

Environmental Noise and Vibration Assessment

Project Name: S25-0007

Project Parcel ID: 631479

Project Address: 3513 Jim Christal Rd, Denton, TX 76207 (for access only)

City: Denton, TX

Prepared For: City of Denton Planning and Zoning Department

Prepared By: Spencer Smith, Director of Engineering

Company: QumulusAI

Date: 6/5/2025

1. Executive Summary
 - 1.1. **Project Overview:** Installation of several modular data center structures and accompanying support equipment.
 - 1.2. **Purpose of Assessment:** To evaluate environmental noise and vibration impacts, establish ambient levels, and document mitigation measures as required by the City of Denton.
2. **Operational Impact Assessment**
 - 2.1. Description of Noise-Generating Equipment
 - Electric fluid pumps
 - Dry cooler fans
 - Occasional vehicular traffic (employees only, no visitors)
 - Electrical transformers and switchgear
 - 2.2. Summary of Expected Noise Levels
 - 15kW Pump @ 60Hz – 65dB(A) per Grundfos datasheet p19 (16 pumps onsite)
 - 2.7MW dry cooler w/22 EC fans – 68dB(A) @ 10m per Kelvion datasheet p2 (8 dry coolers onsite)
 - Single occasional passenger vehicle at low speed on gravel driveway – 50-55dB(A) @ 10m
 - Electric transformer (3000kVA ONAN) – 55-60dB(A) at 10m (8 transformers onsite)
 - 2.3. Description of Adjacent Uses
 - Property West of developed area is zoned PF (DME Substation)
 - Property North and East of developed area is zoned Heavy Industrial (Peterbilt truck storage)
 - Property South of developed area is zoned Heavy Industrial (open field with oil well)
3. Ambient Noise Level Documentation
 - 3.1. Pre-development baseline noise measurement conducted on March 21, 2025 around 2pm. Weather conditions were mostly sunny with light gusting winds from the SSE.
 - 3.2. Equipment used: Reed R8050 sound level meter, using A-weighting
 - 3.3. Methodology is short-term spot measurements from various locations along the property lines. See Appendix A for a map of the locations.

3.4. Narrative of baseline noise environment – the environment is typical of a zoned Heavy Industrial area. Most ambient noise comes from outdoor systems on nearby industrial building as well as vehicular traffic which is a combination of traffic on close by surface streets as well as I-35 (approximately 4000ft away). Occasional aircraft noise is typical, as the site is approximately 4400ft from the Denton Enterprise Airport.

3.5. Summary table of readings

Reading Location ID	Measured L_{eq} (dBA)	Notes
A	63	5min duration, no aircraft noise present
B	64	5min duration, some wind noise present
C	60	5min duration, no aircraft noise present
D	60	5min duration, no aircraft noise present

4. Targeted Mitigation Plan

4.1. General noise mitigation included as follows:

- Dry cooler fans at approximately 16-18ft above grade and oriented facing upward, leaving no direct line of sight to nearby pedestrians, passersby or potential receptors.
- Landscaping plan to include a vegetative buffer along the East property line, which is shared with Peterbilt. Vegetative buffer consists of a double row of Blue Point Juniper trees with a mature height of 10-15ft. This further buffers any noise from installed equipment.
- Based on the data shown in Section 2.2 above (Expected Noise Levels), compliance with the 3dB(A) above ambient limit is understood and expected to be in compliance.

5. Post-Installation Verification

- 5.1. QumulusAI Engineering will perform post-installation verification of sound levels measured in the same locations as the baseline ambient noise readings as detailed in Section 3 above.
- 5.2. If post-installation verification indicates that the measurements exceed the initial readings by more than 3dB(A), QumulusAI is prepared to install sound deflection and/or absorption panels at optimal locations for sound mitigation.

6. Statement of Compliance

I, Spencer Smith, Director of Engineering for QumulusAI, certify that this Environmental Noise and Vibration Assessment has been prepared in accordance with engineering standards and reflects a good-faith effort to comply with the requirements set forth by City of Denton. The mitigation measures proposed herein will be implemented, and post-installation compliance will be verified as required.

Signed:  _____

Date: 6/5/2025

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Appendix A – Map of Sound Level Reading Locations

