August 8, 2022

Caivan (Orleans Village 2) Ltd.
2934 Baseline Road, Suite 302
Ottawa, ON K2H 1B2

Attn: Colin Haskin
colin.haskin@caivan.com

Dear Mr. Haskin:

Re: Environmental Noise Addendum Letter
Orleans Village (Phase 4), Ottawa
GW File No.: GW22-078 – Addendum Letter

1. INTRODUCTION & TERMS OF REFERENCE

Gradient Wind Engineering (Gradient Wind) has been retained by Caivan (Orleans Village 2) Ltd. to undertake an environmental noise feasibility assessment for the proposed residential development located at 245 and 275 Lamarche Avenue in Ottawa, Ontario. This letter is supplemental to our environmental noise feasibility report (ref. *Gradient Wind report #22-078 – Environmental Noise Feasibility Report,* dated April 8, 2022), to address comments received from the City of Ottawa.

The proposed subdivision is located on a nearly rectangular parcel of land at the intersection of Innes Road and Lamarche Avenue. The site is boarded by low-rise residential land to the north and south, commercial land to the east, and Lamarche Avenue to the west. The subdivision will comprise of traditional townhouse blocks, back-to-back townhouse blocks, rear lane townhouse blocks, and a communal park connected by internal roadways with several on-street parking spaces.

Gradient Wind considered all relevant noise sources affecting the site, such as roadway traffic noise and stationary noise. The major source of traffic noise impacting the residential subdivision is Innes Road to the north. The primary source of stationary noise impacting the site is the existing Halo car wash facility located to the northeast at 3604 Innes Road. Figure 1 illustrate the site location with surrounding context. This letter is based on the latest site plan drawings provided by Caivan Communities in July 2022.

2. CITY OF OTTAWA COMMENTS

Gradient Wind was provided peer review comments from the City of Ottawa in July 2022 pertaining to the environmental noise feasibility assessment. The comments addressed the Stationary Noise Control Method: Option 1. This was the preferred noise mitigation method as it did not deviate far from the proposed development design. A summary of the comments is presented below:

1. *The noise study identified a 5m tall berm + noise barrier was required based upon the proposed site layout. Consideration should be made to:*
    - *rearranging the subdivision lands to provide greater setbacks and result in a shorter required noise barrier, and/or;*
    - *providing a different product type that would not include OLAs along the affected blocks. Note that it is the City's preference for mitigation measures that reduce the required height of the required noise barrier.*

2. *Assess the land requirements on site to accommodate the grading of a 2.5m high berm (refer to berm setbacks within the City's Noise Control Guidelines), since the maximum barrier height that is acceptable is 2.5m. Ensure providing required barrier/berm height is feasible within the proposed block size. Alternatively, discuss the need for a retaining wall.*

Section 3 summarizes how the comments relating to the noise study have been addressed.

3. SUMMARY OF PROPOSED NOISE MITIGATION CHANGES

As per the City's comments, Gradient Wind investigated the noise mitigating effects of implementing a 2.5 m tall noise wall/berm situated at the northeast corner of the property onto the development, primarily the rear yards. Noise receptors and the proposed barrier location are outlined in Figures 2 and 3, respectively. The proposed barrier length was also reduced such that it terminates at the boundary between Blocks 17 and 16.

As per Gradient Wind's noise assessment, Caivan Communities intends to implement higher STC rated materials (i.e., wall, roof, and glazing components) for the impacted townhouse blocks to bring interior noise levels to an appropriate level.

4. RESULTS AND CONCLUSIONS

Taking into consideration the proposed noise mitigation changes summarized in Section 3, noise levels produced by the car wash facility are presented in Table 1.

TABLE 1: EXTERIOR NOISE LEVELS DUE TO STATIONARY NOISE SOURCES

Receptor ID	Receptor Location	Receptor Height Above Grade (m)	PREDICTOR-LIMA Noise Level (dBA)	Sound Level Limits (dBA)	Meets ENCG Criteria
			Day	Day	Day
R1	POW - Block 21 - West Facade	4.5	21	50	Yes
R2	POW - Block 21 - North Facade	4.5	29	50	Yes
R3	POW - Block 19 - North Facade	4.5	42	50	Yes
R4	POW - Block 18 - Northeast Facade	4.5	53	50	**No***
R5	POW - Block 18 - Northeast Facade	4.5	62	50	**No***
R6	POW - Block 18 - Southeast Facade	4.5	62	50	**No***
R7	POW - Block 17 - East Facade	4.5	61	50	**No***
R8	POW - Block 17 - East Facade	4.5	56	50	**No***
R9	POW - Block 16 - East Facade	4.5	52	50	**No***
R10	POW - Block 15 - East Facade	4.5	49	50	Yes
R11	POW - Block 22 - West Facade	4.5	21	50	Yes
R12	POW - Block 26 - North Facade	7.5	36	50	Yes
R13	POW - Block 28 - North Facade	7.5	54	50	**No***
R14	OPOR - Block 21 - Rear Yard	1.5	26	50	Yes
R15	OPOR - Block 19 - Rear Yard	1.5	41	50	Yes
R16	OPOR - Block 18 - Rear Yard	1.5	50	50	Yes
R17	OPOR - Block 18 - Rear Yard	1.5	49	50	Yes
R18	OPOR - Block 17 - Rear Yard	1.5	46	50	Yes
R19	OPOR - Block 17 - Rear Yard	1.5	41	50	Yes
R20	OPOR - Block 16 - Rear Yard	1.5	44	50	Yes
R21	OPOR - Block 15 - Rear Yard	1.5	45	50	Yes
R22	OPOR - Block 18 - Rear Yard	1.5	46	50	Yes
R23	OPOR - Block 18 - Rear Yard	1.5	52	50	**No**

*Noise levels at POWs are to be mitigated via implementation of higher STC rated materials.

The result of the current assessment indicates that noise levels can be reduced for a majority of the rear yards with the implementation of a 2.5m tall noise barrier/berm that terminates between Blocks 17 and 16. The rear yard of Block 18 is expected to experience a slight exceedance over the OPOR criterion with the 2.5 m barrier/berm. It should also be noted that the human ear is not able to perceive a difference in noise levels less than or equal to 3 dBA.

As the maximum barrier height for the development cannot exceed 2.5 m, a Type E Warning Clause will be required on all Lease, Purchase and Sale Agreements for Block 18 as summarized below:

Type E

> *"Purchasers/tenants are advised that due to the proximity of the adjacent car wash facility, noise from the facility may at times be audible."*

As the project progresses, the height and location of the barrier can be remodelled or modified in future subsequent studies.

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.

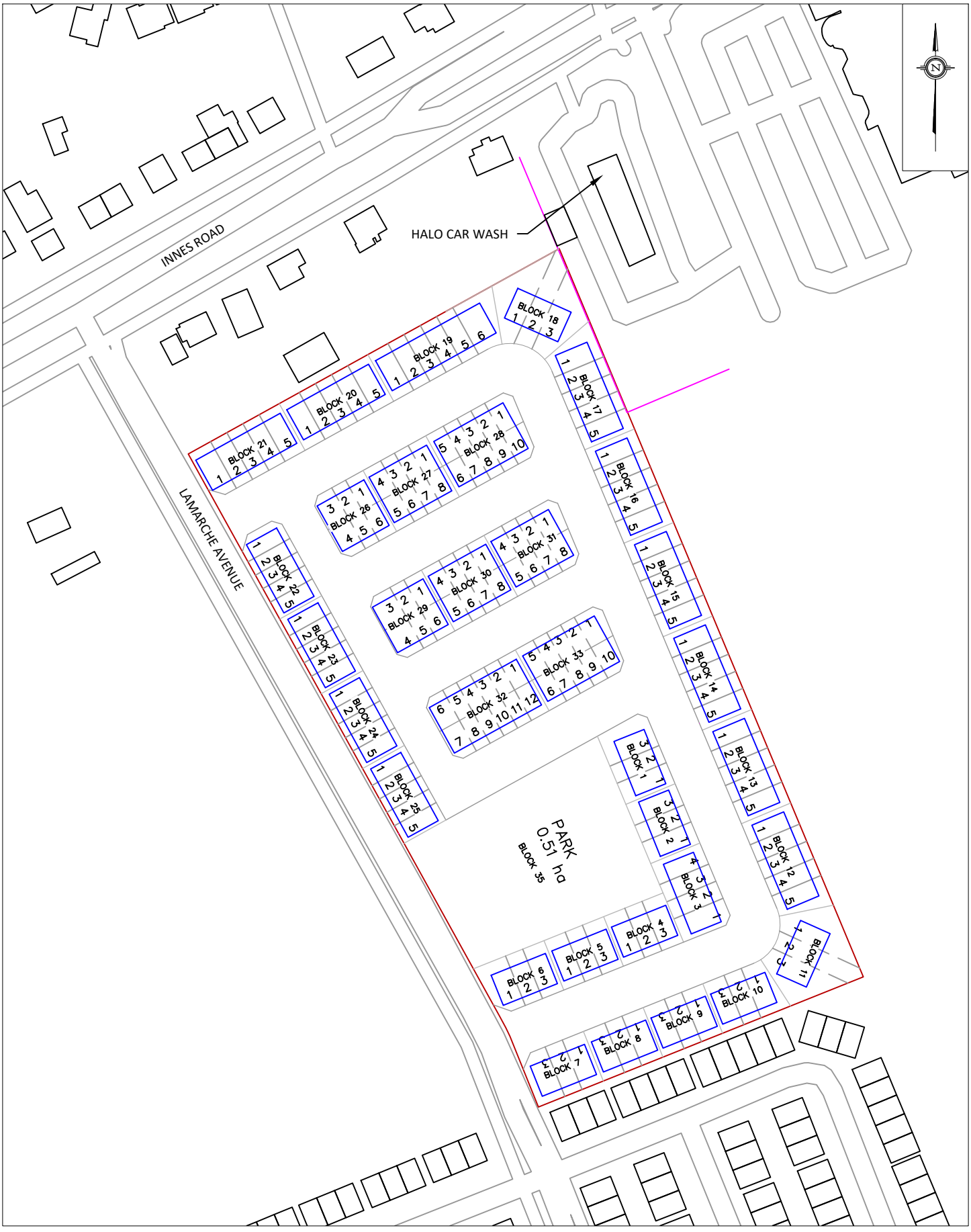
Sincerely,

Gradient Wind Engineering Inc.

Giuseppe Garro, MASc.
Environmental Scientist

Joshua Foster, P.Eng
Lead Engineer

Gradient Wind File GW22-078



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PROJECT	ORLEANS VILLAGE PHASE 4, OTTAWA ENVIRONMENTAL NOISE FEASIBILITY ASSESSMENT		DESCRIPTION
SCALE	1:2000 (APPROX.)	DRAWING NO.	GW22-078-1
DATE	AUGUST 3, 2022	DRAWN BY	G.G.

FIGURE 1:
SITE PLAN WITH SURROUNDING CONTEXT

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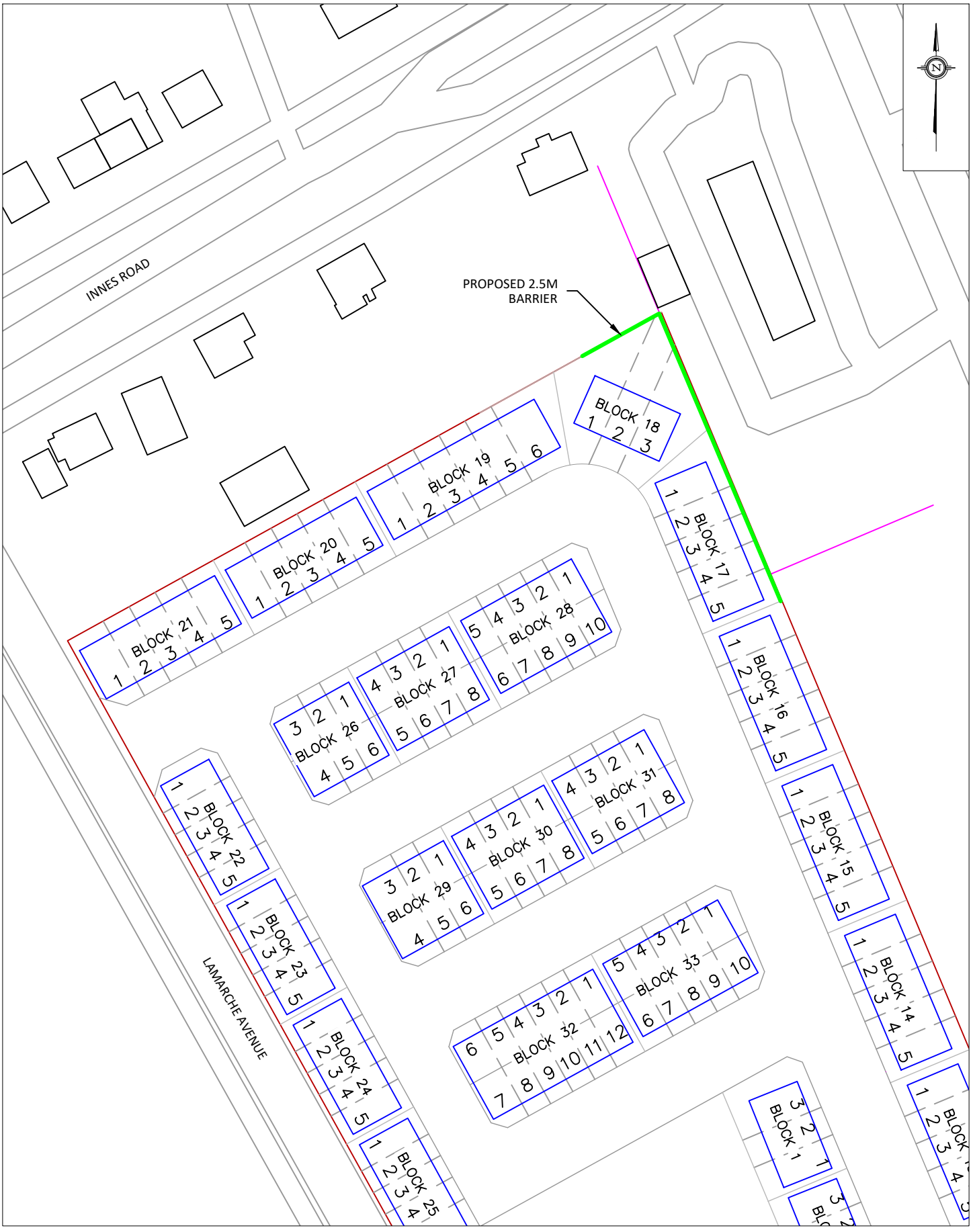
PROJECT	ORLEANS VILLAGE PHASE 4, OTTAWA ENVIRONMENTAL NOISE FEASIBILITY ASSESSMENT		
SCALE	1:1000 (APPROX.)	DRAWING NO.	GW22-078-2
DATE	AUGUST 3, 2022	DRAWN BY	G.G.

DESCRIPTION

FIGURE 2:
STATIONARY NOISE: RECEPTOR LOCATIONS



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PROJECT	ORLEANS VILLAGE PHASE 4, OTTAWA ENVIRONMENTAL NOISE FEASIBILITY ASSESSMENT		
SCALE	1:1000 (APPROX.)	DRAWING NO.	GW22-078-3
DATE	AUGUST 3, 2022	DRAWN BY	G.G.

DESCRIPTION

FIGURE 3:
STATIONARY NOISE: PROPOSED 2.5M NOISE BARRIER

FIGURE 4: DAYTIME STATIONARY NOISE CONTOURS (1.5 M ABOVE GRADE)

- *80 – 85 dB*
- *75 – 80 dB*
- *70 – 75 dB*
- *65 – 70 dB*
- *60 – 65 dB*
- *55 – 60 dB*
- *50 – 55 dB*
- *45 – 50 dB*
- *40 – 45 dB*
- *35 – 40 dB*
- *0 – 35 dB*