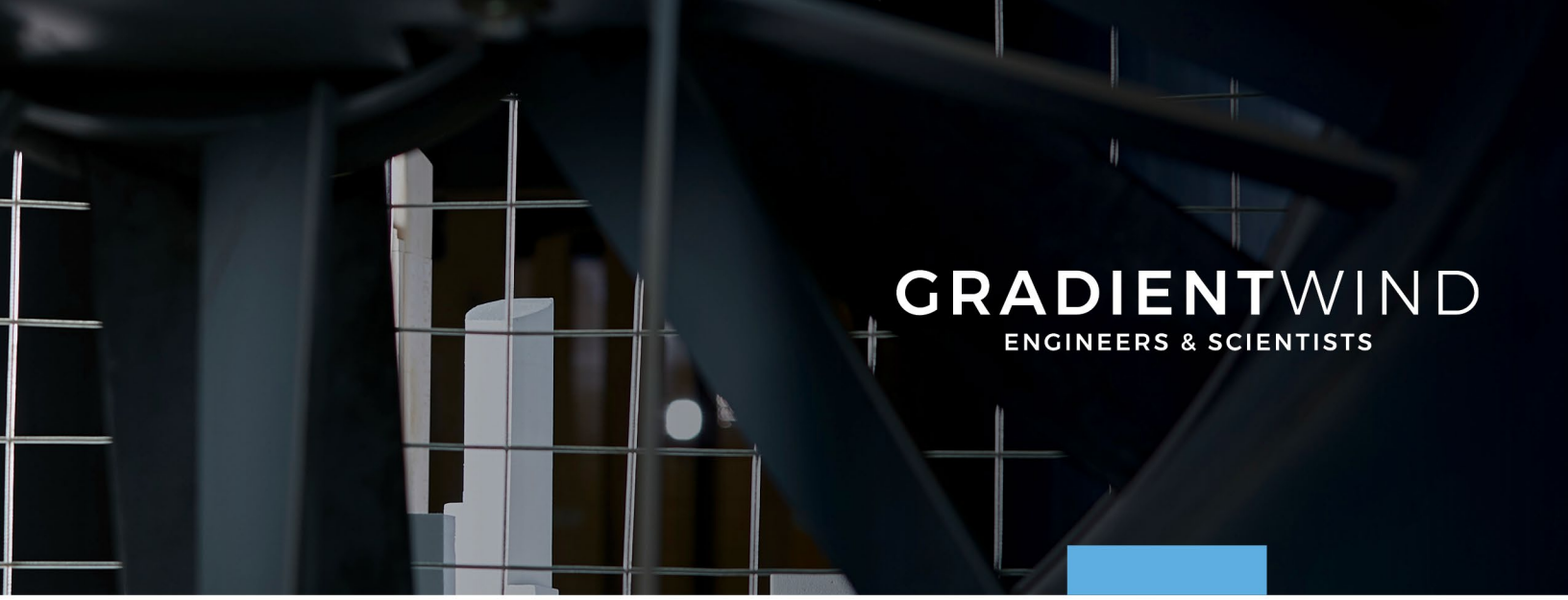

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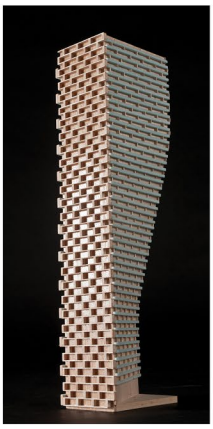
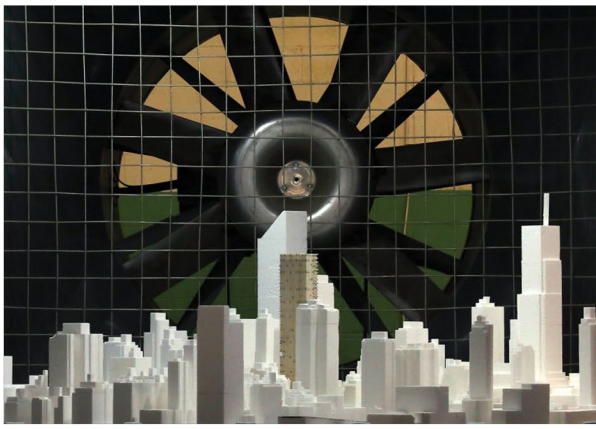
TRAFFIC NOISE FEASIBILITY ASSESSMENT

Heron Gate Master Plan
Ottawa, Ontario

Report: 24-213- Traffic Noise Feasibility





July 11, 2025

PREPARED FOR
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EXECUTIVE SUMMARY

This report describes a roadway traffic noise feasibility assessment undertaken to satisfy the Official Plan Amendment (OPA) and Zoning By-Law Amendment (ZBA) application requirements for the proposed development located at Heron Gate in Ottawa, Ontario. The proposed development comprises approximately 70 acres of land within the Herongate neighbourhood in Ottawa, Ontario. The site is divided into multiple development blocks, identified numerically, and is organized around a central public park space. The primary sources of roadway traffic noise are Heron Road to the north, Walkley Road to the south, and Baycrest Drive, which runs through the centre of the site. Figure 1 illustrates a complete site plan with surrounding context.

The assessment is based on (i) theoretical noise prediction methods that conform to the Ministry of the Environment, Conservation and Parks (MECP) NPC-300, Ministry of Transportation Ontario (MTO), and City of Ottawa Environmental Noise Control Guidelines (ENCG) guidelines; (ii) future vehicular traffic volumes corresponding to roadway classification, roadway traffic volumes obtained from the City of Ottawa; and (iii) a concept plan provided by Hazelview Investments in June 2025;

The results of the current analysis indicate that noise levels will range between 41 and 68 dBA during the daytime period (07:00-23:00) and between 33 and 60 dBA during the nighttime period (23:00-07:00). The highest noise level (68 dBA) occurs at the south façades of Buildings 9.2 and 9.3, which are nearest and most exposed to Walkley Road.

As such, upgraded building components and central air conditioning will be required for Buildings 2.1, 2.2, 2.4, 2.5, 7.3, 7.4, 8.3, 8.4, 8.6, 8.7, 9.2, 9.3, and 9.5 as noise levels predicted due to roadway traffic exceed the criteria of 65 dBA during the daytime listed in ENCG. Detailed mitigation measures would be the subject of a detailed noise assessment during the site plan approval stage. Additionally, a Type D warning clause will also be required in all Lease, Purchase and Sale Agreements, as summarized in Section 6, and illustrated in Figure 6

Regarding buildings 2.6, 3.4, 8.8, and 9.1, noise levels fall between 55 dBA and 65 dBA during the daytime period. As such, these buildings will need forced air heating with provisions for central air conditioning, as a minimum requirement. These requirements will allow occupants to keep windows closed and maintain a comfortable living environment. Detailed mitigation measures would be the subject of a detailed noise assessment during the site plan approval stage. Additionally, a Type C warning clause will also be required in all Lease, Purchase and Sale Agreements, as summarized in Section 6, and illustrated in Figure 6

With regard to stationary noise impacts from proposed mechanical systems on the development, they will be designed to ensure compliance with the ENCG sound level limits. Noise impacts can generally be minimized by judicious selection and placement of the equipment. Where necessary, noise screens and silencers can be placed into the design. It is recommended that a stationary noise study be conducted once mechanical plans for the proposed development become available. This study would assess the impacts of stationary noise from rooftop mechanical units serving the proposed development on surrounding noise-sensitive areas.

TABLE OF CONTENTS

1. INTRODUCTION

Gradient Wind Engineering Inc. (Gradient Wind) was retained by Hazelview Investments to undertake a roadway traffic noise feasibility assessment to satisfy the Official Plan Amendment (OPA) and Zoning By-Law Amendment (ZBA) application requirements for the proposed development located at Heron Gate in Ottawa, Ontario. This report summarizes the methodology, results, and recommendations related to the assessment of exterior noise levels generated by local transportation traffic.

This assessment is based on theoretical noise calculation methods conforming to the Ministry of the Environment, Conservation and Parks (MECP) NPC-300[1], Ministry of Transportation Ontario (MTO)[2], and City of Ottawa Environmental Noise Control Guidelines (ENCG)[3] guidelines. Noise calculations were based on a concept plan provided by Hazelview Investments in June 2025, with future traffic volumes corresponding to roadway classification and theoretical roadway capacities, and recent satellite imagery.

2. TERMS OF REFERENCE

The proposed development comprises approximately 70 acres of land within the Herongate neighbourhood in Ottawa, Ontario. The site is divided into multiple development blocks, identified numerically, and is organized around a central public park space programmed with tennis and basketball courts. The master plan includes approximately 37 new buildings of varying heights, as well as a network of new public and private roads, pathways, and landscaped areas to support connectivity throughout the community. Surface parking is provided along the internal roads within the proposed development and a surface parking lot is located to the east of the central public park space.

Block 1, located along Heron Road, has already been completed. The remaining blocks will accommodate approximately 5,000 residential units, distributed across a mix of townhouses and mid- to high-rise apartment towers. Building heights range from approximately 3 to 26 storeys. Several existing buildings, primarily located in Blocks 4 and 5, are proposed to remain and be integrated into the overall plan.

[1] Ontario Ministry of the Environment and Climate Change – Environmental Noise Guidelines, Publication NPC-300, Queens Printer for Ontario, Toronto, 2013
[2] Ministry of Transportation Ontario, "*Environmental Guide for Noise*", August 2021
[3] City of Ottawa Environmental Noise Control Guidelines, January 2016

The site is surrounded by Heron Road to the north, a retail shopping complex to the east, Walkley Road to the south, and low-rise residential homes to the west. The primary sources of roadway traffic noise are Heron Road, Walkley Road, and Baycrest Drive, which runs through the centre of the site. Figure 1 illustrates a complete site plan with surrounding context.

At the time of the Site Plan Application (SPA), an updated detailed traffic noise assessment would be conducted, if necessary. Based on noise levels at the building façades, the update will include an evaluation of indoor noise levels for comparison against indoor noise criteria. This would be performed for a typical unit, assuming building wall details satisfy the minimum Ontario Building Code (OBC) requirements. For areas where the indoor noise criteria are not met, construction details such as the required sound transmission class (STC) rating for windows would be specified to ensure the comfort of indoor living areas. Furthermore, ventilation requirements and warning clauses will be provided.

With regard to stationary noise impacts from proposed mechanical systems on the development, they will be designed to ensure compliance with the ENCG sound level limits. Noise impacts can generally be minimized by judicious selection and placement of the equipment. Where necessary, noise screens and silencers can be placed into the design. It is recommended that a stationary noise study be conducted once mechanical plans for the proposed development become available. This study would assess the impacts of stationary noise from rooftop mechanical units serving the proposed development on surrounding noise-sensitive areas.

3. OBJECTIVES

The principal objectives of this study are to (i) calculate the future noise levels on the development produced by local transportation sources, and (ii) explore potential noise mitigation where required.

4. METHODOLOGY

4.1 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.

4.2 Roadway Traffic Noise

4.2.1 Criteria for Roadway Traffic Noise

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. NPC-300 specifies that the recommended indoor noise limit range (that is relevant to this study) is 50, 45 and 40 dBA for general offices/retail stores, residence living rooms, and sleeping quarters, respectively, as listed in Table 1.

TABLE 1: INDOOR SOUND LEVEL CRITERIA (ROAD) [4]

Type of Space	Time Period	L_{eq} (dBA)
General offices, reception areas, retail stores, etc.	07:00 – 23:00	50
Living/dining/den areas of residences, hospitals, schools, nursing/retirement homes, day-care centres, theatres, places of worship, libraries, individual or semi-private offices, conference rooms, etc.	07:00 – 23:00	45
Sleeping quarters of hotels/motels	23:00 – 07:00	45
Sleeping quarters of residences, hospitals, nursing/retirement homes, etc.	23:00 – 07:00	40

Predicted noise levels at the plane of window (POW) dictate the action required to achieve the recommended sound levels. An open window is considered to provide a 10 dBA reduction in noise, while a standard closed window is capable of providing a minimum 20 dBA noise reduction[5]. A closed window due to a ventilation requirement will bring noise levels down to achieve an acceptable indoor environment[6]. Therefore, where noise levels exceed 55 dBA during the day and 50 dBA at night, the ventilation for the building should consider the need for having windows and doors closed, which triggers the need for forced air heating with provision for central air conditioning. Where noise levels exceed 65 dBA daytime and 60 dBA nighttime, air conditioning will be required and building components will require higher levels of sound attenuation[7].

The sound level criterion for outdoor living areas is 55 dBA, which applies during the daytime (07:00 to 23:00). When noise levels exceed 55 dBA, mitigation should be provided to reduce noise levels where technically and administratively feasible to acceptable levels at or below the criterion.

[4] MOECP, Environmental Noise Guidelines, NPC 300 – Part C, Table C-9
[5] Burberry, P.B. (2014). Mitchell's Environment and Services. Routledge, Page 125
[6] MOECP, Environmental Noise Guidelines, NPC 300 – Part C, Section 7.8
[7] MOECP, Environmental Noise Guidelines, NPC 300 – Part C, Section 7.1.3

4.2.2 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 Plan[8] which provide 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 2 (below) summarizes the AADT values used for each roadway included in this assessment.

TABLE 2: ROADWAY TRAFFIC DATA

Segment	Roadway Traffic Data	Speed Limit (km/h)	Traffic Volumes
Heron Road	4-Lane Urban Arterial-Divided (4-UAD)	50	**35,000**
Walkley Road	4-Lane Urban Arterial-Divided (4-UAD)	50	**35,000**
Baycrest Drive	2-Lane Major Collector (2-UMCU)	40	**12,000**

4.2.3 Theoretical Roadway Traffic Noise Predictions

The impact of transportation noise sources on the development was determined by computer modelling. Transportation noise source modelling is based on the software program *Predictor-Lima,* which utilizes the United States Federal Highway Administration's Traffic Noise Model (TNM) to represent the roadway line sources. The TNM model is also being accepted in the updated Environmental Guide for Noise of Ontario, 2021, by the Ministry of Transportation (MTO) [9]. This computer program can represent three-dimensional surfaces and first reflections of sound waves over a suitable spectrum for human hearing. A set of comparative calculations was performed in the current Ontario traffic noise prediction model, STAMSON, for comparisons to the Predictor simulation results. The STAMSON model is, however, older and requires each receptor to be calculated separately. STAMSON also does not accurately account for building reflections and multiple screening elements, and curved road geometry. A total of 82 receptor locations were identified around the site, as illustrated in Figures 2-4.

[8] City of Ottawa Transportation Master Plan, November 2013
[9] Ministry of Transportation Ontario, "*Environmental Guide for Noise*", August 2021, pg. 16

Roadway noise calculations were performed by treating each segment as a separate line source of noise and by using existing and proposed building locations as noise barriers (see Figure 5). In addition to the traffic volumes summarized in Table 2, theoretical noise predictions were based on the following parameters:

- Truck traffic on all roadways was taken to comprise 5% heavy trucks and 7% medium trucks, as per ENCG requirements for noise level predictions.
- The day/night split for all roads was taken to be 92% / 8%, respectively.
- Default ground surfaces were taken to be reflective due to the presence of hard (paved) ground.
- Topography was assumed to be a flat/gentle slope surrounding the study building.
- Noise receptors were strategically placed at 82 locations around the study area (see Figures 2-4).

5. RESULTS

5.1 Roadway Traffic Noise Levels

The results of the roadway traffic noise calculations are summarized in Table 3 below.

TABLE 3: EXTERIOR NOISE LEVELS DUE TO ROADWAY TRAFFIC SOURCES

Receptor Number	Receptor Height Above Grade/Roof (m)	Receptor Location	Roadway Noise Level (dBA)	
			Day	Night
R1	17.3	POW – Building 2.5 Podium – West Façade	64	56
R2	23.3	POW – Building 2.5 Podium – North Façade	66	59
R3	23.3	POW – Building 2.5 Podium – East Façade	53	46
R4	23.3	POW – Building 2.5 Podium – South Façade	58	50
R5	53.7	POW – Building 2.5 Tower – West Façade	61	54
R6	53.7	POW – Building 2.5 Tower – North Façade	63	56
R7	53.7	POW – Building 2.5 Tower – East Façade	58	51
R8	53.7	POW – Building 2.5 Tower – South Façade	57	49
R9	17.3	POW – Building 2.4 – West Façade	59	51
R10	17.3	POW – Building 2.4 – North Façade	67	59

TABLE 3 CONTINUED: EXTERIOR NOISE LEVELS DUE TO ROADWAY TRAFFIC SOURCES

Receptor Number	Receptor Height Above Grade/Roof (m)	Receptor Location	Roadway Noise Level (dBA)	
			Day	Night
R11	17.3	POW – Building 2.4 – East Façade	61	53
R12	17.3	POW – Building 2.4 – South Façade	44	37
R13	17.7	POW – Building 2.2 – West Façade	61	53
R14	17.7	POW – Building 2.2 – North Façade	66	59
R15	17.7	POW – Building 2.2 – East Façade	61	53
R16	17.7	POW – Building 2.2 – South Façade	45	37
R17	21.7	POW – Building 2.1 – West Façade	60	53
R18	21.7	POW – Building 2.1 – North Façade	66	59
R19	21.7	POW – Building 2.1 – East Façade	56	48
R20	21.3	POW – Building 2.3 – North Façade	42	35
R21	21.3	POW – Building 2.3 – West Façade	50	43
R22	53.3	POW – Building 2.6 Tower – North Façade	59	51
R23	53.3	POW – Building 2.6 Tower – West Façade	53	45
R24	11.7	POW – Building 3.4 – West Façade	60	53
R25	11.7	POW – Building 3.4 – North Façade	50	43
R26	11.7	POW – Building 3.4 – East Façade	47	39
R27	11.7	POW – Building 3.4 – South Façade	54	46
R28	17.3	POW – Building 3.3 – West Façade	49	41
R29	17.3	POW – Building 3.3 – North Façade	50	42
R30	17.3	POW – Building 3.3 – South Façade	44	36
R31	34.2	POW – Building 3.5 – North Façade	48	41
R32	34.2	POW – Building 3.5 – Southeast Façade	51	43
R33	34.2	POW – Building 3.5 – South Façade	54	47
R34	34.2	POW – Building 3.5 – West Façade	53	45
R35	74.7	POW – Building 9.5 Tower – South Façade	66	59
R36	74.7	POW – Building 9.5 Tower – East Façade	60	52

TABLE 3 CONTINUED: EXTERIOR NOISE LEVELS DUE TO ROADWAY TRAFFIC SOURCES

Receptor Number	Receptor Height Above Grade/Roof (m)	Receptor Location	Roadway Noise Level (dBA)	
			Day	Night
R37	74.7	POW – Building 9.5 Tower – North Façade	48	41
R38	74.7	POW – Building 9.5 Tower – West Façade	60	52
R39	17.3	POW – Building 9.3 – East Façade	61	53
R40	17.3	POW – Building 9.3 – North Façade	47	40
R41	17.3	POW – Building 9.3 – West Façade	59	52
R42	17.3	POW – Building 9.3 – South Façade	68	60
R43	17.3	POW – Building 9.2 – East Façade	59	52
R44	17.3	POW – Building 9.2 – North Façade	54	46
R45	17.3	POW – Building 9.2 – West Façade	65	58
R46	17.3	POW – Building 9.2 – South Façade	68	60
R47	74.7	POW – Building 8.7 Tower – East Façade	65	57
R48	74.7	POW – Building 8.7 Tower – North Façade	55	48
R49	74.7	POW – Building 8.7 Tower – West Façade	62	55
R50	74.7	POW – Building 8.7 Tower – South Façade	67	60
R51	26.7	POW – Building 8.6 Tower – East Façade	59	51
R52	26.7	POW – Building 8.6 Tower – North Façade	46	38
R53	26.7	POW – Building 8.6 Tower – West Façade	60	52
R54	26.7	POW – Building 8.6 Tower – South Façade	67	59
R55	74.7	POW – Building 8.4 Tower – East Façade	62	55
R56	74.7	POW – Building 8.4 Tower – North Façade	48	40
R57	74.7	POW – Building 8.4 Tower – West Façade	62	55
R58	74.7	POW – Building 8.4 Tower – South Façade	67	59
R59	26.7	POW – Building 8.3 Tower – East Façade	58	51
R60	26.7	POW – Building 8.3 Tower – North Façade	41	33
R61	26.7	POW – Building 8.3 Tower – West Façade	59	52
R62	26.7	POW – Building 8.3 Tower – South Façade	67	59

TABLE 3 CONTINUED: EXTERIOR NOISE LEVELS DUE TO ROADWAY TRAFFIC SOURCES

Receptor Number	Receptor Height Above Grade/Roof (m)	Receptor Location	Roadway Noise Level (dBA)	
			Day	Night
R63	74.7	POW – Building 7.4 Tower – East Façade	62	55
R64	74.7	POW – Building 7.4 Tower – North Façade	41	34
R65	74.7	POW – Building 7.4 Tower – West Façade	62	54
R66	74.7	POW – Building 7.4 Tower – South Façade	66	59
R67	26.7	POW – Building 7.3 Tower – East Façade	58	50
R68	26.7	POW – Building 7.3 Tower – North Façade	43	35
R69	26.7	POW – Building 7.3 Tower – West Façade	60	52
R70	26.7	POW – Building 7.3 Tower – South Façade	66	59
R71	29.7	POW – Building 8.8 Tower – South Façade	54	46
R72	29.7	POW – Building 8.8 Tower – East Façade	63	55
R73	29.7	POW – Building 8.8 Tower – North Façade	56	48
R74	74.7	POW – Building 9.1 Tower – South Façade	60	53
R75	74.7	POW – Building 9.1 Tower – West Façade	62	54
R76	74.7	POW – Building 9.1 Tower – North Façade	55	47
R77	74.7	POW – Building 6.2 Tower – South Façade	42	34
R78	74.7	POW – Building 6.2 Tower – East Façade	50	42
R79	74.7	POW – Building 6.2 Tower – North Façade	48	40
R80	74.7	POW – Building 4.2 Tower – South Façade	51	43
R81	74.7	POW – Building 4.2 Tower – East Façade	54	46
R82	74.7	POW – Building 4.2 Tower – North Façade	52	44

*Noise levels during the nighttime are not considered for OLAs

The results of the current analysis indicate that noise levels will range between 41 and 68 dBA during the daytime period (07:00-23:00) and between 33 and 60 dBA during the nighttime period (23:00-07:00). The highest noise level (68 dBA) occurs at the south façades of Buildings 9.2 and 9.3, which are nearest and most exposed to Walkley Road. Figures 7 and 8 illustrate daytime and nighttime noise contours of the site 4.5 m above grade.

Table 4 shows a comparison in results between Predictor-Lima and STAMSON. Noise levels calculated in STAMSON were found to have a good correlation with Predictor-Lima and variability between the two programs was within an acceptable level of ±0-3 dBA. STAMSON input parameters are shown in Appendix A.

TABLE 4: RESULTS OF STAMSON/PREDICTOR-LIMA CORRELATION

Receptor ID	Receptor Height (m)	Receptor Location	STAMSON 5.04 Noise Level (dBA)		PREDICTOR-LIMA Noise Level (dBA)	
			Day	Night	Day	Night
R13	17.7	POW – Building 2.2 – West Façade	64	56	61	53
R15	17.7	POW – Building 2.2 – East Façade	64	56	61	53
R27	11.7	POW – Building 3.4 – South Façade	56	49	54	46

5.1.1 Noise Control Measures

The results indicate that upgraded building components and central air conditioning will be required for Buildings 2.1, 2.2, 2.4, 2.5, 7.3, 7.4, 8.3, 8.4, 8.6, 8.7, 9.2, 9.3, and 9.5 as noise levels predicted due to roadway traffic exceed the criteria of 65 dBA during the daytime listed in ENCG. Additionally, a Type D warning clause will also be required in all Lease, Purchase and Sale Agreements, as summarized in Section 6.

Regarding buildings 2.6, 3.4, 8.8, and 9.1, noise levels fall between 55 dBA and 65 dBA during the daytime period. As such, these buildings will need forced air heating with provisions for central air conditioning, as a minimum requirement. These requirements will allow occupants to keep windows closed and maintain a comfortable living environment. Additionally, a Type C warning clause will also be required in all Lease, Purchase and Sale Agreements, as summarized in Section 6. Figure 6 illustrates the ventilation and building component requirements. Detailed mitigation measures would be the subject of a detailed noise assessment during the site plan approval stage.

6. CONCLUSIONS AND RECOMMENDATIONS

The results of the current analysis indicate that noise levels will range between 41 and 68 dBA during the daytime period (07:00-23:00) and between 33 and 60 dBA during the nighttime period (23:00-07:00). The highest noise level (68 dBA) occurs at the south façades of Buildings 9.2 and 9.3, which are nearest and most exposed to Walkley Road

As such, upgraded building components and central air conditioning will be required for Buildings 2.1, 2.2, 2.4, 2.5, 7.3, 7.4, 8.3, 8.4, 8.6, 8.7, 9.2, 9.3, and 9.5 as noise levels predicted due to roadway traffic exceed the criteria of 65 dBA during the daytime listed in ENCG. Detailed mitigation measures would be the subject of a detailed noise assessment during the site plan approval stage. Additionally, a Type D warning clause will also be required in all Lease, Purchase and Sale Agreements, as summarized in below:

Type D:

> *"This dwelling unit has been supplied with a central air conditioning system which 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."*

Regarding buildings 2.6, 3.4, 8.8, and 9.1, noise levels fall between 55 dBA and 65 dBA during the daytime period. As such, these buildings will need forced air heating with provisions for central air conditioning, as a minimum requirement. These requirements will allow occupants to keep windows closed and maintain a comfortable living environment. Detailed mitigation measures would be the subject of a detailed noise assessment during the site plan approval stage. Additionally, a Type C warning clause will also be required in all Lease, Purchase and Sale Agreements, as summarized in below:

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."*

With regard to stationary noise impacts from proposed mechanical systems on the development, they will be designed to ensure compliance with the ENCG sound level limits. Noise impacts can generally be minimized by judicious selection and placement of the equipment. Where necessary, noise screens and silencers can be placed into the design. It is recommended that a stationary noise study be conducted once mechanical plans for the proposed development become available. This study would assess the impacts of stationary noise from rooftop mechanical units serving the proposed development on surrounding noise-sensitive areas.

This concludes our roadway traffic noise feasibility 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.

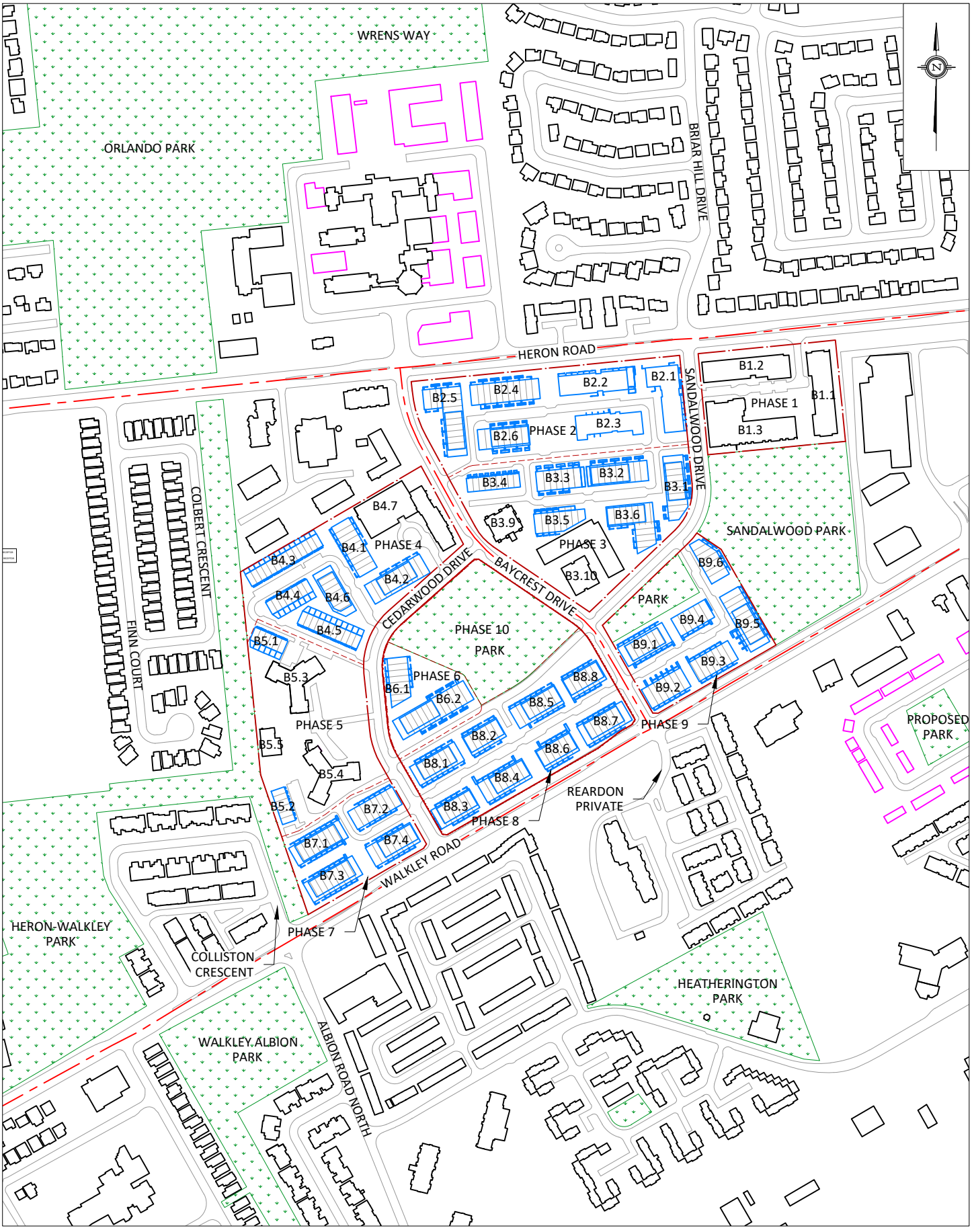
Sincerely,

Gradient Wind Engineering Inc.

Benjamin Page, AdvDip.
Junior Environmental Scientist

Joshua Foster, P.Eng.
Lead Engineer

Gradient Wind File 24-213 - Traffic Noise Feasibility



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PROJECT	HERON GATE MASTERPLAN, OTTAWA TRANSPORTATION NOISE AND VIBRATION STUDY		DESCRIPTION
SCALE	1:5500 (APPROX.)	DRAWING NO.	24-213-ANV-1
DATE	MAY 22, 2025	DRAWN BY	N.M.P.

FIGURE 1:
SITE PLAN AND SURROUNDING CONTEXT

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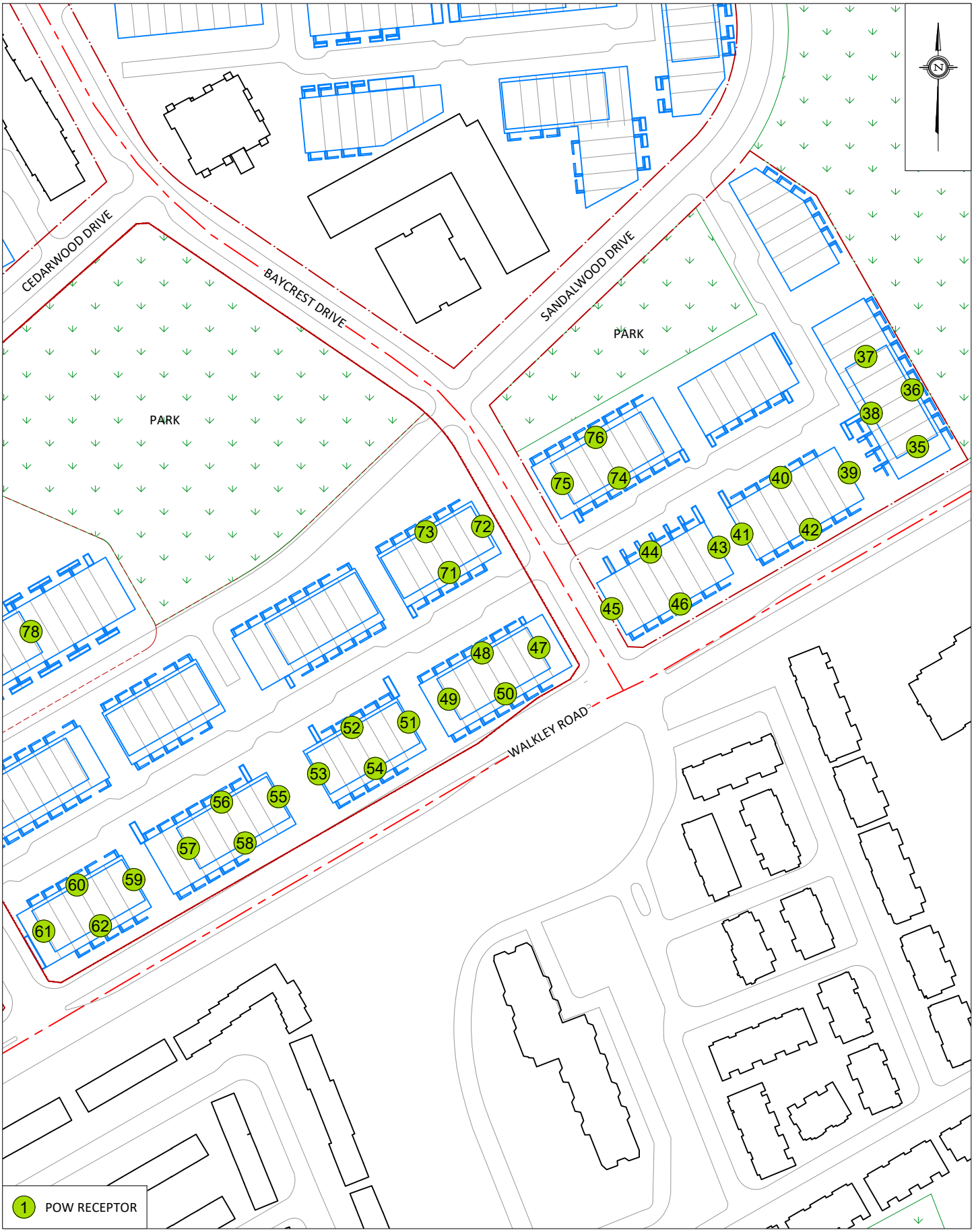
PROJECT	HERON GATE MASTERPLAN, OTTAWA TRANSPORTATION NOISE AND VIBRATION STUDY		DESCRIPTION
SCALE	1:2000 (APPROX.)	DRAWING NO.	24-213-ANV-2
DATE	MAY 22, 2025	DRAWN BY	B.P.

FIGURE 2:
RECEPTOR LOCATIONS



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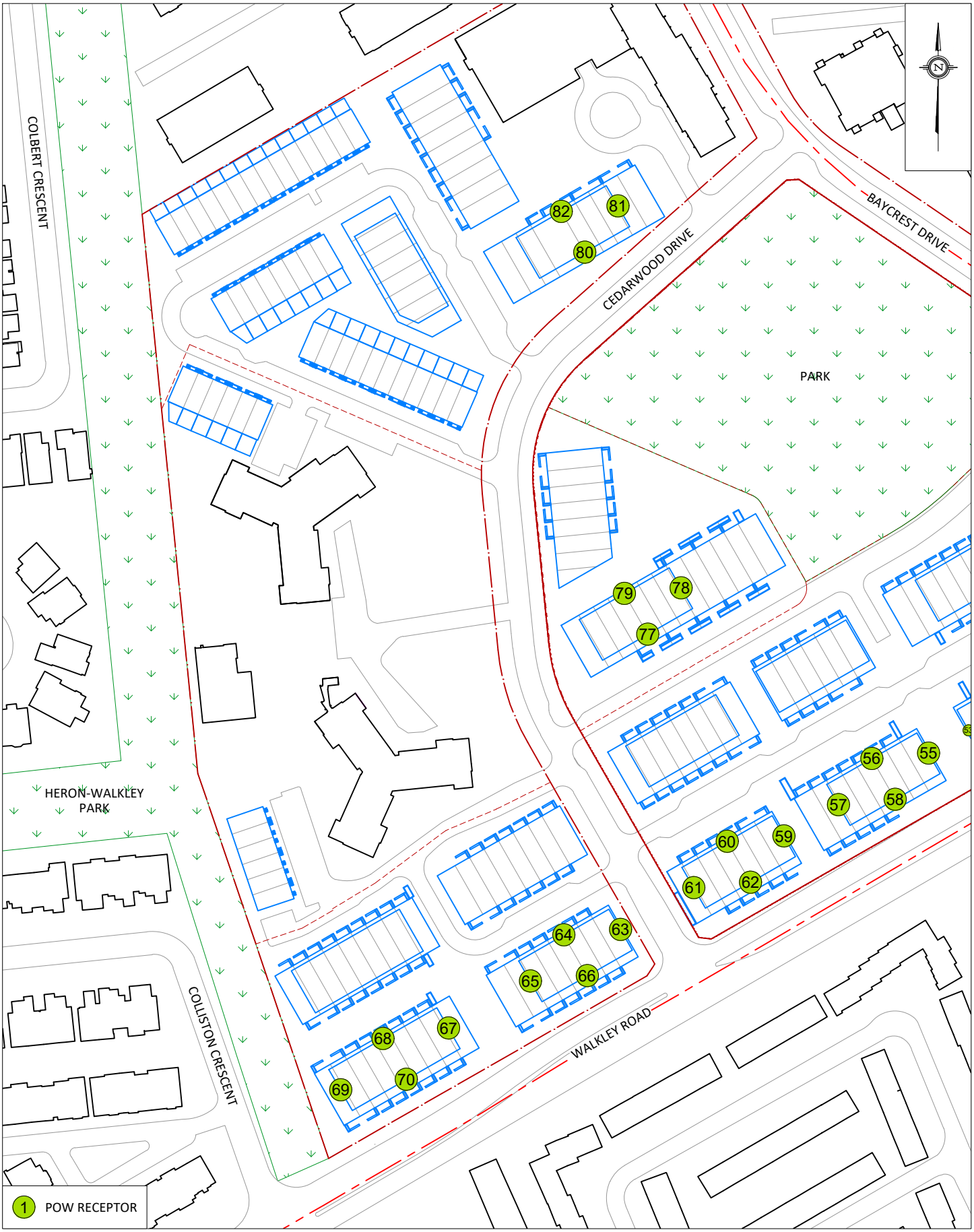
PROJECT	HERON GATE MASTERPLAN, OTTAWA TRANSPORTATION NOISE AND VIBRATION STUDY
SCALE	1:2000 (APPROX.)
DRAWING NO.	24-213-ANV-3
DATE	MAY 22, 2025
DRAWN BY	B.P.

DESCRIPTION

FIGURE 3:
RECEPTOR LOCATIONS



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PROJECT	HERON GATE MASTERPLAN, OTTAWA TRANSPORTATION NOISE AND VIBRATION STUDY
SCALE	1:2000 (APPROX.)
DRAWING NO.	24-213-ANV-4
DATE	MAY 22, 2025
DRAWN BY	B.P.
DESCRIPTION	FIGURE 4: RECEPTOR LOCATIONS

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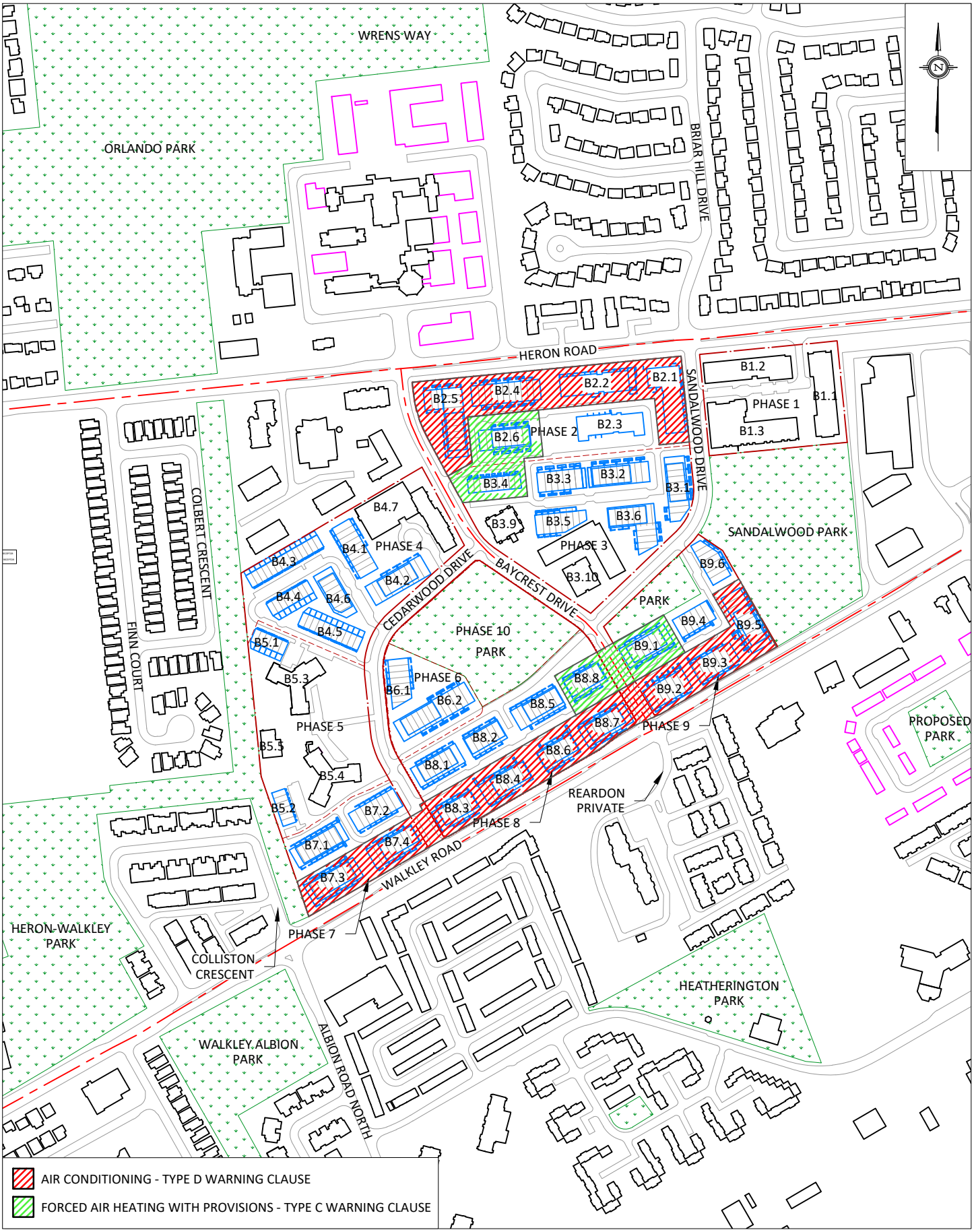
SCALE	1:2000 (APPROX.)
DRAWING NO.	24-213-ANV-5
DATE	MAY 22, 2025
DRAWN BY	B.P.
DESCRIPTION	FIGURE 5: RECEPTOR LOCATIONS



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PROJECT	HERON GATE MASTERPLAN, OTTAWA TRANSPORTATION NOISE AND VIBRATION STUDY
SCALE	1:5500 (APPROX.)
DRAWING NO.	24-213-ANV-6
DATE	MAY 22, 2025
DRAWN BY	N.M.P.
DESCRIPTION	FIGURE 6: VENTILATION AND BUILDING COMPONENT REQUIREMENTS

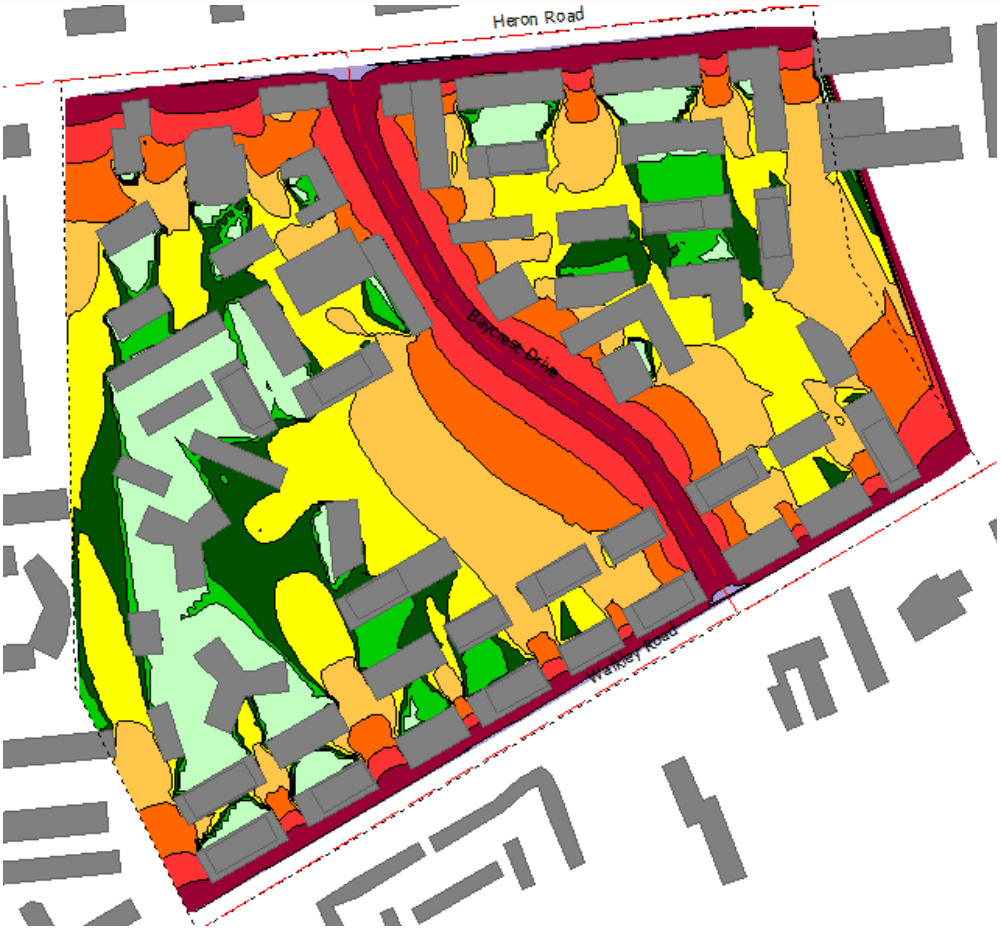
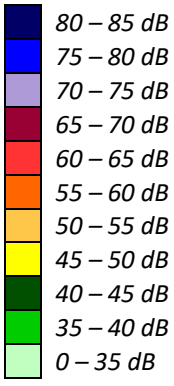


FIGURE 7: DAYTIME TRAFFIC NOISE CONTOURS (4.5 M ABOVE GRADE)



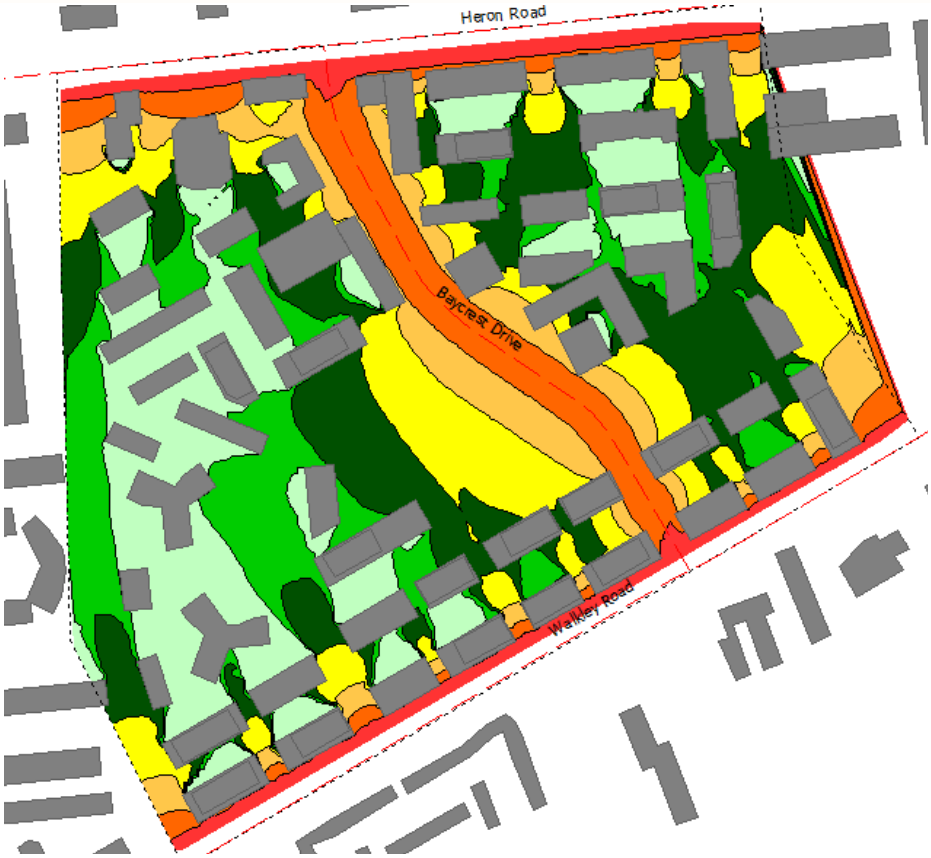
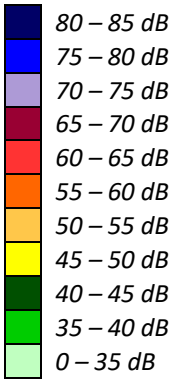


FIGURE 8: NIGHTTIME TRAFFIC NOISE CONTOURS (4.5 M ABOVE GRADE)



APPENDIX A

STAMSON 5.04 – INPUT AND OUTPUT DATA

127 WALGREEN ROAD, OTTAWA, ON, CANADA K0A 1L0 | 613 836 0934
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STAMSON 5.0 NORMAL REPORT Date: 23-05-2025 12:38:15
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: R13.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: Heron Road (day/night)

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 35000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: Heron Road (day/night)

Angle1 Angle2 : -90.00 deg 0.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 37.00 / 37.00 m
Receiver height : 17.70 / 17.70 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg Angle2 : -64.00 deg
Barrier height : 18.80 m
Barrier receiver distance : 22.00 / 22.00 m
Source elevation : 0.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

```
Results segment # 1: Heron Road (day)
-------------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       17.70 !        8.06 !         8.06

ROAD (0.00 + 45.17 + 63.75) = 63.81 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90    -64   0.00  72.16   0.00  -3.92  -8.40   0.00   0.00 -14.66  45.17
-------------------------------------------------------------------------------
   -64      0   0.00  72.16   0.00  -3.92  -4.49   0.00   0.00   0.00  63.75
-------------------------------------------------------------------------------

Segment Leq : 63.81 dBA

Total Leq All Segments: 63.81 dBA

Results segment # 1: Heron Road (night)
---------------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       17.70 !        8.06 !         8.06

ROAD (0.00 + 37.58 + 56.15) = 56.21 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90    -64   0.00  64.56   0.00  -3.92  -8.40   0.00   0.00 -14.66  37.58
-------------------------------------------------------------------------------
   -64      0   0.00  64.56   0.00  -3.92  -4.49   0.00   0.00   0.00  56.15
-------------------------------------------------------------------------------

Segment Leq : 56.21 dBA

Total Leq All Segments: 56.21 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 63.81
                           (NIGHT): 56.21
```

STAMSON 5.0 NORMAL REPORT Date: 23-05-2025 12:47:35
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: R15.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: Heron Road (day/night)

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 35000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: Heron Road (day/night)

Angle1 Angle2 : 0.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 38.00 / 38.00 m
Receiver height : 17.70 / 17.70 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : 63.00 deg Angle2 : 90.00 deg
Barrier height : 23.20 m
Barrier receiver distance : 20.00 / 20.00 m
Source elevation : 0.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

```
Results segment # 1: Heron Road (day)
-------------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       17.70 !        9.17 !         9.17

ROAD (63.56 + 43.65 + 0.00) = 63.61 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0     63   0.00  72.16   0.00  -4.04  -4.56   0.00   0.00   0.00  63.56
-------------------------------------------------------------------------------
    63     90   0.00  72.16   0.00  -4.04  -8.24   0.00   0.00 -16.23  43.65
-------------------------------------------------------------------------------

Segment Leq : 63.61 dBA

Total Leq All Segments: 63.61 dBA

Results segment # 1: Heron Road (night)
---------------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       17.70 !        9.17 !         9.17

ROAD (55.97 + 36.05 + 0.00) = 56.01 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0     63   0.00  64.56   0.00  -4.04  -4.56   0.00   0.00   0.00  55.97
-------------------------------------------------------------------------------
    63     90   0.00  64.56   0.00  -4.04  -8.24   0.00   0.00 -16.23  36.05
-------------------------------------------------------------------------------

Segment Leq : 56.01 dBA

Total Leq All Segments: 56.01 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 63.61
                           (NIGHT): 56.01
```

```
STAMSON 5.0        NORMAL REPORT        Date: 23-05-2025 14:09:22
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: R27.te                Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: Baycrest Dr (day/night)
-----------------------------------------------
Car traffic volume  :  9715/845   veh/TimePeriod  *
Medium truck volume :   773/67    veh/TimePeriod  *
Heavy truck volume  :   552/48    veh/TimePeriod  *
Posted speed limit  :    40 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

    24 hr Traffic Volume (AADT or SADT):  12000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 1: Baycrest Dr (day/night)
---------------------------------------------
Angle1   Angle2           : -44.00 deg   23.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  47.00 / 47.00  m
Receiver height           :  11.70 / 11.70  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Results segment # 1: Baycrest Dr (day)
--------------------------------------

Source height = 1.50 m

ROAD (0.00 + 56.46 + 0.00) = 56.46 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -44     23   0.00  65.72   0.00  -4.96  -4.29   0.00   0.00   0.00  56.46
-------------------------------------------------------------------------------

Segment Leq : 56.46 dBA

Total Leq All Segments: 56.46 dBA
```

```
Results segment # 1: Baycrest Dr (night)
----------------------------------------

Source height = 1.50 m

ROAD (0.00 + 48.87 + 0.00) = 48.87 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -44     23   0.00  58.12   0.00  -4.96  -4.29   0.00   0.00   0.00  48.87
-------------------------------------------------------------------------------

Segment Leq : 48.87 dBA

Total Leq All Segments: 48.87 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 56.46
                           (NIGHT): 48.87
```