DETAILED ACOUSTICAL MODELLING REPORT

"PROLOGIS DATA CENTRE DEVELOPMENT"
7564 TENTH LINE WEST
PART OF LOT 14,
CONCESSION 10, NEW SURVEY,
TOWNSHIP OF TRAFALGAR,
CITY OF MISSISSAUGA

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EXECUTIVE SUMMARY

Given the proximity of POR1 and POR2 to Highway 407 and Highway 401, our analysis confirmed that noise exposure from the proposed data centre is considerably lower than the ambient sound levels within this study area. As such, it is our considered opinion that the proposed data centre will NOT cause an adverse impact on the nearest sensitive receptor (heritage home) and therefore will not impact on the Hope Church or the residential subdivision located 750m away.

1.0 INTRODUCTION

Independent Environmental Consultants (IEC) were retained by dBA Acoustical Consultants Inc. (dACI) to complete detailed acoustic modelling on behalf of Prologis for a proposed data centre in Mississauga, Ontario (the Facility). The proposed data centre is located at 7564 Tenth Line West in Mississauga (the subject property). The scope of our assessment was to update the results of a preliminary noise impact study completed by dACI in November 2025 [1], including the development of a noise source inventory for the Facility based on the most recent planning and layout documents, calculation of source sound power levels based on the most recently available manufacturer data or other operating data, and the development of a 3D acoustic model of the Facility and surrounding area including the nearest sensitive receptor locations. The purpose of the modelling is to compare the predicted sound levels at the nearest sensitive receptor locations to the applicable sound level limits from the Ontario Ministry of the Environment, Conservation and Parks (MECP) as outlined in MECP Publication NPC-300 Environmental Noise Guideline – Stationary and Transportation Sources – Approval and Planning [2].

2.0 SOURCE INVENTORY AND CALCULATIONS

2.1 Noise Source Inventory

The source inventory was developed based on the following documents:

- Noise Impact Study, dBA Acoustical Consultants Inc., Revised November 2025 [25-5021Prologis Industrial Development Mississauga Noise Study Revised Nov 2025 – Data Centre.docx] [1]
- Data Centre Noise Sources – Preliminary, Version: v0, Stantec, July 11th, 2025 [Prologis-7564 Tenth Line West Data Centre Noise Sources-v0 (2025-07-11).pdf] [3]
- Contract Documents (100%) Submission – Mechanical, WZMH Architects, September 12th, 2025 [Issue L – Contract Documents (100%) Submission – 2026-08-20-Mechanical.pdf] [4]

The source inventory was developed based on the following documents:

- **Noise Impact Study**, dBA Acoustical Consultants Inc., Revised November 2025 [25-5021 Prologis Industrial Development Mississauga Noise Study Revised Nov 2025 – Data Centre.docx] [1]
- **Data Centre Noise Sources** – Preliminary, Version: v0, Stantec, July 11th, 2025, [Prologis-7564 Tenth Line West Data Centre Noise Sources-v0 (2025-07-11).pdf] [3]
- **Contract Documents** (100%) Submission – Mechanical, WZMH Architects, September 12th, 2025 [Issue L – Contract Documents (100%) Submission – 2026-08-20-Mechanical.pdf] [4]

  The source list in the Noise Impact Study [1] was initially cross-referenced with the Stantec noise source package [3], and then with the mechanical equipment schedules in the WZMH submission plans [4] once received, in order to distill a list of significant noise sources operating at the Facility. These were confirmed in follow-up correspondence with dACI, which was shared with Prologis and its other consultants. In this correspondence it was also confirmed which sources were to be operating regularly, and which were for emergency use only, as the MECP allows emergency equipment to be evaluated separately and compared to alternate sound level limits. The final list of equipment included in the noise inventory for this assessment is summarized in Table 1.

Table 1: Noise Source Inventory

Normal Operations	Emergency Equipment
- Twenty-eight (28) roof-top chillers operating simultaneously at 100% load - Two (2) substation transformers operating simultaneously - One (1) roof-top air handling unit - Four (4) roof-top HVAC units - Two (2) roof-top exhaust fans	- Fourteen (14) data hall emergency generators, tested individually - Fourteen (14) transformers for the data hall emergency generators, tested with the associated unit -One (1) house power emergency generator, tested separately from the data hall generators

2.2 Noise Source Calculations

2.2.1 Roof-Top Chillers

The proposed chillers are Trane model ACR Air-Cooled Scroll Chillers, and the sound level data was included in a product report provided by Trane for use in this study [5]. The Trane report provided both sound power level data and sound pressure level data at a distance of 30 feet with the unit operating under various loads (25%, 50%, 75%, and 100%).

The data for the 100% load operating condition was applied in the assessment. The sound power level provided by Trane was converted to a normalized sound power level per square meter based on the unit dimensions in the product data report [5], such that the sound power could be distributed over area sources in the model that wrap around the unit. A separate acoustic model from the full site model was developed for a single chiller unit operating in isolation to confirm that the predicted sound pressure level at 30 feet agreed with the manufacturer data at 30 feet. The sound power was adjusted as necessary to ensure that the prediction matched exactly with the manufacturer data. The source was then set up identically in the model and cloned as necessary to represent the 28 identical units. It should be noted that the Stantec data package included a schematic of the chiller sound levels in the Roof Plan, which showed a maximum sound pressure level of 75 dBA at 10 m from the unit [3]. The sound data in the product report from Trane indicated that the units would have a sound pressure level of 81 dBA at 30 feet (9.1 m) from the unit [5]. The manufacturer report was used in the modelling assessment as it was more dated August 2026, while the Stantec package was dated July 2025.

2.2.2 Substation Transformers

According to the site plan provided in the Stantec data package (marked Data Centre Preliminary Exterior Equipment Layout Noise Modelling), the 40 MVA substation transformers have an overall sound power level of 80 dBA. The manufacturer data sheet provided did not appear to include any sound level data. An octave band distribution spectrum for typical transformers in the 20 to 450 MVA range [6] was applied to the overall sound power level of 80 dBA for modelling purposes. The transformer dimensions were then used to convert this to a normalized sound power level per square meter so that the sound power could be distributed evenly over area sources in the model that wrap around the unit.

As a point of comparison, typical sound power levels associated with standard and quieted 40 MVA substation transformers were calculated and resulted in 92.2 dBA and 82.2 dBA, respectively, compared to the provided level of 80 dBA. While the modelling analysis was completed on the basis of the provided 80 dBA value, it is recommended that this be confirmed with suppliers. The MECP requires that sources with a tonal nature be penalized by 5 dBA in accordance with MECP Publication NPC-104 Adjustments [7]. This is due to the heightened annoyance from tonal sources and is a standard adjustment in environmental noise impact assessment generally. Transformers tend to emit tonal noise due to the nature of their operation (e.g., a 60 Hz transformer will tend to produce the strongest tonal output at the line frequency of 120 Hz and its even harmonics). As such, these transformers have each been assigned the 5 dBA tonal penalty in the modelling.

2.2.3 Roof-Top Air Handling Unit

According to the roof plan in the Stantec information package, there will be a 20,000 CFM roof-top unit adjacent to the chillers on the west side of the building [3]. This appears to align with the RTU-ADMIN-01 unit in the WZMH Roof Top Equipment Scheule from the submission package [4]. The Stantec package included an excerpted table of sound power levels for the various components from a manufacturer, and the sound power level for the casing-radiated noise was applied in the model. Prior to application in the model, the sound power level was converted to a normalized sound power level per square meter so that the sound power could be distributed evenly over area sources in the model that wrap around the unit.

2.2.4 Roof-Top HVAC Units

The roof plan in the Stantec information package identifies that there will be four HVAC units with 2-to-5-ton capacity [3]. In comparing this to the Roof Top Equipment Schedule in the WZMH submission plans, the model numbers used as the basis of design appear to be in the 7.5-to-18-ton range (Daikin DPSC16B [x2], DPSC18B, and DPSH07B) [4]. As the WZMH submission package is dated later than the Stantec package (September 2025 versus July 2025), and the WZMH estimates result in a more conservative bounding scenario, the capacities from the WZMH package were used to estimate typical HVAC sound power levels using engineering calculation methodology from literature [8].

2.2.5 Roof-Top Exhaust Fans

The roof plan in the Stantec information package identifies that there will be four roof exhaust fans with 400 to 1000 CFM capacity. In comparing this to the Exhaust Fan Schedule in the WZMH submission plans, there appeared to be only two roof fans required (EF-RF-01 and EF-RF-02, with the other in the table appearing to be located indoors). Manufacturer data was sought for these fans based on the make and model numbers identified and it was found that these were insignificant noise sources and were not included in the modelling.

2.2.6 Data Hall Emergency Generators

The overall site plan in the Stantec information package identifies that each of the 14 emergency generators for the data hall are 3 MW units with a sound pressure level of 85 dBA at 7 m and with the engine exhaust terminating 6 m above grade [3]. Manufacturer data sheets were provided with the package, but these did not include any additional sound level data. A separate acoustic model was set up to establish the sound power level for the exhaust and casing of a single generator unit, to ensure the prediction was in line with the specified level at 7 m distance. In order to split the provided level between the exhaust and the casing it was assumed that a silenced exhaust would contribute 25% of the sound energy at the prediction point and the casing would contribute the remaining 75%. The resulting level was assigned a typical octave band distribution from literature [ref] and the sound power level was calculated with consideration to typical directivity effects for stacks from ISO 9613-2 (2024) [9]. The resulting sound power level was applied to the exhaust source in the model, and the predicted level was compared to estimated stack contribution to ensure it matched. The casing noise was estimated using ISO 3744 [10] which is typically used for large sources such as these. The resulting sound power level was normalized to a sound power level per square meter so that it could be applied to area sources in the model that wrapped around the unit. The model was again tested to ensure that the casing noise prediction matched the estimate, and that the overall unit was predicting 85 dBA at 7 m. The source was then set up identically in the model and cloned as necessary to represent the 14 identical units.

2.2.7 Data Hall Emergency Generator Transformers

The sound power level of the transformers associated with the data hall emergency generators were derived using a similar method to that described in Section 4.2.2, but one applicable to transformers in the range of 100 kVA to 20 MVA [11]. According to the overall site plan in the Stantec data package, these units are 3000/3360 kVA units with a sound power level of 65 dBA. The tonal penalty described in Section 4.2.2 was also applied to these transformers. As with the substation transformers, typical transformer sound power levels for a 3,001 to 4,000 kW unit were calculated according to the method reference above for comparison to the provided sound power level of 65 dBA [11]. It was found that a 3360 kVA transformer would be expected to have a sound power level of 72.0 dBA with no fans, 75.0 dBA with cooling fans, or 71.0 dBA with a quieted core. While the modelling analysis was completed on the basis of the provided 65 dBA value, it is recommended that this be confirmed with suppliers.

2.2.8 House Power Emergency Generator

The sound power level for the house power emergency generator was derived in the same manner as for the data hall emergency generators. It should be noted that the sound pressure level specification for this generator noted in the Stantec information package [3] was identical to that for the data hall emergency generators (85 dBA at 7 m, with a 6 m high exhaust), despite the rating for this generator being much lower (500 kW versus 3 MW). It should also be noted that in correspondence following the data request, Prologis indicated that this was a 1,500 kW unit, which conflicts with the Stantec data package, which may contain older information. In the end this was a moot point as the rating was not used in the calculation of the sound power level.

3.0 ACOUSTIC MODELLING

The acoustic modelling was completed in the software package CadnaA by DataKustik GmbH. This software implements the calculation methodology from ISO 9613-2 for attenuation of noise in outdoor environments [9], which is the calculation method required by the Ontario MECP as stated in Publication NPC-300 [2]. CadnaA is widely used for the assessment of environmental noise in Ontario. The site plan provided by Stantec was merged with the more recently dated roof plan from the WZMH submission package as the basemap for the model. The property line from the site plan was then matched with geospatial mapping of property lines available from the City of Mississauga Open Data portal to orient the site with its surroundings. The buildings at the subject property were input to the model as 3D shapes using the footprints from the site plan and heights from the elevation plans.

Building footprints for off-property buildings were input to the model as 3D shapes using geospatial building mapping, including building heights, from the City of Mississauga Open Data Portal. It should be noted that, based on feedback from dACI, the buildings on the adjacent development lands (DC4 and DC5) shown on the site plan were not included in the modelling. In addition to the calculation of the direct noise from the source to each receptor, the model also calculates reflected noise from surfaces as well as absorption or reflection from the ground surface. Each building was assigned moderate reflective properties, while paved ground was set to be perfectly acoustically reflective, and vegetated ground was assumed to be perfectly acoustically absorptive. The sources were input to the in the model at their locations identified on the site plan. Large sources such as the chillers, generators, and transformers were input as building sources (rectangular blocks wrapped in area sources), as the structures may affect propagation paths and act as a barrier or reflective surface with respect to other sources at the site. While the chillers appear to be surrounded by a screen, this was not included in the modelling as a barrier as it appeared to be an open mesh. The screen does not meet the definition of an acoustic barrier from the MECP [2], then the modelling can be updated to include it. The MECP definition of an acoustic barrier from Publication NPC-300 states that the barrier must:

- have a minimum surface density (face weight) of 20 kg/m 2 (may be reduced to 10 kg/m 2 for roof-top barriers),
- be structurally sound, appropriately designed to withstand wind and snow load, and constructed without cracks or surface gaps, and
- any gaps under the barrier that are necessary for drainage purposes should be minimized and localized, so that the acoustical performance of the barrier is maintained.

The nearest sensitive receptors were included in the modelling at their representative locations. Per MECP guidance, the residential receptors include one location at ground level (1.5 m above grade) to represent a yard exposure and one location at the plane of a window on the highest storey (4.5 m above grade for these receptors) to represent a bedroom exposure. For the nearby church, a receptor was placed at the façade of the most exposed side at 1.5 m above grade as it is a single storey building. The receptor locations are shown on the sound level contour maps in Figure X. The applicable minimum sound level limits at the sensitive points of reception are summarized in Table 2. Due to the proximity to the highways, these classify as Class 1 Area receptors under the MECP definitions [2].

Table 2: Minimum Sound Level Limits for Stationary Sources (NPC-300)

Period	Time of Day	One-Hour Equivalent Sound Level (dBA)	
		Outdoor Location	Plane of Window Location
Day	07:00 – 19:00	50	50
Evening	19:00 – 23:00	50	50
Night	23:00 – 07:00	N/A	45

As noted in Section 2.1, the model was set up to evaluate two scenarios: a normal operations scenario and an emergency scenario. Refer to Table 1 for the sources included in each scenario. The MECP guidance stipulates that emergency equipment may be evaluated separately from the other equipment at the site, and that the assessed scenario reflect the maintenance and testing procedures. Emergency testing in non-emergency scenarios is evaluated against sound level limits that are 5 dB higher than those that would otherwise apply (see Table 2). Sound level limits do not apply to emergency equipment operating in emergency situations [2]. Based on feedback from Prologis, the emergency generators will be tested one at a time during daytime (07:00 to 19:00) hours only.

4.0 RESULTS AND DISCUSSION

The prediction results are summarized in Table 3 for the normal operations scenario (the roof-top equipment) and in Table 4 for the emergency scenario. As noted above, Prologis has indicated that the generators are tested one at a time and during the daytime hours only. As the various points of reception will be impacted differently depending on which generator is being tested, in order to evaluate the worst-case impact at each point, the sources associated with each generator were grouped (i.e., each group contains the exhaust source, the casing sources, and the associated transformer) and run simultaneously. The individual source group with the maximum prediction at each receptor is provided in the summary of results in Table 4.

The results summarized below indicate that the data centre in its current design is predicted to be exceeding the applicable minimum sound level limits from the MECP during both the normal operations and emergency testing scenarios. The most impacted receptor is the adjacent heritage house (POR1). At the outdoor location (POR1a, rear yard), the predicted level for normal operations is 63 dBA or 13 dBA above the sound level limit of 50 dBA. At the plane of the second storey window, the predicted level is 65 dBA, or 15 dBA above the daytime and evening limit of 50 dBA, and 20 dBA above the night-time limit of 45 dBA.

The MECP Publication NPC-300 - Stationary and Transportation Source Guidelines defines a point of reception/receptor as *"any point on the premises of a person where the sound or vibration originating from other than those premises is received."*

The point of reception may be located on any of the following, or zoned for future use, premises including but not limited to the following: residential homes, hospitals, nursing/retirement homes, etc.

The applicable sound limits are the higher of:

- **The existing ambient sound level; or**
- The minimum values of Tables 2

Noise monitoring was conducted on August 26th, 2026, between 7:00am and August 27, 7:00am and also August 28, 2026, between 7:00am and August 28, 2006, 7:00am. Both dates recorded noise levels for the 1st and 2nd floors of the heritage home located at POR 1a and POR 1b.

The noise monitoring equipment used was a Cassella Model CEL-63X and a Sonitus Type 2 Sound Level meter capable of capturing one-hour Leq readings over an extended (24hr) period as required by the Ministry of Transportation as well as a Sonitus Type 2 sound level meter. The noise monitors were equipped with a tripod, wind screen, and calibrated before and after use. The Instrument Calibration Report is unavailable for both units if required. The procedure for noise monitoring was pursuant to MECP NPC-300 Stationary Noise and Transportation noise guidelines. Weather during the monitoring period was mostly favourable and within MECP noise guidelines. A couple of hours during excess wind and heavy precipitation that inhibited the noise readings were deleted from the hourly noise monitoring.

The results of the 401 and 407 traffic noise levels are listed below.

First Floor

DATE	TIME	LEQ
August 26, 2026	7:00	66.0
August 26, 2026	8:00	66.4
August 26, 2026	9:00	66.4
August 26, 2026	10:00	65.3
August 26, 2026	11:00	65.5
August 26, 2026	12:00	64.1
August 26, 2026	13:00	64.8
August 26, 2026	14:00	66.8
August 26, 2026	15:00	66.3
August 26, 2026	16:00	66.0
August 26, 2026	17:00	66.1
August 26, 2026	18:00	65.5
August 26, 2026	19:00	64.2
August 26, 2026	20:00	64.1
August 26, 2026	21:00	64.2
August 26, 2026	22:00	63.3
August 26, 2026	23:00	60.9
August 27, 2026	24:00	60.2
August 27, 2026	1:00	60.4
August 27, 2026	2:00	59.6
August 27, 2026	3:00	59.5
August 27, 2026	4:00	59.5
August 27, 2026	5:00	65.5
August 27, 2026	6:00	66.3

Second Floor

DATE	TIME	LEQ
August 26, 2026	7:00	66.3
August 26, 2026	8:00	66.5
August 26, 2026	9:00	66.4
August 26, 2026	10:00	65.6
August 26, 2026	11:00	65.7
August 26, 2026	12:00	65.5
August 26, 2026	13:00	64.9
August 26, 2026	14:00	66.9
August 26, 2026	15:00	66.9
August 26, 2026	16:00	66.3
August 26, 2026	17:00	66.6
August 26, 2026	18:00	65.7
August 26, 2026	19:00	65.7
August 26, 2026	20:00	64.8
August 26, 2026	21:00	64.8
August 26, 2026	22:00	66.0
August 26, 2026	23:00	61.3
August 27, 2026	24:00	60.9
August 27, 2026	1:00	60.8
August 27, 2026	2:00	59.9
August 27, 2026	3:00	59.7
August 27, 2026	4:00	60.0
August 27, 2026	5:00	65.9
August 27, 2026	6:00	67.0

1st Floor

DATE	TIME	LEQ
August 28, 2026	7:00	66.6
August 28, 2026	8:00	66.6
August 28, 2026	9:00	66.6
August 28, 2026	10:00	65.5
August 28, 2026	11:00	65.7
August 28, 2026	12:00	64.1
August 28, 2026	13:00	65.2
August 28, 2026	14:00	66.6
August 28, 2026	15:00	66.6
August 28, 2026	16:00	66.5
August 28, 2026	17:00	66.6
August 28, 2026	18:00	65.2
August 28, 2026	19:00	64.7
August 28, 2026	20:00	64.5
August 28, 2026	21:00	64.6
August 28, 2026	22:00	63.8
August 28, 2026	23:00	60.5
August 29, 2026	24:00	60.1
August 29, 2026	1:00	60.1
August 29, 2026	2:00	59.6
August 29, 2026	3:00	59.5
August 29, 2026	4:00	59.5
August 29, 2026	5:00	65.1
August 29, 2026	6:00	66.0

Second Floor

DATE	TIME	LEQ
August 28, 2026	7:00	66.6
August 28, 2026	8:00	66.6
August 28, 2026	9:00	66.6
August 28, 2026	10:00	65.5
August 28, 2026	11:00	65.7
August 28, 2026	12:00	64.1
August 28, 2026	13:00	65.2
August 28, 2026	14:00	66.6
August 28, 2026	15:00	66.6
August 28, 2026	16:00	66.5
August 28, 2026	17:00	66.6
August 28, 2026	18:00	65.2
August 28, 2026	19:00	64.7
August 28, 2026	20:00	64.5
August 28, 2026	21:00	64.6
August 28, 2026	22:00	63.8
August 28, 2026	23:00	60.5
August 29, 2026	24:00	60.1
August 29, 2026	1:00	60.1
August 29, 2026	2:00	59.6
August 29, 2026	3:00	59.5
August 29, 2026	4:00	59.5
August 29, 2026	5:00	65.1
August 29, 2026	6:00	66.0

Twenty-Four-Hour Traffic Calculation Formula

$$L_{LM} = 10 \log_{10} \left[\frac{1}{N} \left(10^{dBAl_1/10} + 10^{dBAl_2/10} \ldots + 10^{dBAl_N/10} \right) \right]$$

EXCEL FORMULA: **10*LOG10(AVERAGE(IF(ISNUMBER(C2:C501),10^(C2:C501/10))))**

PROFESSIONAL OPINION

Extensive noise monitoring on August 26-27th, 2026 confirmed that the ambient background noise level is 66.0 dBA during the daytime 67 dba for nighttime. Ambient noise is dominated by highway 401, 407, and rail traffic. As ambient noise in this instance, exceeds the minimum limit for stationary noise, the predicted noise levels in the CadnaA, must be compared to the ambient community noise level in determining the impact of the data centre on the heritage home (nearest sensitive noise receptor).

MECP policy supports our opinion that ambient sound levels in this instance are applicable to determine compliance when receptors are exposed to higher background noise levels than the limits provided in Table 2.

CONCLUSION

Given the proximity of POR1 and POR2 to Highway 407 and Highway 401, our analysis confirmed that noise exposure from the proposed data centre is considerably lower than the ambient sound levels within this study area. As such, it is our considered opinion that the proposed data centre will NOT cause an adverse noise impact on the nearest sensitive receptor (heritage home) and therefore will not impact the Hope Church or the residential subdivision located 750m away.

Table 3: Prediction Results for Normal Operations

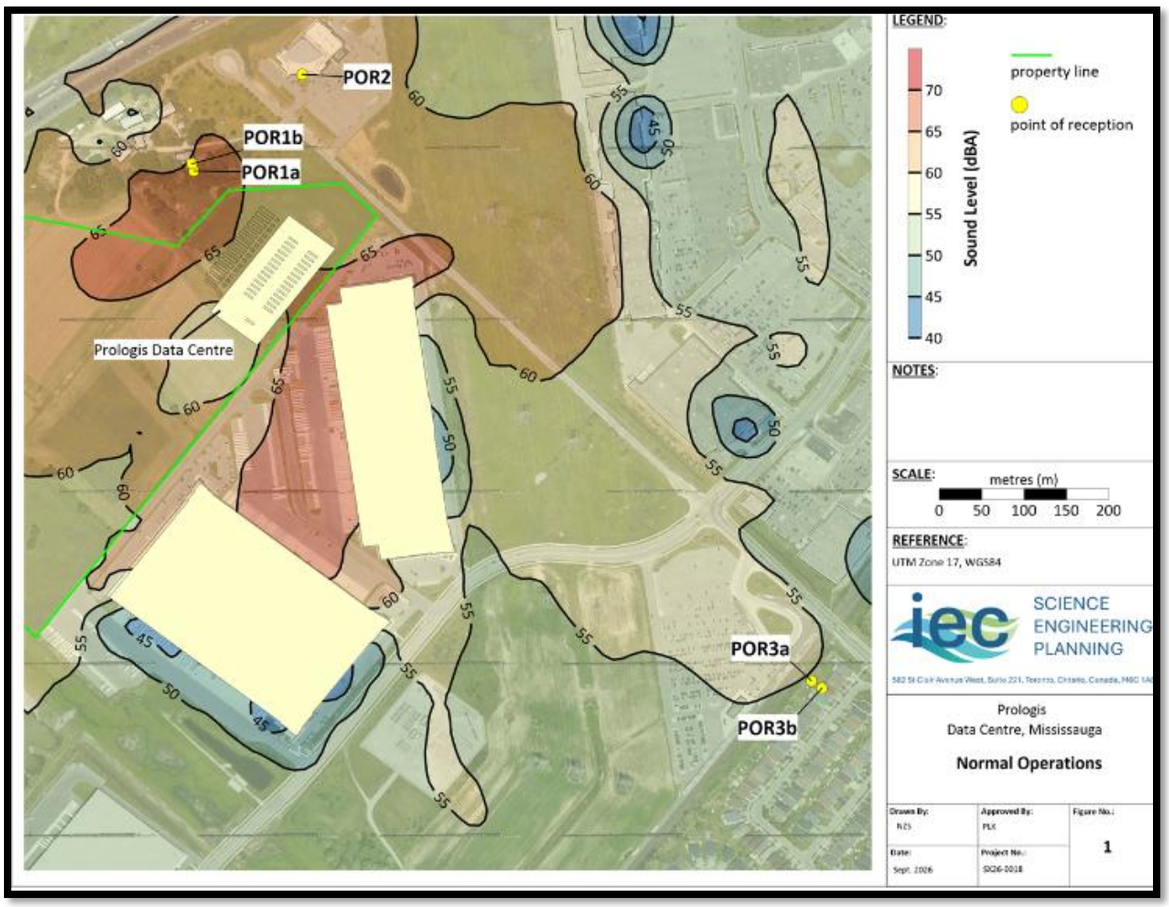
Receptor ID	Receptor Description	Period	Prediction (1-hr Leq, dBA)	Performance Limit (1-hr Leq, dBA)
Outdoor Locations				
POR1a	House – Yard	Day	63	50
		Evening	63	50
POR3a	House – Yard	Day	53	50
		Evening	53	50
Plane of Window Locations				
POR1b	House – 2nd Storey	Day	65	50
		Evening	65	50
		Night	65	45
POR2	Church	Day	63	50
		Evening	63	50
		Night	63	45
POR3b	House – 2nd Storey	Day	55	50
		Evening	55	50
		Night	55	45

Table 4: Prediction Results for Emergency Testing Scenario

Receptor ID	Receptor Description	Period	Prediction (1-hr Leq, dBA)	Performance Limit (1-hr Leq, dBA)
Outdoor Locations				
POR1a	House – Yard	Day	64	55
POR3a	House – Yard	Day	24	55
Plane of Window Locations				
POR1b	House – 2nd Storey	Day	65	55
POR2	Church	Day	61	55
POR3b	House – 2nd Storey	Day	26	55

Note: the results are representative of the single generator/transformer pair with the highest predicted impact at the point of reception.

Although the CadnaA Tables 3 and 4 above have a performance limit (1-hr Leq, dBA) of 45-55 dBA the ambient noise levels for the heritage home and the church are recorded at 66 dBA first floor and 67 dBA second floor, therefore the ambient noise levels exceed the CadnaA Prediction Limit. The residential properties POR3a and POR3b have a 5.5m berm/barrier in their rear yards next to the CN rail that exceeds the second-floor bedroom windows and mitigates the noise levels below the Prediction 1-hr Leq as noted in Table 3. Therefore, the data centre will not have an acoustical impact on the residential properties for POR3a and POR3b.



5.0 REFERENCES

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[2] MECP, "Environmental Noise Guideline - Stationary and Transportation Sources - Approval and Planning (NPC-300)," PIBS 9588e, Aug. 2013. [Online]. Available: https://www.ontario.ca/page/environmental-noise-guideline-stationary-and-transportation-Sources-approval-and-planning

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