

August 29, 2024

Caivan Communities
3713 Borrisokane Road
Ottawa, ON K2J 4J4

Attn: Mr. Daniel Rokin
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Re: Transportation Noise Assessment Brief
3285 Borrisokane Road (Block 19)
GWE File No.: 24-141 –Noise Brief

1. INTRODUCTION

Gradient Wind Engineering Inc. (Gradient Wind) was retained by Caivan Communities to undertake a roadway traffic noise assessment of the proposed stacked townhouse development to be located on Block 19 of the Barrhaven Conservancy Subdivision (Phase 2,3), forming part of 3285 Borrisokane Road, Ottawa, ON. The study was requested by the City of Ottawa as part of the site plan application for Block 19, known as the BCDC site. Gradient Wind previously completed a noise study for the planned subdivision that surrounds and incorporates the subject site, (ref GW17-151 Roadway Traffic Noise Final, dated June 7, 2022) and subsequent addenda. Based on the previous work completed, Gradient Wind has reviewed the proposed site plan drawings prepared by Q4 Architects dated July 25, 2024. The proposed massing of the site is similar to the previous massing assumed for the draft plan of the subdivision noise study; therefore, conditions are expected to be similar to those found in the original report. While no new noise calculations have been performed, the following summarizes the expected conditions for the BCDC site based on the previous study.

2. TERMS OF REFERENCE

The focus of this transportation noise assessment is a proposed stacked townhouse development located at the intersection of Conservancy Street and Les Emerson Drive. The site will have 10 blocks of stacked townhouses, ranging in size from 12 to 24 dwelling units. The townhouses will be located around the perimeter of the site, with surface parking located in the center of the site along with landscaping. The site is bordered to the north by future single-family homes; to the east, Mineral Street; Conservancy Street to the south; and Les Emmerson Drive to the west. The major source of noise impacting the site will be Conservancy Street, which is classified as a collector. There are no outdoor living areas (OLA) associated with the development. Balconies less than 4 m in depth are excluded as OLA as per the City of Ottawa's Environmental Noise Control Guidelines (ENCG). Figure 1 illustrates a complete site plan with the surrounding context.

3. METHODOLOGY

3.1 Background

Noise can be defined as any obtrusive sound. It is created at a source, transmitted through a medium, such as air, and intercepted by a receiver. Noise may be characterized in terms of the power of the source or the sound pressure at a specific distance. While the power of a source is characteristic of that particular source, the sound pressure depends on the location of the receiver and the path that the noise takes to reach the receiver. Measurement of noise is based on the decibel unit, dBA, which is a logarithmic ratio referenced to a standard noise level (2×10^{-5} Pascals). The 'A' suffix refers to a weighting scale, which better represents how the noise is perceived by the human ear. With this scale, a doubling of power results in a 3 dBA increase in measured noise levels and is just perceptible to most people. An increase of 10 dBA is often perceived to be twice as loud.

3.2 Roadway Traffic Noise

3.2.1 Criteria for Roadway Traffic Noise

For vehicle traffic, the equivalent sound energy level, L_{eq} , provides a measure of the time varying noise levels, which is well correlated with the annoyance of sound. It is defined as the continuous sound level, which has the same energy as a time varying noise level over a period of time. For roadways, the L_{eq} is



commonly calculated on the basis of a 16-hour (L_{eq16}) daytime (07:00-23:00) / 8-hour (L_{eq8}) nighttime (23:00-07:00) split to assess its impact on residential buildings.

Predicted noise levels at the plane of window (POW) and outdoor living area (OLA) dictate the action required to achieve the recommended indoor and OLA sound levels, as specified in the ENCG. When noise levels at these areas meet or exceed the ENCG objective limit of 55 dBA, specific outdoor, ventilation and Warning Clause requirements may apply. In addition, where noise levels exceed 65 dBA, upgraded building components must be designed to ensure indoor sound level limits can be met.

3.2.2 Roadway Traffic Volumes

The ENCG dictates that noise calculations should consider future sound levels based on a roadway’s classification at the mature state of development. Therefore, traffic volumes are based on the roadway classifications outlined in the City of Ottawa’s Official Plan (OP) and Transportation Master Plan¹ which provides additional details on future roadway expansions. Average Annual Daily Traffic (AADT) volumes are then based on data in Table B1 of the ENCG for each roadway classification. Table 1 (below) summarizes the AADT values used for the roadway included in this assessment.

TABLE 1: ROADWAY TRAFFIC DATA

Roadway	Roadway Class	Speed Limit (km/h)	Official Plan AADT
Conservancy Drive	2-Lane Collector	50	8,000

3.2.3 Theoretical Roadway Traffic Noise Predictions

For a description of the methodology used, please refer to the previous noise report done for the plan of subdivision.

¹ City of Ottawa Transportation Master Plan, November 2013



4. RESULTS AND CONCLUSIONS

The results of the previous noise study indicated that for blocks along Conservancy Street, noise levels will range between 55 and 65 dBA; therefore, standard building components compliant with Ontario Building Code Standards would be sufficient to ensure acceptable indoor sound levels. These buildings would require forced air heating systems with provisions for allowing air conditioning in the future. If installed by the owner, air conditioning will allow windows and doors to be kept closed, thus providing a quiet and acceptable indoor environment. The following Warning Clause Type C will be required on lease, purchase and sale agreements:

Type C

"This dwelling unit has been designed with the provision for adding central air conditioning at the occupant's discretion. Installation of central air conditioning by the occupant in low and medium density developments will allow windows and exterior doors to remain closed, thereby ensuring that the indoor sound levels are within the sound level limits of the Municipality and the Ministry of the Environment, Conservation and Parks."

For the buildings on the north side of the site, noise levels are less than 55 dBA; therefore, no noise mitigation is required for these blocks. Figure 2 illustrates the required noise control measures for each of the blocks.

This concludes our assessment and report. If you have any questions or wish to discuss our findings, please advise us. In the interim, we thank you for the opportunity to be of service.

Sincerely,

Gradient Wind Engineering Inc.



Joshua Foster, P.Eng.
Lead Engineer

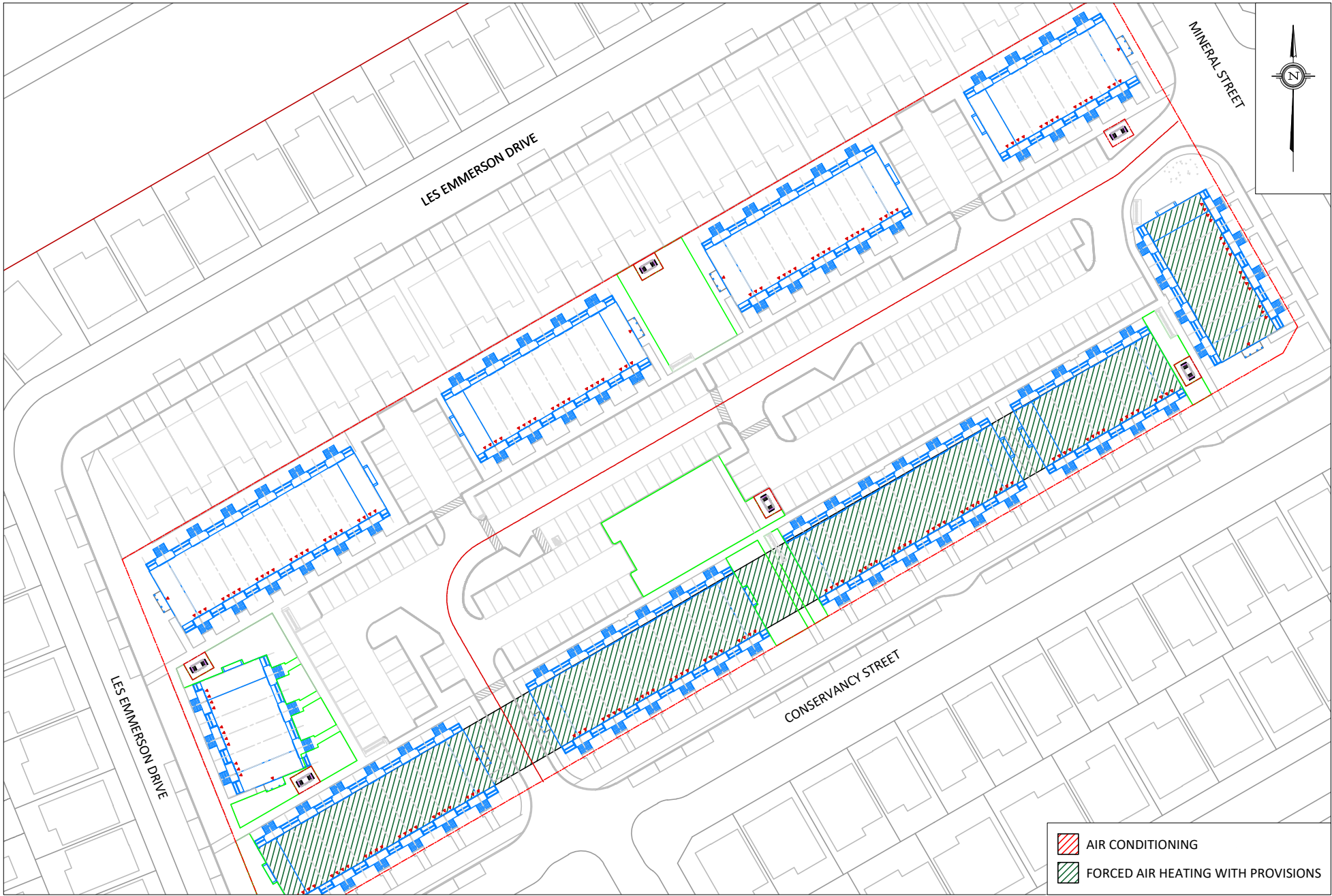
Gradient Wind File #24-141 – Transportation Noise Brief



PROJECT	BARRHAVEN CONSERVANCY STACKED TOWNHOUSES ROADWAY TRAFFIC NOISE STUDY	
SCALE	1:1000 (APPROX)	DRAWING NO. GW24-141-1
DATE	AUGUST 29, 2024	DRAWN BY J.F.

DESCRIPTION

FIGURE 1:
SITE PLAN AND CONTEXT



PROJECT	BARRHAVEN CONSERVANCY STACKED TOWNHOUSES ROADWAY TRAFFIC NOISE STUDY	
SCALE	1:1000 (APPROX)	DRAWING NO. GW24-141-2
DATE	AUGUST 29, 2024	DRAWN BY J.F.

DESCRIPTION

FIGURE 2:
VENTILATION REQUIREMENTS