October 16, 2020

Scarabelli Realties Inc.
44 Chamberlain Avenue
Ottawa, ON K1S 1V9

Attention:
Darryl Scarabelli, darryl.scarabelli@bellnet.ca
Leanne Scarabelli, leanne.scarabelli@bellnet.ca

Dear Mr. and Ms. Scarabelli:

Re: Noise Assessment for Adjacent Dwellings
30-48 Chamberlain Avenue, Ottawa
Gradient Wind File 20-098-Noise

Gradient Wind Engineering Inc. (Gradient Wind) has been retained by Scarabelli Realties Inc. to provide a traffic noise feasibility assessment, to satisfy the requirements for a Zoning By-law Amendment (ZBA) application submission, for a proposed mixed-use development located at 30-48 Chamberlain Avenue in Ottawa, Ontario. In addition to the results and conclusions related to the impact of local roadway traffic on the proposed development outlined in Gradient Wind report 20-098-T.Noise Feasibility, dated September 23, 2020, this assessment provides a comparison of exterior noise levels at adjacent existing dwellings prior to and following the addition of the proposed development. Figure 1 illustrates the existing site, while Figure 2 reflects the proposed site plan.

Our work is based on theoretical noise calculation methods conforming to the City of Ottawa[1] and Ministry of the Environment, Conservation and Parks (MECP)[2] guidelines. Noise calculations were based on architectural drawings prepared by Hobin Architecture in August 2020, with future traffic volumes corresponding to the City of Ottawa's Official Plan (OP) roadway classifications.

[1] City of Ottawa Environmental Noise Control Guidelines, January 2016
[2] Ontario Ministry of the Environment and Climate Change – Environmental Noise Guidelines, Publication NPC-300, Queens Printer for Ontario, Toronto, 2013

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, while in increase less than 3 dBA is nearly imperceptible to most people. For understanding purposes only, a range of common sounds are listed in Table 1 below.

TABLE 1: RANGE OF SOUNDS[3]

Decibel Level	Activity
0	Threshold of Human Hearing
20	Watch Ticking at 1 m
30	Whispering
40	Refrigerator
50	Moderate Rainfall
60	Dishwasher / Typical human speech at 1.5 m
70	City Traffic at 15 m
80	Noisy Restaurant
90	Lawn Mower (Levell at which hearing protection is required)
100	Chainsaw
110	Car Horn
120	Rock Concert (Hearing is painful)
130	Jet Engine (100 ft away)
140	Shotgun Blast

[3] Ontario Ministry of the Environment and Climate Change, Noise in our environment, last modified March 25 2019, https://www.ontario.ca/page/noise-our-environment

For surface roadway traffic noise, 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. For new land use developments, the City of Ottawa's objective noise level is 55 dBA during the daytime, with noise control measures being required when noise levels exceed 60 dBA.

2. RESULTS

The results of the roadway traffic noise calculations are summarized in Table 2 below. The results of the current analysis indicate that noise levels at the adjacent dwellings to the south of the development site will experience a decrease in sound pressure levels related to transportation noise with the addition of the proposed building. The proposed building will provide blockage from traffic noise along Highway 417 and Chamberlain Avenue. A complete set of input and output data from all STAMSON 5.04 calculations can be provided upon request.

TABLE 2: EXTERIOR NOISE LEVELS DUE TO ROAD TRAFFIC

Receptor Number	Receptor Height Above Grade (m)	Receptor Location	STAMSON 5.04 Noise Level (dBA)			
			Existing Conditions		Proposed Conditions	
			Day	Night	Day	Night
1	1.5	57 Rosebury Avenue	68	61	67	59
2	1.5	43 Rosebury Avenue	71	63	61	54

Noise associated with the buildings mechanical systems will be studied during the detailed design. The mechanical systems of the building will be designed to comply with the sound level limits established by the City of Ottawa's Environmental Noise Control Guidelines.

Should you have any questions, or wish to discuss our findings further, please call us (613) 836-0934 or contact us by e-mail at joshua.foster@gradientwind.com. In the interim, we thank you for the opportunity to be of service.

Sincerely,

Gradient Wind Engineering Inc.

Samantha Phillips, B.Eng.
Environmental Scientist

Joshua Foster, P.Eng
Principal

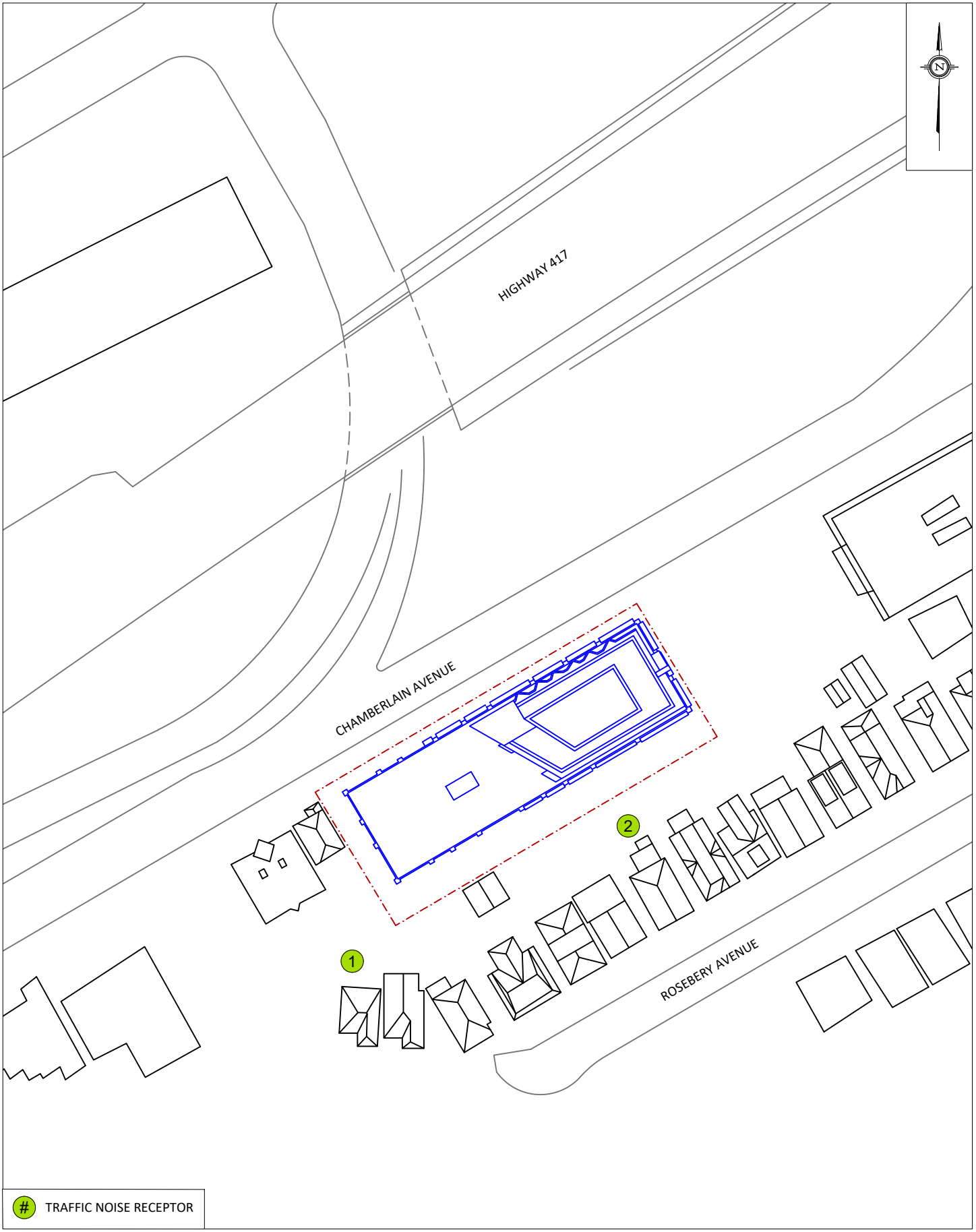
Gradient Wind File 20-098-Noise

GRADIENTWIND
ENGINEERS & SCIENTISTS
127 WALGREEN ROAD , OTTAWA, ON
613 836 0934 • GRADIENTWIND.COM

PROJECT	30-48 CHAMBERLAIN AVENUE, OTTAWA NOISE ASSESSMENT FOR ADJACENT DWELLINGS
SCALE	1:1000 (APPROX.)
DRAWING NO.	GW20-098-1
DATE	OCTOBER 5, 2020
DRAWN BY	S.P.

DESCRIPTION

FIGURE 1:
EXISTING SITE AND SURROUNDING CONTEXT



GRADIENTWIND
ENGINEERS & SCIENTISTS
127 WALGREEN ROAD , OTTAWA, ON
613 836 0934 • GRADIENTWIND.COM

PROJECT	30-48 CHAMBERLAIN AVENUE, OTTAWA NOISE ASSESSMENT FOR ADJACENT DWELLINGS
SCALE	1:1000 (APPROX.)
DRAWING NO.	GW20-098-2
DATE	OCTOBER 5, 2020
DRAWN BY	S.P.

DESCRIPTION

FIGURE 2:
PROPOSED SITE PLAN AND SURROUNDING CONTEXT