	-	-	-	-	90.5
Ref_02	SP01_B	8.0	2	No	Yes	-	65	-	-	-	-	-	-	-	-	-	95.5
Ref_03	SP01_C	8.0	2	No	Yes	-	70	-	-	-	-	-	-	-	-	-	100.6
Ref_04	SP01_D	8.0	2	No	Yes	-	75	-	-	-	-	-	-	-	-	-	105.6

West Caldwell Calibration Laboratories Inc.

Certificate of Conformance

for

HANDHELD ANALYZER

Manufactured by:	BRUEL & KJAER
Model No:	2270
Serial No:	2679353
Calibration Recall No:	34892

Submitted By:

Customer:	TREVOR ROSS
Company:	Cambium Inc.
Address:	194 SOPHIA STREET
	Peterborough, On Canada K9H 1E5

The subject instrument was calibrated to the indicated specification using standards traceable to the SI through the National Institute of Standards and Technology or to accepted values of natural physical constants. This document certifies that the instrument met the following specification upon its return to the submitter.

West Caldwell Calibration Laboratories Procedure No. 2270 BRUEL & KJAER

Upon receipt for Calibration, the instrument was found to be:

Within (X)

tolerance of the indicated specification. See attached Report of Calibration.
The information supplied certifies that the item listed above meets acceptance criteria under the decision rule:

A=(L-(U95)), where A is the acceptance limit, L is the tolerance limit, and U95 is the expanded uncertainty. This minimizes the probability of false accept about less than 2.5%.
Measurements marked with (*) are not covered by the scope of accreditation.

The expanded uncertainty is based of the standard uncertainty multiplied by a coverage factor k=2 providing a level of confidence of approximately 95%. West Caldwell Calibration Laboratories' calibration control systems meets the requirements of ANSI/NCSL Z540-1, ISO 9001, and ISO 17025.

Note: With this Certificate, Report of Calibration is included

Approved by:

James Zhu

Quality Manager

Calibration Date:	26-Mar-24
Certificate Issue Date:	27-Mar-24
Certificate No:	34892 - 1

ISO/IEC 17025

ACCREDITED

Calibration Lab. Cert. # 1533.01

West Caldwell Calibration Laboratories, Inc.
uncompromised calibration
1575 State Route 96, Victor, NY 14564, U.S.A.

West Caldwell Calibration Laboratories Inc.

Certificate of Conformance

for

MICROPHONE

Manufactured by:	BRUEL & KJAER
Model No:	4189
Serial No:	2695416
Calibration Recall No:	34892

Submitted By:

Customer:	TREVOR ROSS
Company:	Cambium Inc.
Address:	194 SOPHIA STREET
	Peterborough, On Canada K9H 1E5

The subject instrument was calibrated to the indicated specification using standards traceable to the SI through the National Institute of Standards and Technology or to accepted values of natural physical constants. This document certifies that the instrument met the following specification upon its return to the submitter.

West Caldwell Calibration Laboratories Procedure No. 4189 BRUEL & KJAER

Upon receipt for Calibration, the instrument was found to be:

Within (X)

tolerance of the indicated specification. See attached Report of Calibration.
The information supplied certifies that the item listed above meets acceptance criteria under the decision rule:

A=(L-(U95)), where A is the acceptance limit, L is the tolerance limit, and U95 is the expanded uncertainty. This minimizes the probability of false accept about less than 2.5%.
Measurements marked with (*) are not covered by the scope of accreditation.

The expanded uncertainty is based of the standard uncertainty multiplied by a coverage factor k=2 providing a level of confidence of approximately 95%. West Caldwell Calibration Laboratories' calibration control systems meets the requirements of ANSI/NCSL Z540-1, ISO 9001, and ISO 17025.

Note: With this Certificate, Report of Calibration is included

Approved by:

James Zhu

Quality Manager

Calibration Date:	26-Mar-24
Certificate Issue Date:	27-Mar-24
Certificate No:	34892 - 2

ISO/IEC 17025

ACCREDITED

Calibration Lab. Cert. # 1533.01

West Caldwell Calibration Laboratories, Inc.
uncompromised calibration
1575 State Route 96, Victor, NY 14564, U.S.A.

West Caldwell Calibration Laboratories Inc.

Certificate of Conformance

for

PRECISION ACOUSTIC CALIBRATOR

Manufactured by:	**LARSON DAVIS**
Model No:	**CAL200**
Serial No:	**15401**
Calibration Recall No:	**34892**

Submitted By:

Customer:	**TREVOR ROSS**
Company:	**Cambium Inc.**
Address:	**194 SOPHIA STREET**
	Peterborough, On Canada **K9H 1E5**

The subject instrument was calibrated to the indicated specification using standards traceable to the SI through the National Institute of Standards and Technology or to accepted values of natural physical constants. This document certifies that the instrument met the following specification upon its return to the submitter.

West Caldwell Calibration Laboratories Procedure No. **CAL200** **LARSON DAVIS**

Upon receipt for Calibration, the instrument was found to be:

Within (X)

tolerance of the indicated specification. See attached Report of Calibration.
The information supplied certifies that the item listed above meets acceptance criteria under the decision rule:

A=(L-(U95)), where A is the acceptance limit, L is the tolerance limit, and U95 is the expanded uncertainty. This minimizes the probability of false accept about less than 2.5%.
Measurements marked with (*) are not covered by the scope of accreditation.

The expanded uncertainty is based of the standard uncertainty multiplied by a coverage factor k=2 providing a level of confidence of approximately 95%. West Caldwell Calibration Laboratories' calibration control systems meets the requirements of ANSI/NCSL Z540-1, ISO 9001, and ISO 17025.

Note: With this Certificate, Report of Calibration is included

Approved by:

James Zhu

Quality Manager

Calibration Date:	**26-Mar-24**
Certificate Issue Date:	**27-Mar-24**
Certificate No:	**34892 - 3**

ISO/IEC 17025

ACCREDITED

Calibration Lab. Cert. # 1533.01

West Caldwell Calibration Laboratories, Inc.
uncompromised calibration
1575 State Route 96, Victor, NY 14564, U.S.A.

Hourly Data Report for June 17, 2024

If selected Local Standard Time (LST), add 1 hour to adjust for Daylight Saving Time where and when it is observed.

PETERBOROUGH A
ONTARIO
Current Station Operator: NAVCAN

Latitude:	44°13'48.000" N	**Longitude:**	78°21'48.000" W
Elevation:	191.40 m	**Climate ID:**	6166415
WMO ID:	71436	**TC ID:**	YPQ

TIME LST	Temp °C	Dew Point °C	Rel Hum %	Precip. Amount mm	Wind Dir 10's deg	Wind Spd km/h	Visibility km	Stn Press kPa	Hmdx	Wind Chill	Weather
00:00	13.2	11.3	88	0.0	36	5	16.1	99.39			NA
01:00	13.3	12.2	93	0.0	M	4	16.1	99.36			NA
02:00	13.7	12.4	92	0.0	27	5	16.1	99.30			NA
03:00	14.6	13.5	93	0.2	14	9	16.1	99.21			Rain
04:00	14.7	14.2	97	3.8	1	15	6.4	99.39			Moderate Rain, Fog
05:00	15.0	14.9	99	2.3	21	8	11.3	99.53			Thunderstorms,Moderate Rain
06:00	16.4	16.2	99	9.3	10	5	16.1	99.30			Thunderstorms, Rain
07:00	17.0	16.8	99	0.0	22	11	16.1	99.36			NA
08:00	21.1	18.9	87	0.0	19	8	16.1	99.38	**28**		NA
09:00	23.4	19.1	77	0.0	20	18	16.1	99.38	**30**		NA
10:00	24.7	19.0	70	0.0	18	15	16.1	99.40	**31**		NA
11:00	26.3	19.3	65	0.0	20	15	16.1	99.42	**33**		NA
12:00	27.4	19.5	62	0.0	18	13	16.1	99.36	**35**		NA
13:00	28.5	19.5	58	0.0	21	18	16.1	99.34	**36**		NA
14:00	29.6	17.8	48	0.0	23	26	16.1	99.31	**35**		NA

TIME LST	Temp °C	Dew Point °C	Rel Hum %	Precip. Amount mm	Wind Dir 10's deg	Wind Spd km/h	Visibility km	Stn Press kPa	Hmdx	Wind Chill	Weather
15:00	29.2	19.7	56	0.0	21	15	16.1	99.29	**37**		NA
16:00	28.0	19.0	58	0.0	19	17	16.1	99.26	**35**		NA
17:00	27.9	20.1	62	0.0	22	18	16.1	99.24	**36**		NA
18:00	27.3	20.1	64	0.0	19	13	16.1	99.22	**35**		NA
19:00	25.9	19.7	68	0.0	21	8	16.1	99.30	**33**		NA
20:00	24.5	20.0	75	0.0	17	8	16.1	99.34	**32**		NA
21:00	23.2	19.6	80	0.0	13	5	16.1	99.39	**30**		NA
22:00	22.5	20.0	85	0.0	17	8	16.1	99.48	**30**		NA
23:00	21.8	19.6	87	0.0	19	9	16.1	99.48	**29**		NA

Legend

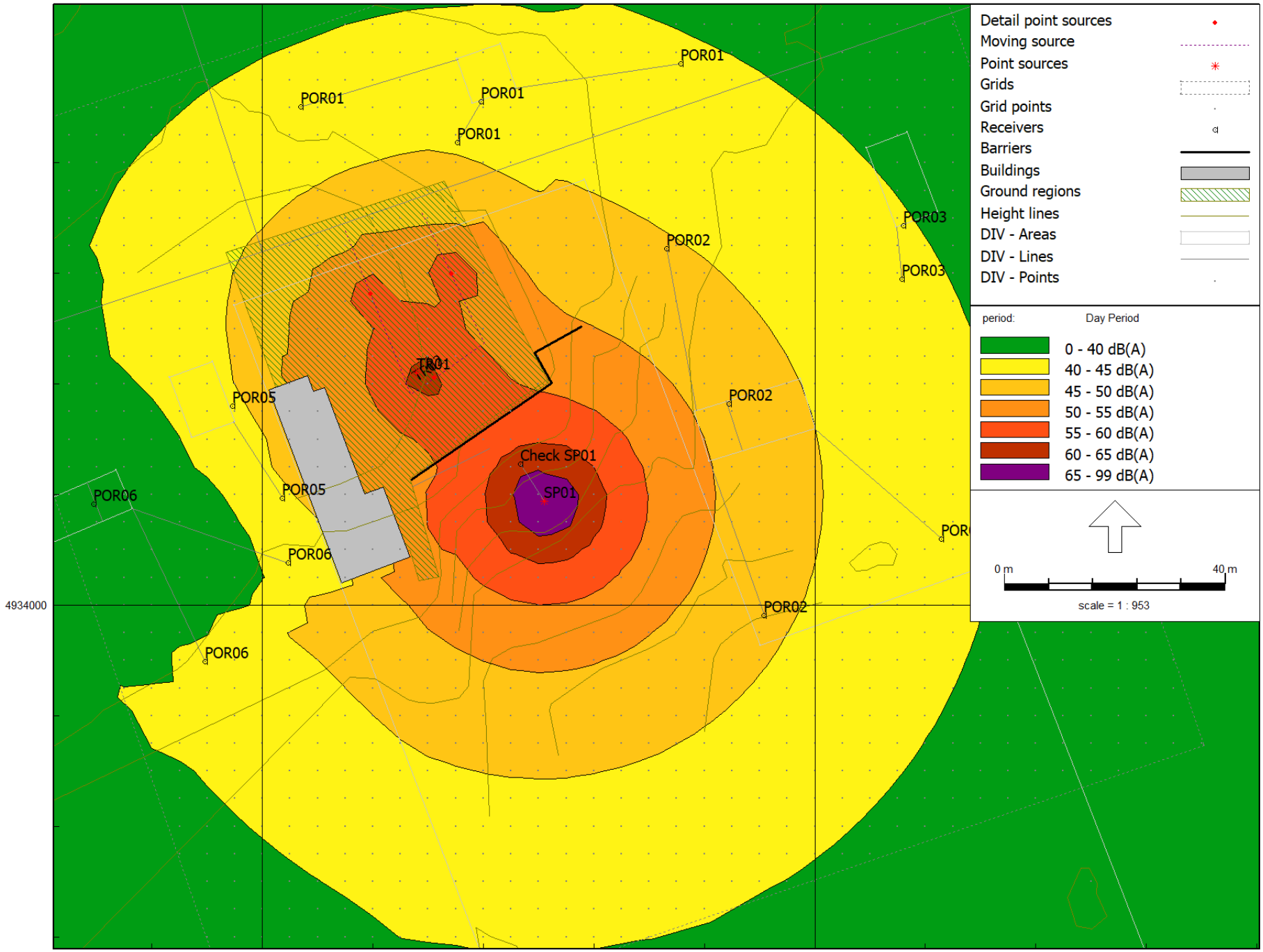
- E = Estimated
- M = Missing
- NA = Not Available*
- [empty] = Indicates an unobserved value

Date modified:

2024-06-27

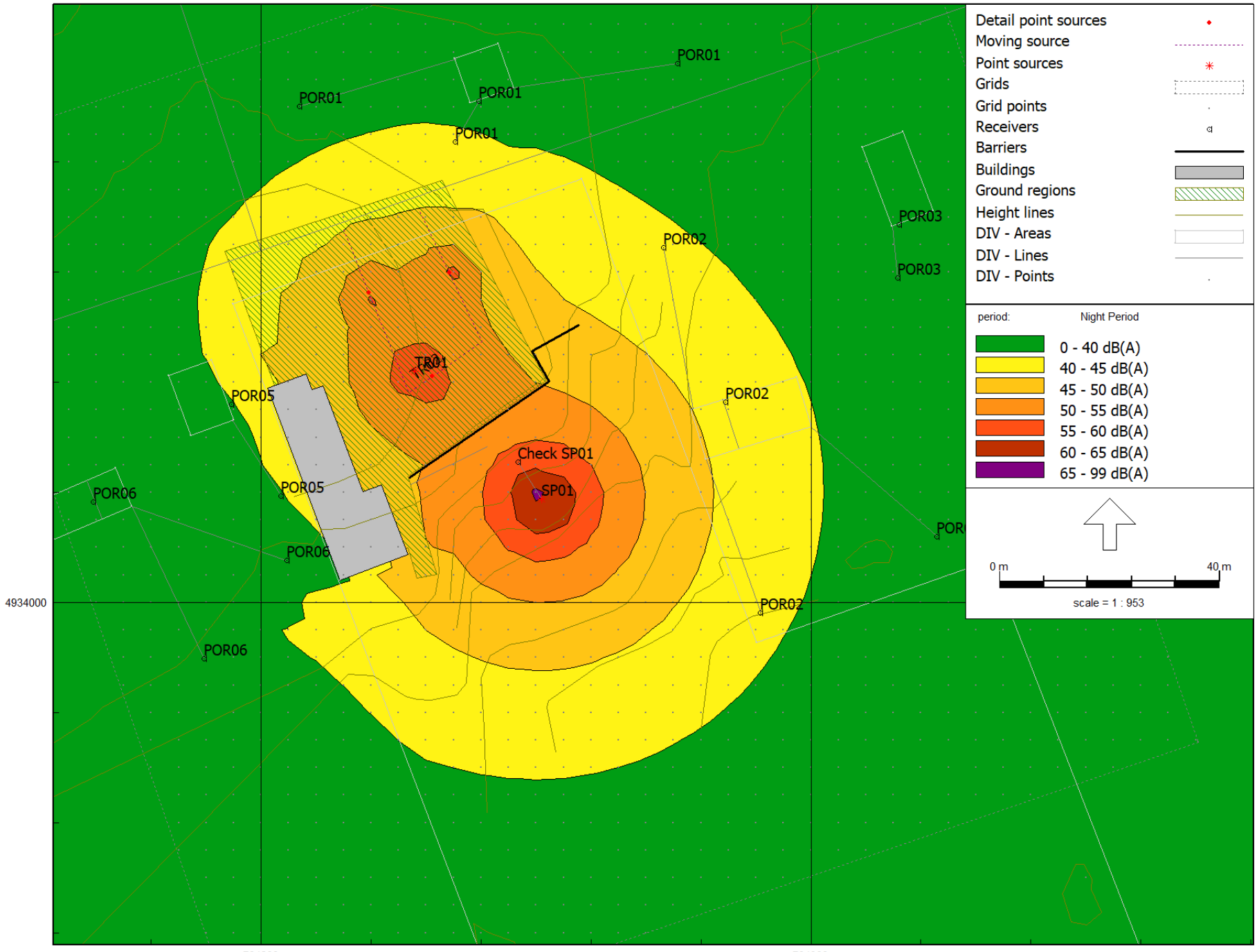
Appendix B

Impact Assessment Results



03 - Steady - NPC-300 - (SP01 = Approx. Voice/Amp.Voice) - Day

Cambium Inc., Canada



03 - Steady - NPC-300 - (SP01 = Approx. Voice/Amp.Voice) - Night

Cambium Inc., Canada

Levels of Noise in Decibels (dB)

PAINFUL & DANGEROUS		
Dangerous; use hearing protection or avoid	140	· Fireworks · Gun shots · Custom car stereos (at full volume)
	130	· Jackhammers · Ambulances
UNCOMFORTABLE		
Dangerous; use hearing protection	120	· Jet planes (during take off)
VERY LOUD		
Dangerous; use hearing protection	110	· Concerts (any genre of music) · Car horns · Sporting events
	100	· Snowmobiles · Ear buds/mobile devices (at full volume)
	90	· Lawnmowers · Power tools
Over 85 dB for extended periods can cause permanent hearing loss. NIOSH* recommends wearing hearing protection whenever noise levels exceed 85 dB, regardless of how long the sound lasts.		
LOUD		
	80	· Alarm clocks
	70	· Traffic · Vacuums
MODERATE		
	60	· Normal conversation · Dishwashers
	50	· Moderate rainfall
SOFT		
	40	· Quiet library
	30	· Whisper
FAINT		
	20	· Leaves rustling

09/2023

For more information on audiology and hearing loss, visit www.**HowsYourHearing.org**.

Visit “Find an Audiologist” to locate and set up an appointment with an audiologist in your area to get your hearing tested.

*National Institute for Occupational Safety and Health (cdc.gov/niosh).

AMERICAN ACADEMY OF AUDIOLOGY®

Appendix C

Traffic Data and ORNAMENT Outputs

EG

Evan Grieger<EGrieger@trentlakes.ca>

To: Amelia Foley

Thu 4/25/2024 11:21 AM

Hi,
Please see below; this is all the information we have at this time.

Road	Location	Date (M/D/Y)	Average Speed (km/h)	% Heavy Truck Traffic	Volume (North or Westbound)	Volume (South or Eastbound)	Total Volume
Lakehurst Circle Road	Lakehurst Road	5-3-2023	42.9	4.9%	217	174	391

Kind Regards

Evan Grieger, P. Eng
Director of Public Works
Municipality of Trent Lakes
760 Peterborough County Road 36
Trent Lakes, Ontario
K0M 1A0
705-738-3800 Ext. 226
Fax: 705-738-3801
egrieger@trentlakes.ca

Example background sound level (Leq) from traffic

Source	Min Hourly Traffic Volume [1]	Traffic Breakdown [2]			Receptor	Notes	Approximate Impact due to background traffic (dBA) [3]
		Min. Hourly Cars	Min. Hourly Med. Trucks	Min. Hourly Heavy Trucks			
POR01_A	20	19	1	0	15 m from Lakehurst Circle Rd. - Front	4.5 m Height	49.31
POR01_A	7	6	0	0	15 m from Lakehurst Circle Rd. - Front	4.5 m Height	40.86
POR01_A	1	1	0	0	15 m from Lakehurst Circle Rd. - Front	4.5 m Height	33.87

1 - AADT from Trent lakes (2023). *Hourly volume calculated from AADT using method described in Typical Hourly Traffic Distribution for Noise Modelling, Canadian Acoustics 2008 (lowest hour of time period used)*

2 - Medium (4%) and heavy (1%) truck percentage per direction from Trent Lakes

3 - ORNAMENT contains a calculation lower limit of 40 vehicles. In order to calculate a representative evening traffic impact, number of vehicles was multiplied, then the resulting impact was logarithmically divided by the same factor.

```
STAMSON 5.0        NORMAL REPORT        Date: 10-07-2024 12:02:10
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: C1D.te               Time Period: 1 hours
Description: C1D


Road data, segment # 1: LC Rd
------------------------------
Car traffic volume  :    56 veh/TimePeriod
Medium truck volume :     2 veh/TimePeriod
Heavy truck volume  :     1 veh/TimePeriod
Posted speed limit  :    60 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

Data for Segment # 1: LC Rd
---------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  15.00 m
Receiver height           :   1.50 m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Results segment # 1: LC Rd
--------------------------

Source height = 1.14 m

ROAD (0.00 + 54.08 + 0.00) = 54.08 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.66  55.54   0.00   0.00  -1.46   0.00   0.00   0.00  54.08
-------------------------------------------------------------------------------

Segment Leq : 54.08 dBA

Total Leq All Segments: 54.08 dBA


TOTAL Leq FROM ALL SOURCES:       54.08
```