



Noise Impact Study

167 – 171 King Street S, Waterloo, Ontario

Vanmar Developments King Carol LP

July 03, 2025

➔ **The Power of Commitment**



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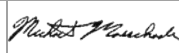


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Executive Summary

GHD Limited (GHD) was retained by *VanMar Developments King Carol LP* (VanMar) to prepare a Noise Impact Study for the proposed residential development (Development) located at 167-171 King Street South in Waterloo, Ontario (Site). This Study has been prepared in support of the planning approvals for the Development.

The Development concept is a high-rise residential mixed-use development which includes two towers atop a podium. Tower A will be 37 storeys, Tower B will be 33 storeys, and the podium will be 5 storeys. There are two planned common outdoor amenity spaces located on top of the podium, one located between the two towers, and one located south of Building A (both at 6th floor level).

The purpose of this Study is to assess the following potential impacts:

- Noise impacts at the Development due to future road traffic
- Noise impacts at the Development due to future rail traffic
- Stationary noise impacts from off-site stationary sources
- Stationary noise impacts from on-site HVAC equipment

Predicted ambient noise levels at the Development from road and rail traffic are sufficiently high that noise mitigation is required in the form of provisions for central air conditioning as well as recommended noise warning clauses.

GHD conducted a site visit to observe and measure noise emissions from any nearby stationary sources. Cumulative stationary noise levels at the Site from nearby industrial and commercial facilities are within the applicable stationary noise limits of the MECP and thus, will not reduce the ability of the facilities to comply with the MECP noise guidelines.

The Development is approximately 16 metres from the centreline of the nearest Grand River Transit ION Light Rail Transit tracks. Based on the Noise and Vibration Impact Assessment for the Stage 2 ION: Light Rail Transit, from Kitchener to Cambridge (Coulter, 2021), vibration impacts are not expected at this distance. Therefore, detailed vibration impact assessment is outside of the scope of this Study.

This report is subject to, and must be read in conjunction with, the limitations set out in section 1.2 and the assumptions and qualifications contained throughout the Report.

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1. Introduction

1.1 Purpose of this Report

GHD Limited (GHD) was retained by *VanMar Developments King Carol LP* (VanMar) to prepare a Noise Impact Study (Study) for the proposed high rise residential Development located at 167-171 King Street South, Waterloo, Ontario (Development). This Study has been prepared in support of the planning applications for the Development.

The Development is approximately 16 metres from the centreline of the nearest Grand River Transit ION Light Rail Transit tracks. Based on the Noise and Vibration Impact Assessment for the Stage 2 ION: Light Rail Transit, from Kitchener to Cambridge (Coulter, 2021), vibration impacts are not expected at this distance. Therefore, detailed vibration impact assessment is outside of the scope of this Study.

1.2 Site and Development Description

The Site is located directly in-between King Street South and Caroline Street South, approximately 75 metres southeast of William Street West. Two Grand River Transit ION LRT rail lines are located on either side of the development, approximately 20 metres south and north of the Site respectively. A key plan is included as Figure 1.1, which shows the location of the Site in relation to these transportation corridors.

The Site is currently zoned as Uptown (U2-81). The lands immediately surrounding the Site include properties zoned as Uptown (U2-81, U2-60, U2-30, U2-20, U1-60, U1-16, and U1-81) on all sides, Open Space (OS1) to the northwest and a small parcel to the south, and Residential (R4, R6, R8, RMU-81, RMU-60, and RMU-20) on all sides. A zoning map is included in Figure A.1 of Appendix A.

The area surrounding the Site is relatively flat, however, there are several intervening structures that obstruct the line of sight to the roadways and rail lines, particularly at the lower floors.

The Development consists of a high-rise residential mixed-use development which will have two towers atop a podium, Tower A will be 37 storeys and Tower B will be 33 storeys. There are two planned common outdoor amenity spaces located on top of the podium, one located between the two towers, and one located south of Building A (both at 6th floor level).

1.3 Scope and Limitations

This report: has been prepared by GHD for VanMar Developments King Carol LP and may only be used and relied on by VanMar Developments King Carol LP for the purpose agreed between GHD and VanMar Developments King Carol LP as set out in section 1.1 of this report.

GHD otherwise disclaims responsibility to any person other than VanMar Developments King Carol LP arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.

The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. GHD has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared.

The opinions, conclusions and any recommendations in this report are based on assumptions made by GHD described in this report. GHD disclaims liability arising from any of the assumptions being incorrect.

2. Land Use Compatibility

The MECP Guideline D-6 "Compatibility Between Industrial Facilities and Sensitive Land Uses" (Guideline D-6) provides recommended minimum separation distances (RMSD) and potential areas of influence (AOI) based on the class of the industrial facility. RMSDs are provided based on the industry size and operation type. The guideline provides direction for land use planning to maximize compatibility of industrial uses with adjacent land uses. The goal of Guideline D-6 is to minimize encroachment of sensitive land uses on industrial facilities and vice versa, in order to address potential incompatibility due to adverse effects including noise and vibration.

Guideline D-6 separates industry into three broad categories, depending on the nature of their operations and the types of potential impacts:

- **Class I industries** are small scale, self-contained plants or buildings, which produce and store products internally, and have low probability of fugitive emissions. They have daytime operations only, with infrequent movements of products and/or heavy trucks. Some examples include furniture repair and refinishing, electronics manufacturing, auto parts supply, distribution of dairy products, and beverages bottling.
- **Class II industries** perform medium scale processing, with occasional outputs of point source or fugitive emissions. Activities may include some outdoor storage of wastes and materials, frequent movement of products and/or heavy trucks during the daytime, and shift work. Some examples include paint spray booths, feed packing plant, dairy product manufacturing, and dry-cleaning services.
- **Class III industries** conduct large-scale manufacturing and are characterized by persistent and/or intense dust and/or odour, frequent outputs of major annoyances, and have a high probability of fugitive emissions. Activities may include continuous operations and movements of products, outside storage of raw and finished goods, and high levels of production. Some examples include manufacturing of paint and varnish, manufacturing of resins and coatings, solvent recovery plants, organic chemicals manufacturing, breweries, and metal manufacturing.

The following table summarizes the recommended minimum setback distances and areas of potential influence which represents the distance within which adverse effects could potentially occur.

Table 2.1 Guideline D-6 Industry Separation Distances

Industry Classification	RMSD (metres)	AOI (metres)
Class I	20	70
Class II	70	300
Class III	300	1,000

Guideline D-6 provides criteria for classifying industrial land uses, based on their outputs, scale of operations, processes, schedule, and intensity of operations. Often an industry will fall between two Classes. Guideline D-6 states that no incompatible development should occur within the recommended minimum separation distance as noted in Table 3.1. In cases where the recommended minimum separation distances are not met, further detailed assessment is warranted to ensure compatibility as stated in guideline D-6.

2.1.1 Classification of Industries

GHD has evaluated the size and operations of the commercial/industrial facilities in the general vicinity of the Site to apply the appropriate classification per Guideline D-6. GHD's evaluation and classification of these facilities is summarized in Table 2.2 below.

Table 2.2 Summary of Key Industries nearby to the Development

Facility Name	Address	MECP Permit / Registration with Acoustic Assessment	Description of Operations	D-6 Class	RMSD (m)	AOI (m)	Distance from Site (m)	Detailed Noise Assessment Warranted?
Circa 1877 – Condominium Complex	181 King Street South	N/A	Condominium complex: – Small-scale, self-contained operations – Infrequent truck movements – No outdoor storage of raw materials or products	I	20	70	<20	Yes
Chartwell Terrace on the Square – Retirement Residence	100 Caroline Street South	N/A	Retirement residence: – Small-scale, self-contained operations – Infrequent truck movements – No outdoor storage of raw materials or products	I	20	70	<20	Yes
Your Neighbourhood Credit Union	168 King Street South	N/A	Credit card service company: – Small-scale, self-contained operations – Infrequent truck movements – No outdoor storage of raw materials or products	I	20	70	25	No (noise impacts deemed negligible)
Sun Life Assurance Company of Canada	227 King Street South	2285-994NB3 (ECA) 9446-A6CJZ6 (ECA) 2242-7DYGXC (ECA)	Financial services company: – Small-scale, self-contained operations – Infrequent truck movements – No outdoor storage of raw materials or products	I	20	70	335	No (noise impacts deemed negligible)
Delta Hotels Waterloo – Domain Hospitality Corporation	110 Erb Street West	6460-8HFQK6 (ECA)	Hotel: – Small-scale, self-contained operations – Infrequent truck movements – No outdoor storage of raw materials or products	I	20	70	630	No (noise impacts deemed negligible)

Facility Name	Address	MECP Permit / Registration with Acoustic Assessment	Description of Operations	D-6 Class	RMSD (m)	AOI (m)	Distance from Site (m)	Detailed Noise Assessment Warranted?
Grand River Hospital	835 King Street West	4955-5HLPUA (ECA) 1205-6JCQHD (ECA)	Hospital: – Small-scale, self-contained operations – Infrequent truck movements – No outdoor storage of raw materials or products	I	20	70	660	No (noise impacts deemed negligible)
Waterloo City Hall	100 Regina Street South	5501-6V5P5S (ECA)	City hall: – Small-scale, self-contained operations – Infrequent truck movements – No outdoor storage of raw materials or products	I	20	70	215	No (noise impacts deemed negligible)
GOB GP Inc.	187 King Street South	5342-84CLAK (ECA)	Multi-tenant commercial building: – Small-scale, self-contained operations – Infrequent truck movements – No outdoor storage of raw materials or products	I	20	70	100	No (noise impacts deemed negligible)
The Centre for International Governance Innovation	67 Erb Street West	9025-8JRL6Z (ECA)	Institution: – Small-scale, self-contained operations – Infrequent truck movements – No outdoor storage of raw materials or products	I	20	70	360	No (noise impacts deemed negligible)
Light Rail Vehicle Traction Power Substation (TPSS)	904 King Street West	R-010-7111394673 (EASR)	Substation: – Small-scale, self-contained operations – Infrequent truck movements – No outdoor storage of raw materials or products	I	20	70	730	No (noise impacts deemed negligible)

Figure 2.1 attached shows the locations of the facilities listed above in relation to the Site. The following facilities are located within the respective AOI or RMSD per Table 2.1, and therefore warrant further detailed assessment of stationary noise emissions:

- Circa 1877 (181 King Street South) – Condominium Complex
- Chartwell Terrace on the Square – Retirement Residence

2.1.2 Guideline D-6 Assessment Conclusions

2.1.2.1 Existing Industries

Based on the industry classifications noted above and their setbacks relative to the sensitive uses of the Development (see Figure 2.1), GHD has identified the following industries that have potential areas of influence and/or recommended minimum setback distances within which the Development is located:

- Circa 1877 (181 King Street South) – Condominium Complex
- Chartwell Terrace on the Square – Retirement Residence

Section 4.10.3 of the D-6 Guideline allows the proponent to provide a justifying impact assessment to support an application for a change in land use where the minimum distances are not met. A detailed stationary noise impact assessment is included in Section 5 to satisfy this requirement.

2.1.2.2 Potential Future Industries

There is currently a development application for 180 King Street South located approximately 40 metres east of the Site. The intended use of the land is for a mid-rise residential mixed-use development. The existing 181 King Street South high-rise residential building is closer to 180 King St S than the proposed Development. The future mechanical equipment at 180 King St S would need to be designed to be compliant at 181 King Street South and would therefore also comply with NPC-300 at the Development.

There are currently no other active development applications in close proximity to the Development. However, any future developments would be required to be compatible with existing uses nearby to the Development, such that the Development does not impact the compatibility of such potential future developments.

3. Sound Level Criteria

3.1 Transportation Noise Criteria

3.1.1 Road and Rail Traffic Criteria

Under NPC-300, road and rail traffic noise impacts are evaluated separately for exterior receptors and interior receptors based on the average day (07:00 to 23:00) and night (23:00 to 07:00) noise impacts. The sound levels are expressed in terms of A-weighted equivalent sound levels (Leq).

NPC-300 defines two categories of receivers for transportation noise:

- Plane of Window (POW): Point corresponding with the centre of a window of a sensitive space.
- Outdoor Living Area (OLA): Outdoor location intended and designed for quiet enjoyment of the outdoor environment that is readily accessible from the building (e.g., backyards, front yards, gardens, terraces, patios). Private balconies and terraces are only considered OLAs if they are greater than 4 metres in depth and if they are the only outdoor living area for the occupant(s).

NPC-300 specifies sound level limits for POW and OLA receivers as summarized in Table 3.1 below.

Table 3.1 Road and Rail Traffic – Outdoor Sound Level Limits

Receiver Category	Sound Level Limit (dBA)	
	Day (16-hour Leq)	Night (8-hour Leq)
Plane-of-Window (POW)	55	50
Outdoor Living Area (OLA)	55	N/A

For POWs, combined road and rail traffic sound levels exceeding the corresponding criteria above would require additional controls for MECP compliance. Depending on the magnitude of the exceedances, additional controls may include ventilation requirements, requirements for building envelope elements, and/or noise warning clauses.

For OLAs, road traffic sound levels exceeding the daytime limit indicated above would require design of noise barriers to achieve the target, and/or warning clauses. NPC-300 states that sound levels up to 5 dBA above the OLA sound level limit (i.e., up to 60 dBA) are acceptable with the use of an appropriate noise warning clause.

If POW sound levels from future road traffic exceed 65 dBA during the day or 60 dBA at night, or if sound levels from future rail traffic exceed 60 dBA during the day or 55 dBA at night, building envelope components must be designed to achieve the indoor sound level limits of NPC-300. The indoor sound level limits for road and rail traffic are summarized in Table 3.2 below.

Table 3.2 Road and Rail Traffic – Indoor Sound Level Limits (Residential uses)

Receiver Category	Road Sound Level Limits (dBA)		Rail Sound Level Limits (dBA)	
	Day (16-hour Leq)	Night (8-hour Leq)	Day (16-hour Leq)	Night (8-hour Leq)
Indoor living areas (excluding sleeping quarters)	45	45	40	40
Sleeping quarters	45	40	40	35

NPC-300 includes supplementary road and rail traffic indoor sound level limits for non-residential sensitive land uses, which are summarized in Table 3.3 below.

Table 3.3 Road and Rail Traffic – Indoor Sound Level Limits (Non-Residential uses)

Receiver Category	Road Sound Level Limits (dBA)		Rail Sound Level Limits (dBA)	
	Day (16-hour Leq)	Night (8-hour Leq)	Day (16-hour Leq)	Night (8-hour Leq)
General offices, reception areas, retail stores, etc.	50	-	45	-
Hospitals, schools, nursing/retirement homes, daycare centres, theatres, places of worship, libraries, individual or semi-private offices, conference rooms, reading rooms, etc.	45	-	40	-
Sleeping quarters of hotels/motels	-	45	-	40
Sleeping quarters of hospitals, nursing/retirement homes, etc.	-	40	-	35

3.2 Stationary Noise Limits

3.2.1 MECP Standard Limits

NPC-300 defines stationary noise sources as sound from all sources that are normally operated within the property lines of a facility. The noise impact from stationary sources is evaluated based on operations during a predictable worst-case hour. Stationary noise assessment criteria are generally determined based on the MECP's minimum exclusionary sound level limits, as presented in NPC-300, in comparison to the background sound levels experienced in the area.

The Site is in what would generally be considered a Class 1 acoustic environment as defined by NPC-300, as the acoustic environment is dominated by human activities (i.e., road traffic).

Table 3.4 below summarizes the MECP's minimum exclusionary sound level limits for Class 1 areas, which are expressed in terms of 1-hour equivalent sound levels (1-hour Leq):

Table 3.4 *MECP Minimum Exclusionary Sound Level Limits for Steady Sound – Class 1 Area*

Point of Reception Type	Sound Level Limits (dBA)	
	Day (7am – 11pm)	Night (11pm – 7am)
Plane of window	50	45
Outdoor space	50	--

The applicable guideline sound level limits for regular scheduled testing of emergency equipment (e.g., standby generator) are 5 dBA higher than the corresponding values above.

3.2.2 Residential Air Conditioners

The Ontario Ministry of Environment, Conservation and Parks (MECP) guideline NPC-216 “Residential Air Conditioning Devices” (1993) contains noise level criteria for stationary noise sources (e.g., rooftop mechanical equipment, etc.). The assessment criteria are determined for a point-of-reception based on the minimum exclusionary limits presented in Table 216-2 of NPC-216 in comparison with the existing background sound levels (plus 5 dBA) experienced in the area (whichever is higher):

Table 3.5 *NPC-216 Criteria for Central Air Conditioning Devices*

Area Type	One Hour Leq
Class 2	45
Class 1	50*

Notes:

* When central air conditioners are requirements for noise control in the interior living spaces of new developments, the specific sound level limit is increased to 55 dBA.

4. Transportation Noise Impact Assessment

4.1 Methodology

The roadways near the Site were modelled as sources of sound using the road element in CadnaA set to predict noise emission rates in accordance with the United States of America’s (US) Department of Transportation’s Traffic Noise Model (TNM).

Rail traffic noise levels are modelled as line sources of sound using the rail source element in CadnaA using the US Federal Transit Administration and Federal Railway Administration’s prediction algorithm (FTA/FRA Model). LRT noise level calculations in accordance with the FTA Transit Noise and Vibration Assessment Manual are included in Appendix C, which were used to set the LRT sound emission rates in CadnaA.

The 3D CadnaA model accounts for the complex geometry at the Site and the surrounding area. The area surrounding the Site is relatively flat and has been assumed as such in the model. Road and rail traffic noise levels were predicted at all POWs of the Development using the Building Noise Map feature of CadnaA, and at OLAs using point receivers.

To demonstrate that the CadnaA road traffic model is generally consistent with the STAMSON model that is accepted in Ontario, a sample STAMSON calculation is included in Appendix C representing the worst-case north façade window of Building B. The prediction results are within ± 2 dBA of the CadnaA noise predictions, indicating that the CadnaA road traffic predictions are consistent with STAMSON.

4.2 Traffic Input Parameters

4.2.1 Road Traffic Data

Future road traffic model parameters used in this Study are summarized as follows:

Table 4.1 Future (2035) Road Traffic Input Parameters

Road Segment	Future AADT	Speed Limit (km/h)	Day / Night Split	Commercial Vehicle Rates (medium trucks / heavy trucks)
King Street South	6,400	50	90% / 10%	2% / 4%
Caroline Street South	3,100	50	90% / 10%	2% / 0%
William Street West	7,600	50	90% / 10%	1% / 2%
Allen Street West	1,900	50	90% / 10%	3% / 1%

Road traffic volumes for King Street South, Caroline Street South, William Street West, and Allen Street West were obtained from the Region of Waterloo in the form of forecasted AADT volumes for the year 2035. A day / night split of 90% / 10% was assumed according to the guidance of the Region of Waterloo. Commercial vehicle rates were provided in the traffic data report.

Figure 1.1 shows the location of the roadways noted above in relation to the Site. All road traffic data referenced in this Study is included in Appendix D.

4.2.2 Rail Traffic Data

Future rail traffic model parameters used in this Study are summarized as follows:

Table 4.2 Future (2035) Rail Traffic Input Parameters

Rail Source	Future Daytime Trains	Future Nighttime Trains	Locomotive Type	Max. Locomotives per Train	Max. Cars per Train	Max. Speed (km/h)
ION LRT towards Fairview Mall	111	14	Streetcar	1	5	50
ION LRT towards Conestoga Mall	111	12	Streetcar	1	5	50

Rail traffic data for the Grand River Transit (GRT) ION LRT traffic operating on the Allen Station towards Conestoga Mall and Willis Way Station towards Fairview Mall were obtained from the train schedules published by GRT. Future rail volumes for these rail traffic sources were estimated using an assumed annual growth rate of 2.5%.

Figure 1.1 shows the location of the rail line noted above in relation to the Site. All rail traffic data referenced in this Study is included in Appendix D.

4.3 Transportation Noise Results

4.3.1 Plane of Window Receivers

Predicted future road and rail traffic noise impacts at the worst-case POW receivers of the Development are summarized as follows:

Table 4.3 Future Road and Rail Noise Levels – Plane of Window

Building	Façade	Future Noise Levels (dBA)						Limits Exceeded?
		Road		Rail		Cumulative Road and Rail		
		Day	Night	Day	Night	Day	Night	
Building A	North	55	49	52	46	57	50	Yes
	East	54	48	55	49	57	50	Yes
	South	56	50	59	53	61	54	Yes
	West	57	51	56	50	59	53	Yes
Building B	North	61	55	59	52	63	56	Yes
	East	57	51	56	49	60	53	Yes
	South	51	45	52	46	54	48	No
	West	59	52	55	49	60	54	Yes
Podium	North	63	56	60	54	65	58	Yes

As seen above, future road and rail noise levels at the façades generally range from 53 dBA to 65 dBA during the day and 46 dBA to 58 dBA at night. These sound levels are sufficiently high that the Development must incorporate ventilation requirements and noise warning clauses in accordance with NPC-300, which are described further in Section 4.4. Figure 4.1 and Figure 4.2 show the predicted road and rail noise levels respectively, and Figure 4.3 shows the predicted cumulative road and rail noise levels at the façades throughout the Development.

4.3.2 Outdoor Living Areas

The predicted future road and rail traffic noise impact at the worst-case OLA receivers of the is summarized as follows:

Table 4.4 Future Road and Rail Noise Levels – Outdoor Living Area

Receiver ID	Receiver Description	Future Daytime Noise Levels (dBA)			Limit Exceeded?
		Road	Rail	Cumulative Road and Rail	
OLA-01	Shared outdoor amenity space on the roof of the podium (19.65 m AG)	38	46	46	No
OLA-02	Shared outdoor terrace located southwest on the roof of the podium (19.65 m AG)	49	51	53	No

As seen above, the cumulative daytime road and rail noise levels at the OLAs reach 53 dBA. Noise levels at the OLAs are sufficiently low such that no mitigation is warranted. OLA receiver locations are shown in Figure 4.4.

4.4 Transportation Noise Mitigation

4.4.1 Building Envelope Construction

Based on the transportation noise levels predicted at the façades of the Development, standard Ontario Building Code compliant building envelope construction is anticipated to be sufficient to achieve the indoor sound level criteria summarized in Tables 2.2 and 2.3.

4.4.2 Ventilation

Predicted future traffic noise levels at the façades of the Development are sufficiently high that, at a minimum, provisions must be made to enable installation of central air conditioning at the occupant's discretion (i.e., ductwork must be designed and installed to accommodate a future central air conditioning system installation). This will allow windows and doors to remain closed to help ensure that the indoor sound level limits of NPC-300 are met. Warning clause **Type C** would be required in the case that central air conditioning is not installed prior to occupancy. However, if central air conditioning systems are installed prior to occupancy, then warning clause **Type D** should be used instead. Warning clause wording is included in Section 6.2.

5. Stationary Noise Impact Assessment

5.1 Methodology

Detailed assessment of noise impacts from each of the facilities identified in Section 3 above has been carried out using CadnaA version 2025 (CadnaA). CadnaA is the industry standard for noise modelling of industrial and commercial facilities and is based on ISO standard 9613 2 "Acoustics – Attenuation of Sound during Propagation Outdoors". CadnaA modelling assumptions used in this Study include:

- Reflection Order: A maximum reflection order of 2 was used to evaluate indirect noise impact from reflecting surfaces.
- Ground Absorption: The model was set up with conservative ground absorption coefficients of 0 for asphalt surfaces, 0.5 for gravel, and 1.0 for absorptive areas of grass. Figure 5.1 provides a map of the ground absorption.
- Receptor Elevation: POR receptor heights were modelled appropriately based on an assumed storey height of 3 m.
- Building Surfaces: The buildings are modelled as reflective surfaces.

5.2 Stationary Noise Sources

Stationary noise sources identified in section 3 have been assessed using assumptions described in the sections that follow. Noise source locations are identified in Figure 5.2 (steady sources) and Figure 5.3 (emergency sources). A site visit was conducted on April 24, 2025, to measure the noise sources on the roof of 181 King Street South. Sound levels for the sources of 181 King Street South were included in the analysis. Source sound level data, operating conditions, and heights are included in Table E.1 of Appendix E.

GHD observed that there are no significant impulse noise sources at the Site or surrounding area that would warrant assessment.

5.2.1 HVAC Equipment

The majority of the buildings surrounding the Site utilize roof-mounted heating, ventilation, and air conditioning (HVAC) equipment. For the Chartwell Terrace on the Square Retirement Residence, GHD modelled these sources using representative sound data for similar HVAC units. For 181 King Street South GHD modelled these sources based on

measurements taken during the site visit. These units are conservatively modelled to operate continuously during the day and evening, and on a 50% duty cycle at night (30 minutes per hour).

5.2.2 Cooling Towers

181 King Street South has two cooling tower exhausts located inside the mechanical room which have two louvre inlets at either side of the mechanical penthouse and two exhaust outlets on the roof. GHD modelled these sources using measured data from the site visit. These units are conservatively modelled to operate continuously during the day and evening, and on a 50% duty cycle at night (30 minutes per hour).

5.2.3 Generator Set

181 King Street South has an enclosed emergency generator set located on the roof of the building which is periodically tested. GHD modelled this source using an assumed sound pressure level of 75 dBA at 7 metres with testing during the daytime only and for a duration of 30 minutes.

5.3 Results

5.3.1 Steady Sources

Predicted steady noise levels at the worst-case PORs of the Development are summarized as follows in terms of 1-hour Leq:

Table 5.1 Steady Noise Prediction Results Summary

Building Façade	Predicted Noise Level (dBA)		Sound Level Limit (dBA)		Limits Exceeded?
	Day	Night	Day	Night	
Building A - North	45	42	50	45	No
Building A - East	47	44	50	45	No
Building A - South	30	27	50	45	No
Building A - West	44	41	50	45	No
Building B - North	30	27	50	45	No
Building B - East	48	45	50	45	No
Building B - South	47	44	50	45	No
Building B - West	41	38	50	45	No

As seen above, predicted steady noise levels at the worst-case PORs of the Development are within the minimum Class 1 exclusionary sound level limits of NPC-300 for steady sources, and do not warrant mitigation. A noise contour plot of the above steady noise results is included as Figure 5.4.

5.3.2 Emergency Sources

Predicted noise levels at the worst-case PORs of the Development from the standby generator set at the 181 King Street South building are summarized as follows in terms of 1-hour Leq:

Table 5.2 Emergency Noise Prediction Results Summary

Building Façade	Predicted Noise Level (dBA)		Sound Level Limit (dBA)		Limits Exceeded?
	Day	Night	Day	Night	
Building A - North	53	--	55	50	No
Building A - East	54	--	55	50	No

Building Façade	Predicted Noise Level (dBA)		Sound Level Limit (dBA)		Limits Exceeded?
	Day	Night	Day	Night	
Building A - South	40	--	55	50	No
Building A - West	31	--	55	50	No
Building B - North	36	--	55	50	No
Building B - East	55	--	55	50	No
Building B - South	54	--	55	50	No
Building B - West	32	--	55	50	No

As seen above, predicted steady noise levels at the worst-case PORs of the Development are within the minimum Class 1 exclusionary sound level limits of NPC-300 for emergency equipment, and do not warrant mitigation. A noise contour plot of the above emergency noise results is included as Figure 5.5.

5.4 Noise Impacts from the Development

5.4.1 Outdoor Noise Impacts

Base building cooling and ventilation systems for the Development have the potential to result in noise impacts on noise sensitive spaces within the Development itself and at existing residential uses surrounding the Site. The specific equipment selections are not available at the time of writing; therefore, it is anticipated that noise emissions from rooftop equipment will be evaluated as part of the detailed design of the Development. GHD recommends that the Developer carry the necessary contingencies for the following noise controls, which may be necessary to achieve compliance with the sound level limits of NPC-300 at all worst-case points of reception both on-site and off-site:

- Acoustic louvers and/or barriers to surround large rooftop mechanical equipment (e.g., cooling towers, chillers, make up air units). Cost contingencies should account for structural requirements due to snow and wind loads associated with the barriers.
- Low-noise equipment upgrades (e.g., low-noise fan blades and variable frequency drives for cooling equipment, compressor jackets, inlet and discharge attenuators for cooling towers, etc.).
- Acoustic enclosures for any standby emergency generator sets (Level 2 minimum).
- Silencers for parking exhaust shafts and/or variable frequency drives for parking exhaust fans.

Performance specifications of the above controls are dependent on equipment locations and sound power levels, which may vary. Therefore, the full scope and details of the required noise mitigation should be evaluated during the detailed design phase.

5.4.2 Indoor Noise Impacts

Mechanical equipment and other building services also have the potential to cause annoyance due to noise and vibration transmission to residences. The American Society of Heating, Refrigerating, and Air conditioning Engineers (ASHRAE) guidelines specify acceptable noise levels from such equipment. Specification of noise controls (e.g., silencers, floating concrete slabs, acoustic ceilings, vibration isolators) to achieve these criteria is typically completed as part of the detailed building design, once equipment selections are made and floor layouts are more developed.

The Ontario Building Code stipulates minimum STC and apparent sound transmission class (ASTC) rating requirements for demising partitions separating residential suites from other spaces inside the building. For demising partitions separating suites from elevator shafts or garbage chutes, constructions meeting a minimum STC-55 rating must be used. For demising partitions separating suites from any other space in the building, constructions meeting a minimum STC-50 rating must be used. Suite demising partitions must also achieve a minimum rating of ASTC-47.

6. Recommendations

6.1 Ventilation

Central air conditioning is required to be installed prior to occupancy for all residential dwellings. This will allow windows and doors to remain closed to help ensure that the indoor sound level limits of NPC-300 are met.

Predicted future traffic noise levels at the façades of the Development are sufficiently high that, at a minimum, provisions must be made to enable installation of central air conditioning at the occupant's discretion (i.e., ductwork must be designed and installed to accommodate a future central air conditioning system installation). This will allow windows and doors to remain closed to help ensure that the indoor sound level limits of NPC-300 are met.

Warning clause **Type C** would be required in the case that central air conditioning is not installed prior to occupancy. However, if central air conditioning systems are installed prior to occupancy, then warning clause **Type D** should be used instead. Warning clause wording is included in Section 6.2.

6.2 Warning Clauses

The following warning clauses are recommended to be included in agreements of Offers of Purchase and Sale, lease/rental agreements, and condominium declarations for all residential dwellings of the Development:

Applicable only if central air conditioning is not installed prior to occupancy:

Warning Clause 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."

Applicable only if central air conditioning is is installed prior to occupancy:

Warning Clause 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, Conservation and Parks."

7. Conclusions

The Study concludes that the proposed development is feasible and will not be restricted by the surrounding noise impact exposures, provided that the proposed development adheres to the noise mitigation recommended in this Study. The recommended noise mitigation at the Development consists of provisions for installation of central air conditioning in the future (at a minimum) and an associated noise warning clause. Cost contingencies should be carried for mitigation of noise emissions from on-site mechanical equipment, which should be evaluated during the detailed design phase.

The Development is not anticipated to affect the ability of the nearby industrial/commercial facilities to comply with the sound level limits of the MECP.

8. References

Ontario Ministry of Environment, Conservation and Parks (MECP, 1995), Guideline D-1: *Land Use Compatibility*

Ontario Ministry of Environment, Conservation and Parks (MECP, 1995), Guideline D-6: *Compatibility Between Industrial Facilities and Sensitive Land Uses*

Ontario Ministry of Environment, Conservation and Parks (MECP, 1993), Publication NPC-216: *Residential Air Conditioning Devices*

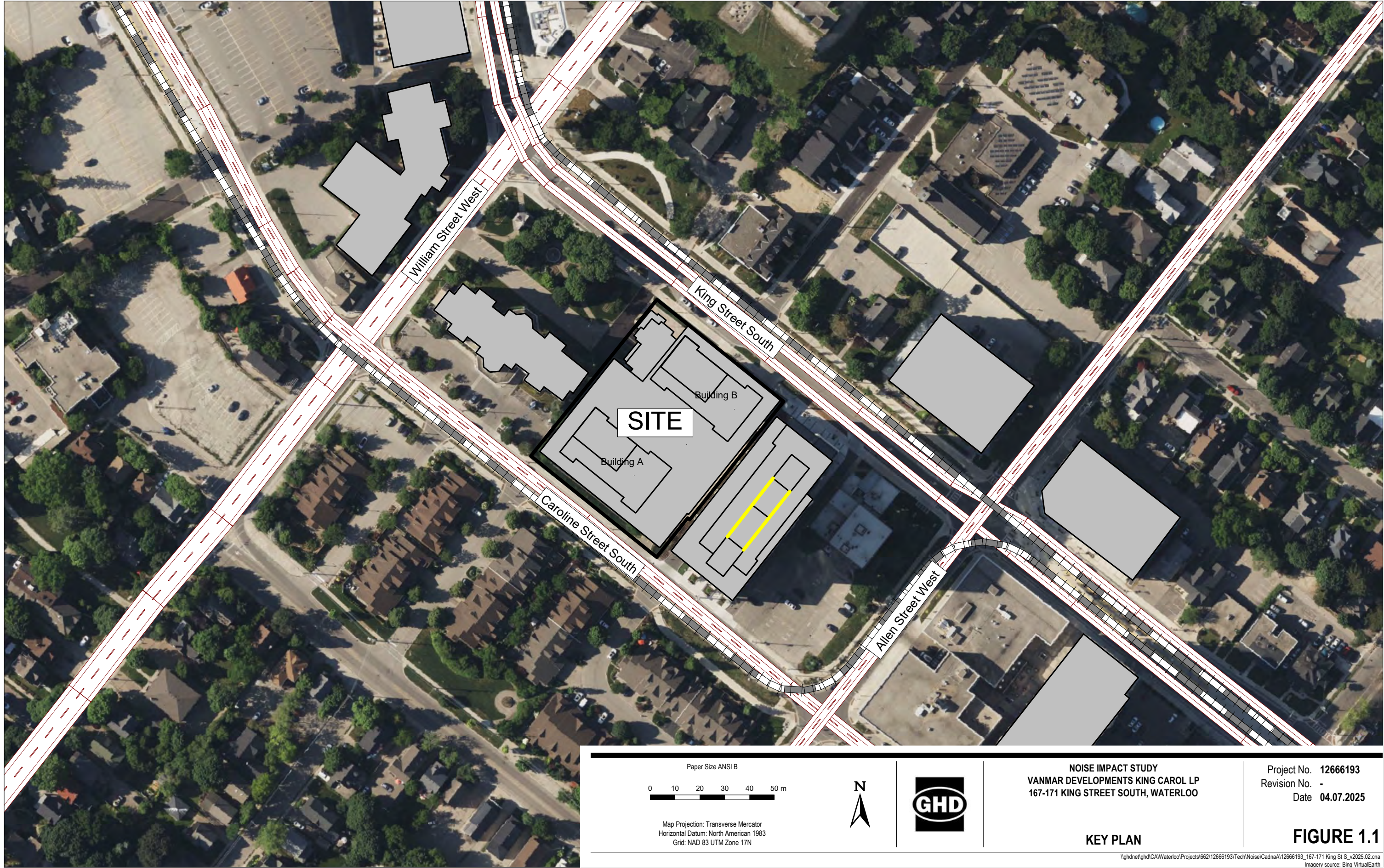
Ontario Ministry of Environment, Conservation and Parks (MECP, 2013), Publication NPC-300: *Environmental Noise Guideline: Stationary and Transportation Sources – Approval and Planning*

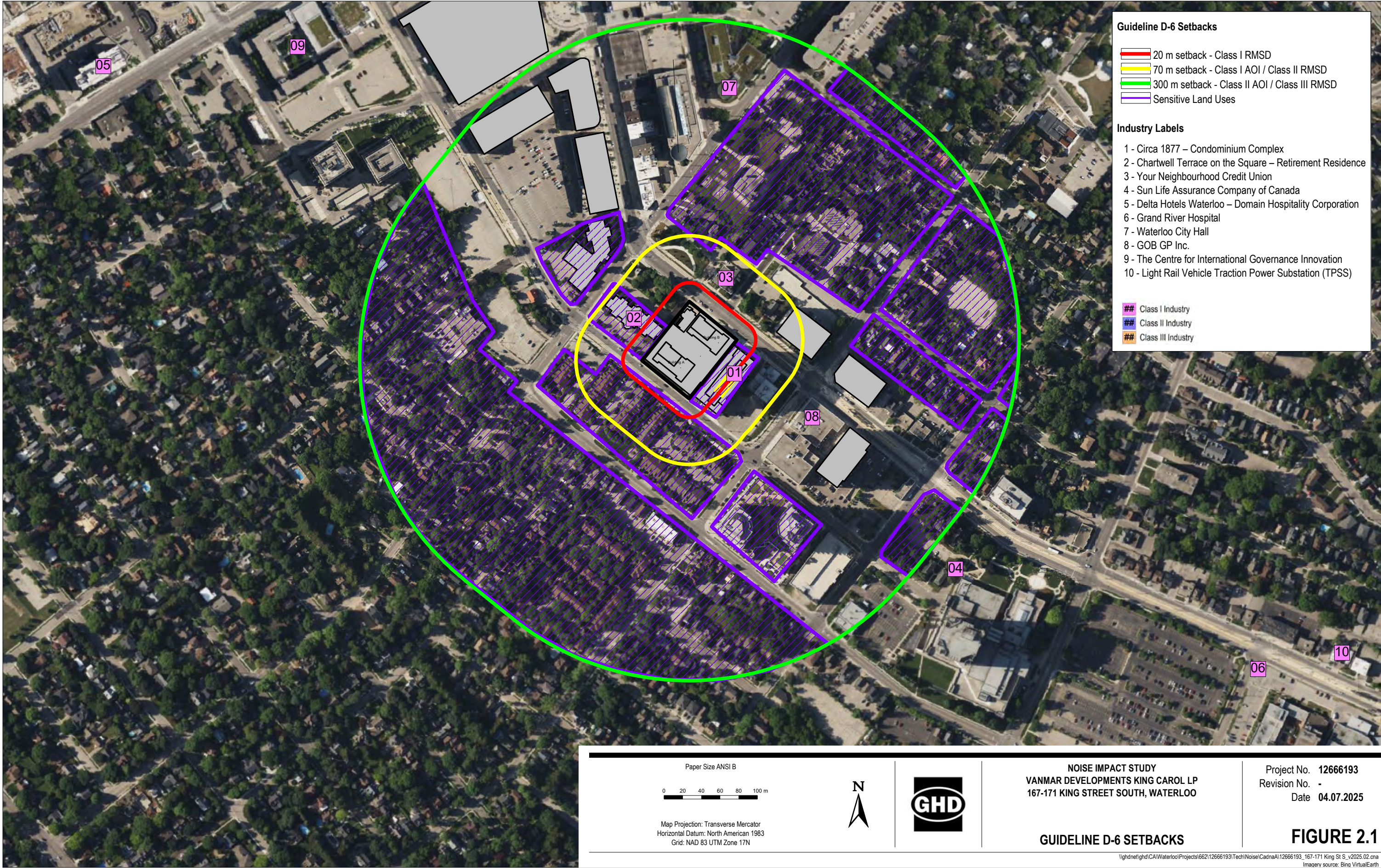
Railway Association of Canada/Federation of Canadian Municipalities (RAC/FCM), 2013, *Guidelines for New Development in Proximity to Railway Operations*

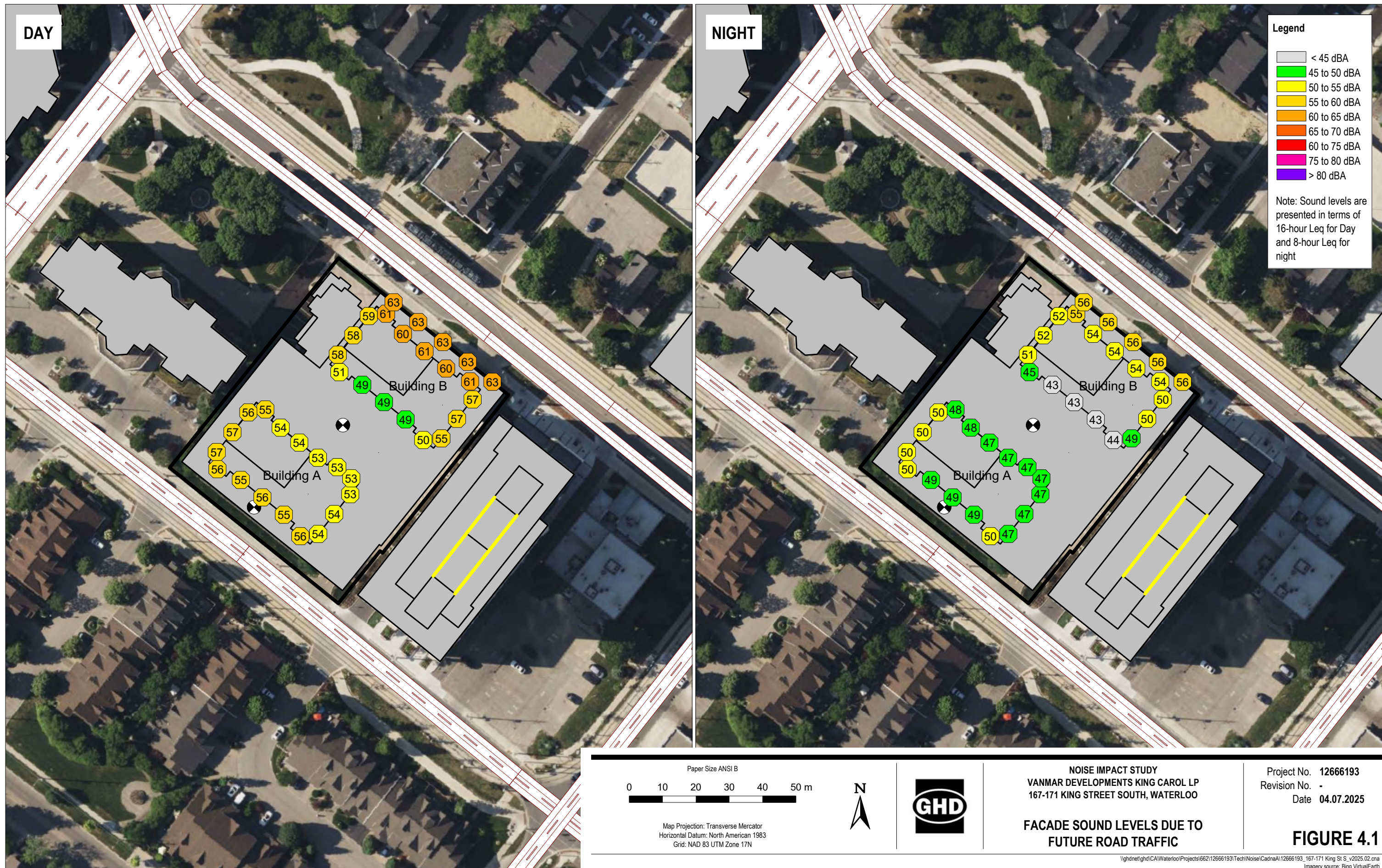
U.S. Federal Transit Administration (FTA, 2013), *Transit Noise and Vibration Impact Assessment Manual*

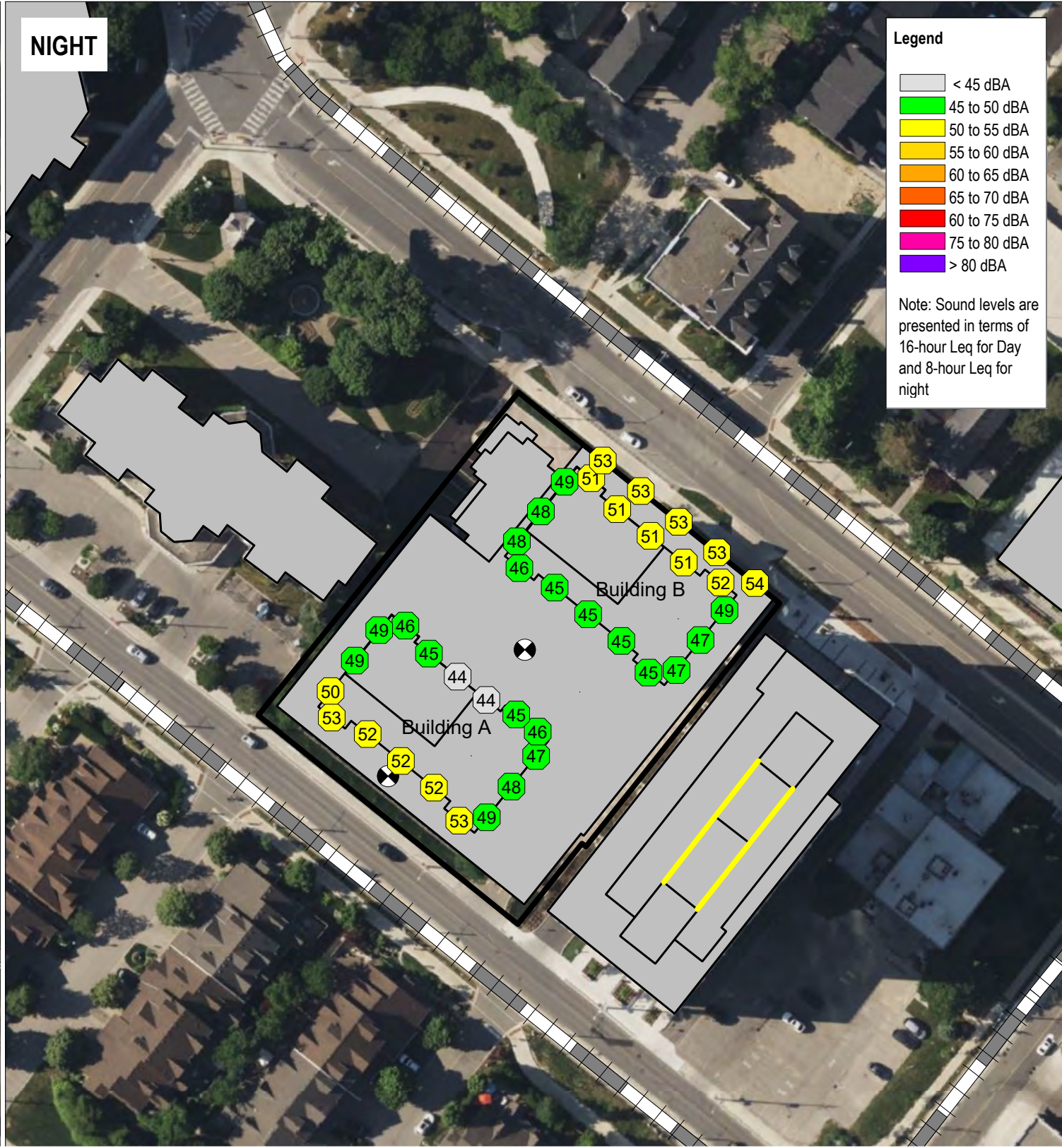
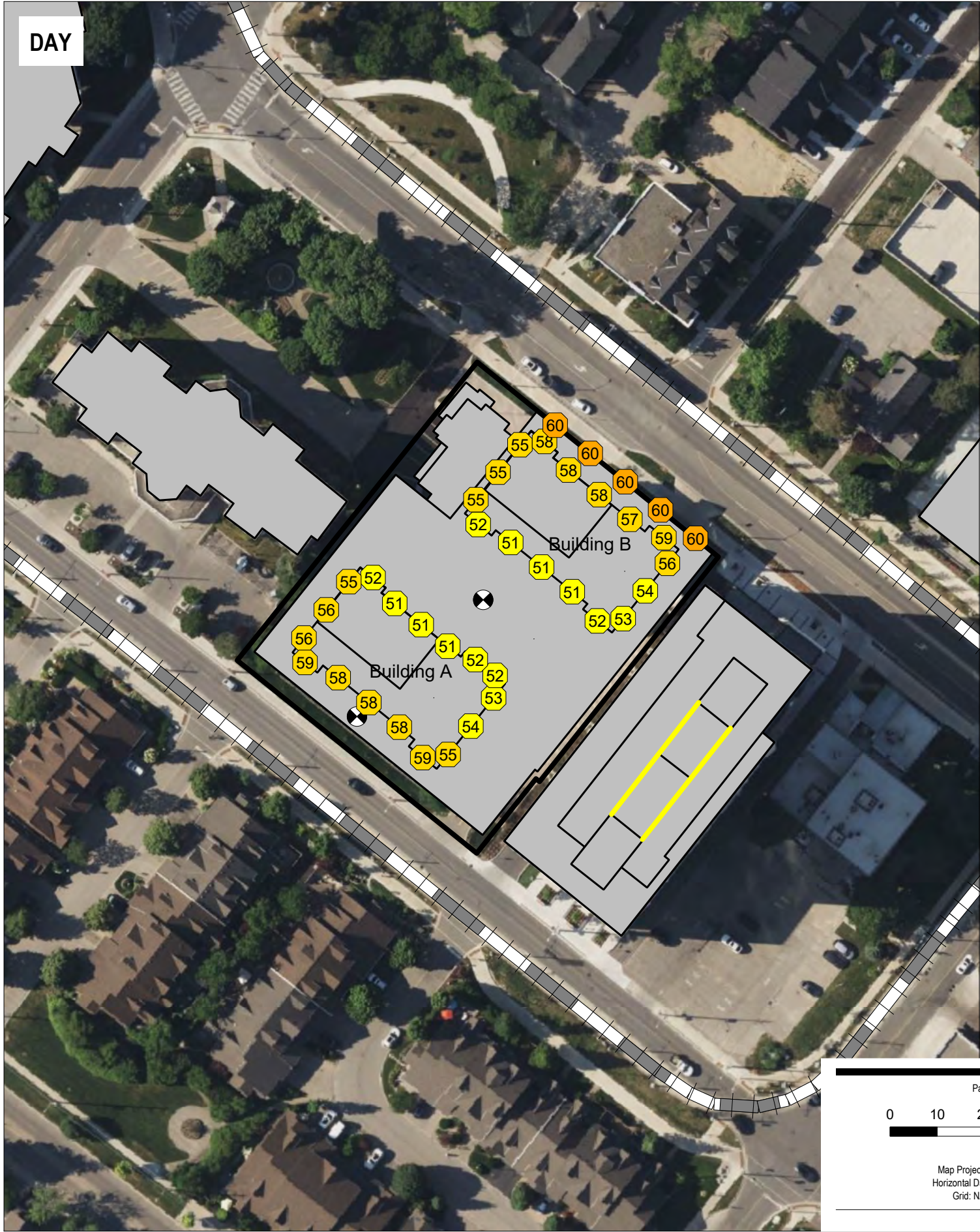
J.E. Coulter Associates Limited (2021), *Noise and Vibration Impact Assessment for the Stage 2 ION: Light Rail Transit, from Kitchener to Cambridge, Region of Waterloo, Ontario*

Figures









Legend

- < 45 dBA
- 45 to 50 dBA
- 50 to 55 dBA
- 55 to 60 dBA
- 60 to 65 dBA
- 65 to 70 dBA
- 60 to 75 dBA
- 75 to 80 dBA
- > 80 dBA

Note: Sound levels are presented in terms of 16-hour Leq for Day and 8-hour Leq for night

Paper Size ANSI B

0 10 20 30 40 50 m

Map Projection: Transverse Mercator
Horizontal Datum: North American 1983
Grid: NAD 83 UTM Zone 17N

N

GHD

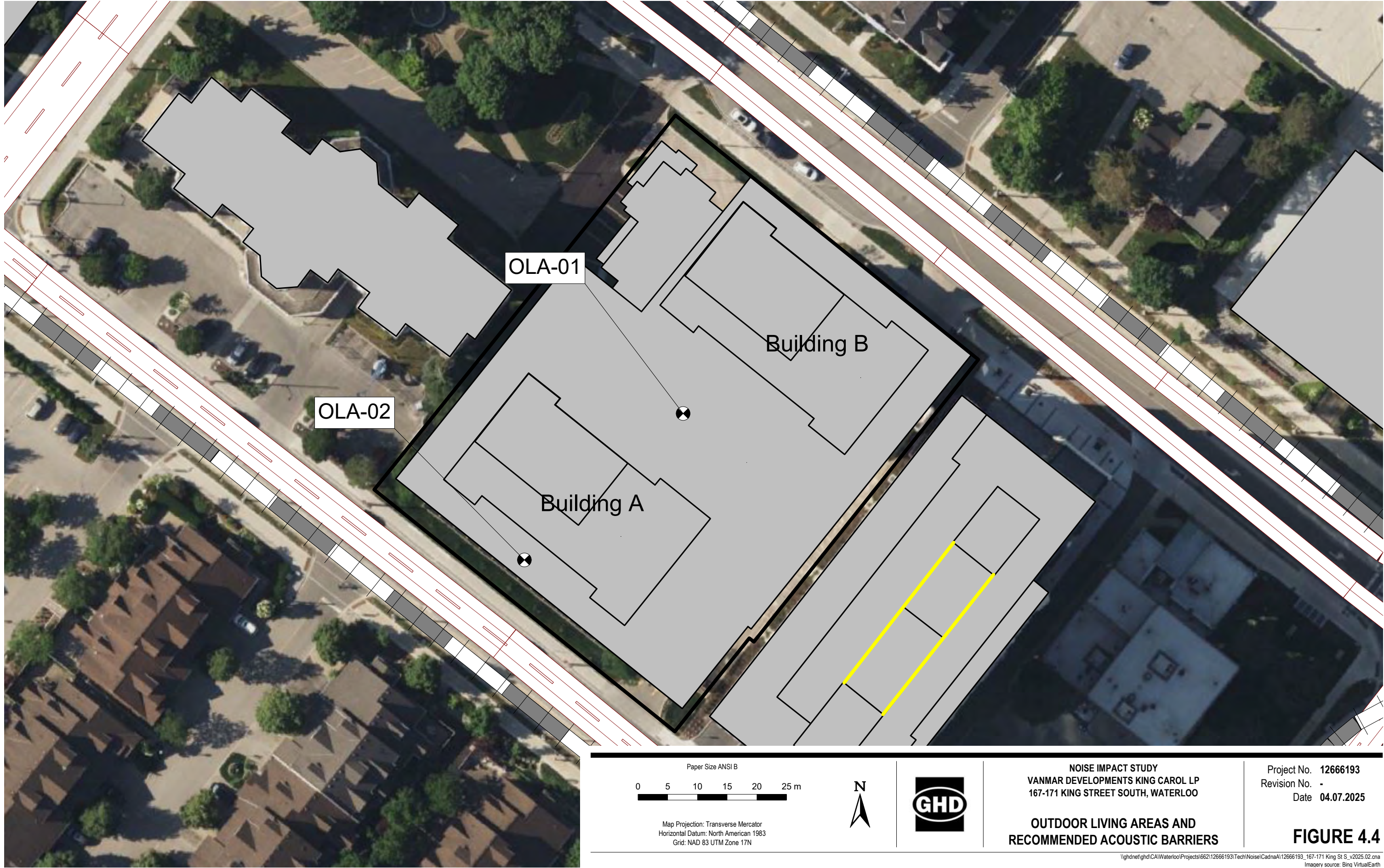
NOISE IMPACT STUDY
VANMAR DEVELOPMENTS KING CAROL LP
167-171 KING STREET SOUTH, WATERLOO

FACADE SOUND LEVELS DUE TO FUTURE RAIL TRAFFIC

Project No. **12666193**
Revision No. **-**
Date **04.07.2025**

FIGURE 4.2

\\ghdnet\ghd\CAI\Waterloo\Projects\66212666193\Tech\Noise\CadnaA\12666193_167-171 King St S_v2025.02.cna
Imagery source: Bing VirtualEarth



Paper Size ANSI B
0 5 10 15 20 25 m

Map Projection: Transverse Mercator
Horizontal Datum: North American 1983
Grid: NAD 83 UTM Zone 17N



NOISE IMPACT STUDY
VANMAR DEVELOPMENTS KING CAROL LP
167-171 KING STREET SOUTH, WATERLOO

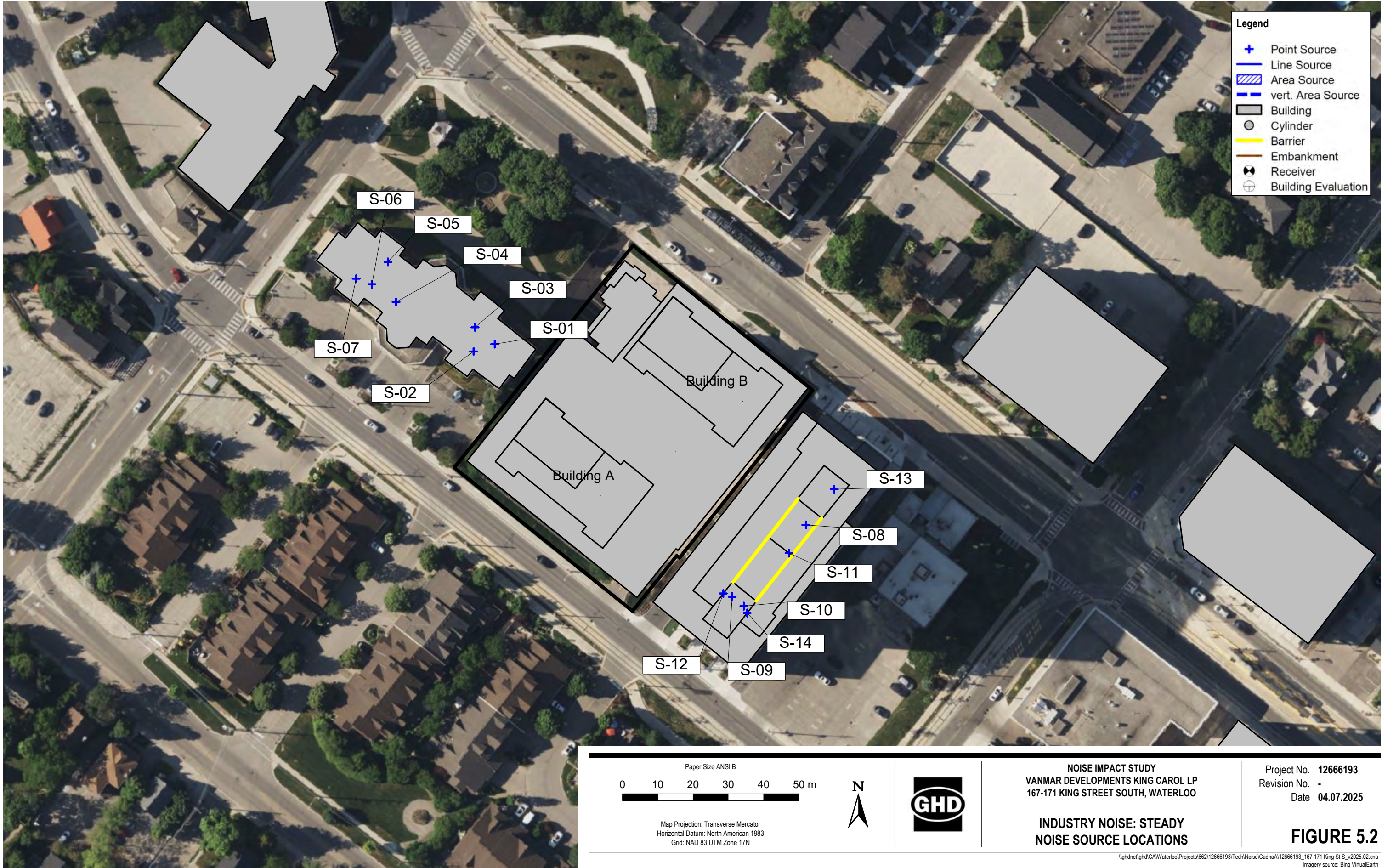
OUTDOOR LIVING AREAS AND
RECOMMENDED ACOUSTIC BARRIERS

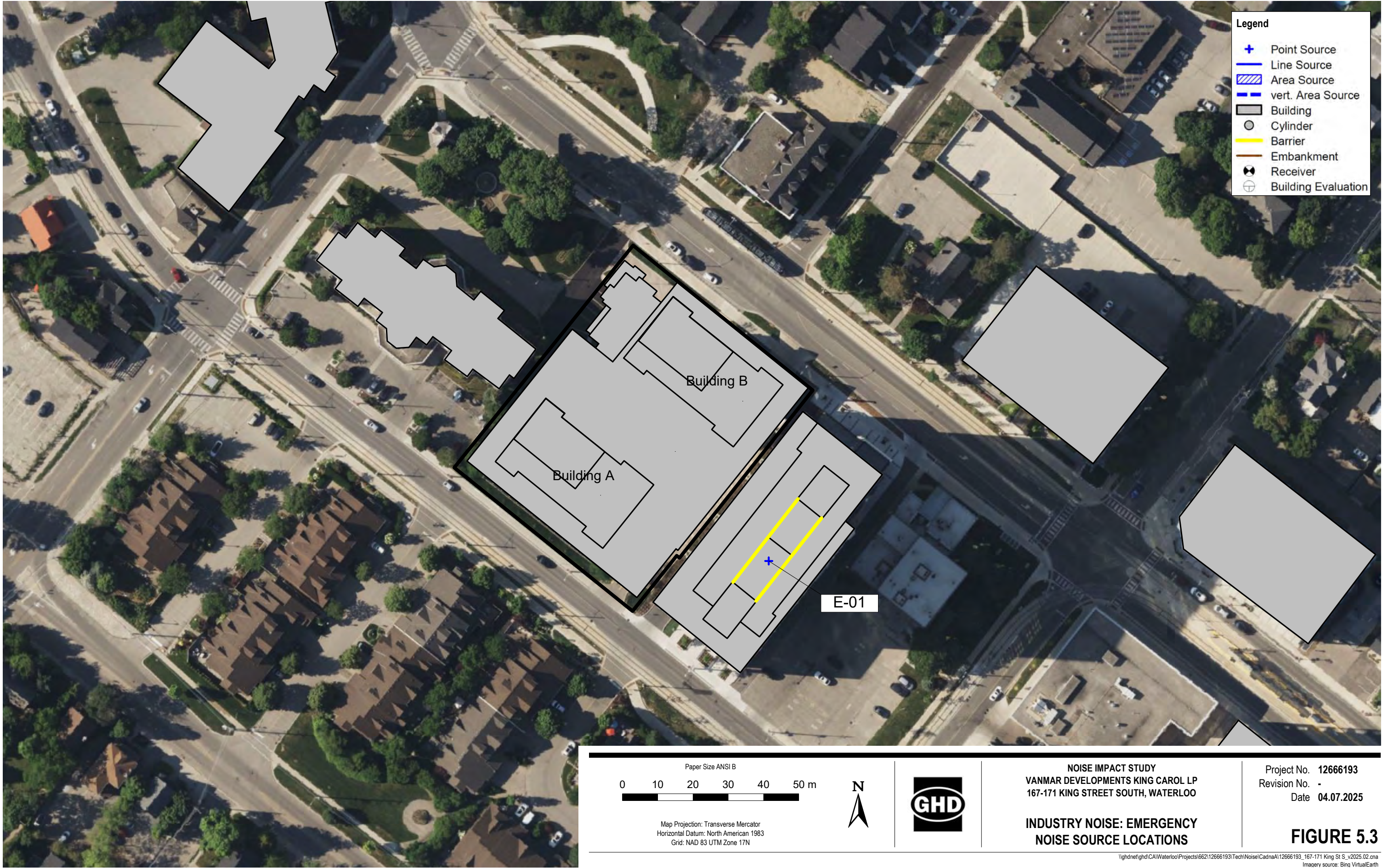
Project No. **12666193**
Revision No. **-**
Date **04.07.2025**

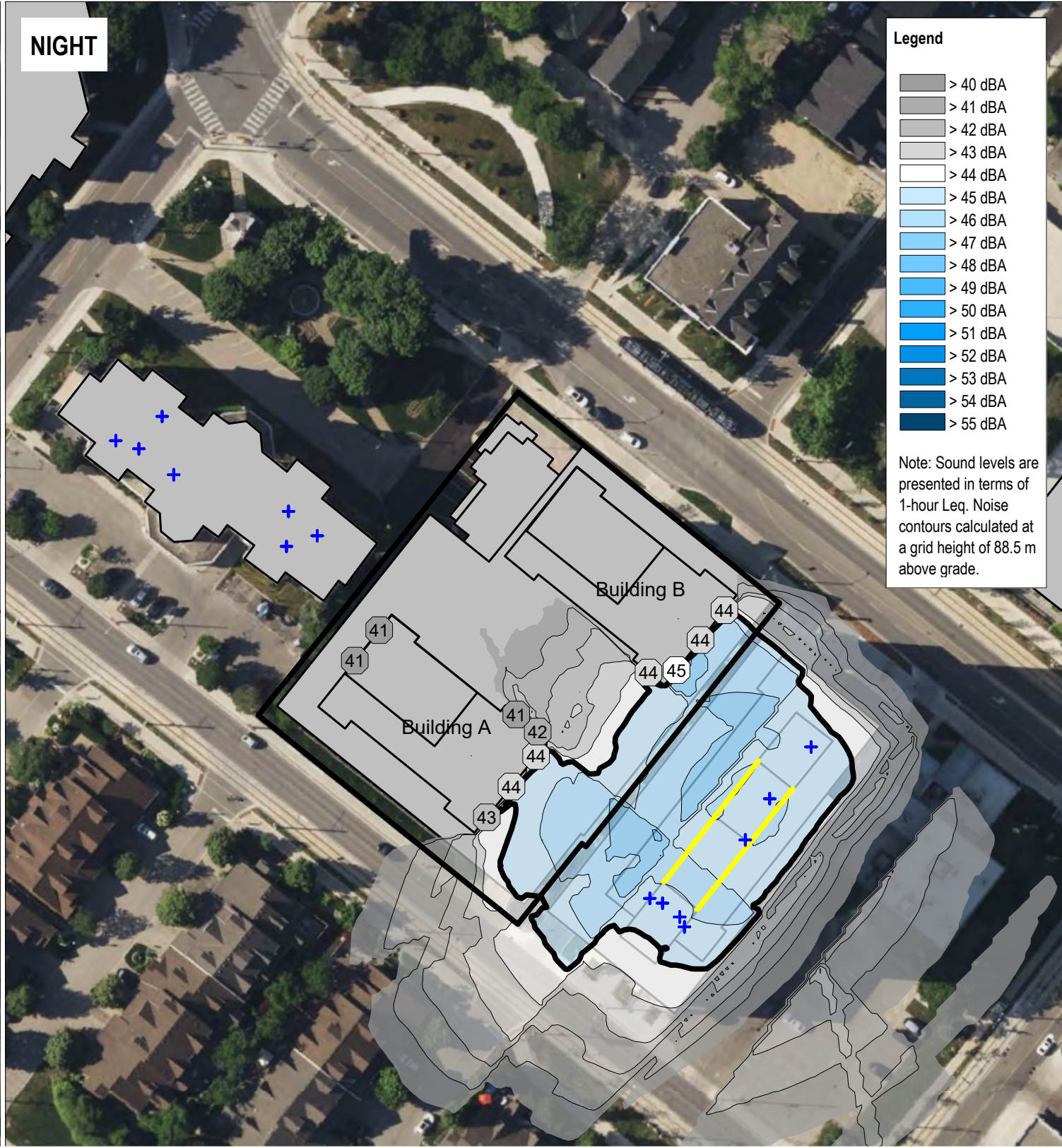
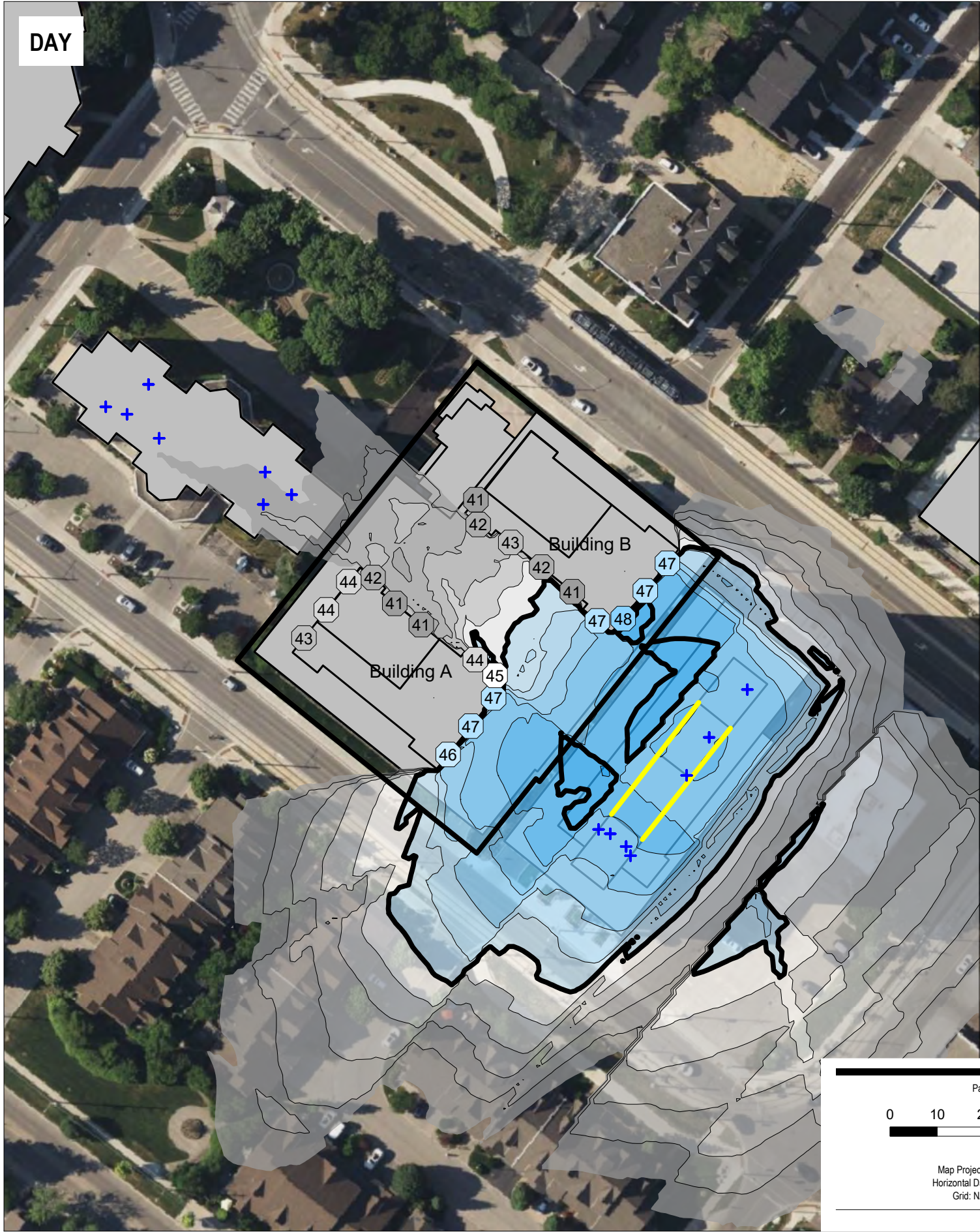
FIGURE 4.4

\\ghdnet\ghd\CAI\Waterloo\Projects\662\12666193\Tech\Noise\CadnaA\12666193_167-171 King St S_v2025.02.cna
Imagery source: Bing VirtualEarth









Legend

- > 40 dBA
- > 41 dBA
- > 42 dBA
- > 43 dBA
- > 44 dBA
- > 45 dBA
- > 46 dBA
- > 47 dBA
- > 48 dBA
- > 49 dBA
- > 50 dBA
- > 51 dBA
- > 52 dBA
- > 53 dBA
- > 54 dBA
- > 55 dBA

Note: Sound levels are presented in terms of 1-hour Leq. Noise contours calculated at a grid height of 88.5 m above grade.

Paper Size ANSI B

0 10 20 30 40 50 m

Map Projection: Transverse Mercator
Horizontal Datum: North American 1983
Grid: NAD 83 UTM Zone 17N

N

NOISE IMPACT STUDY
VANMAR DEVELOPMENTS KING CAROL LP
167-171 KING STREET SOUTH, WATERLOO

INDUSTRY NOISE: STEADY
NOISE CONTOURS

Project No. **12666193**
Revision No. **-**
Date **04.07.2025**

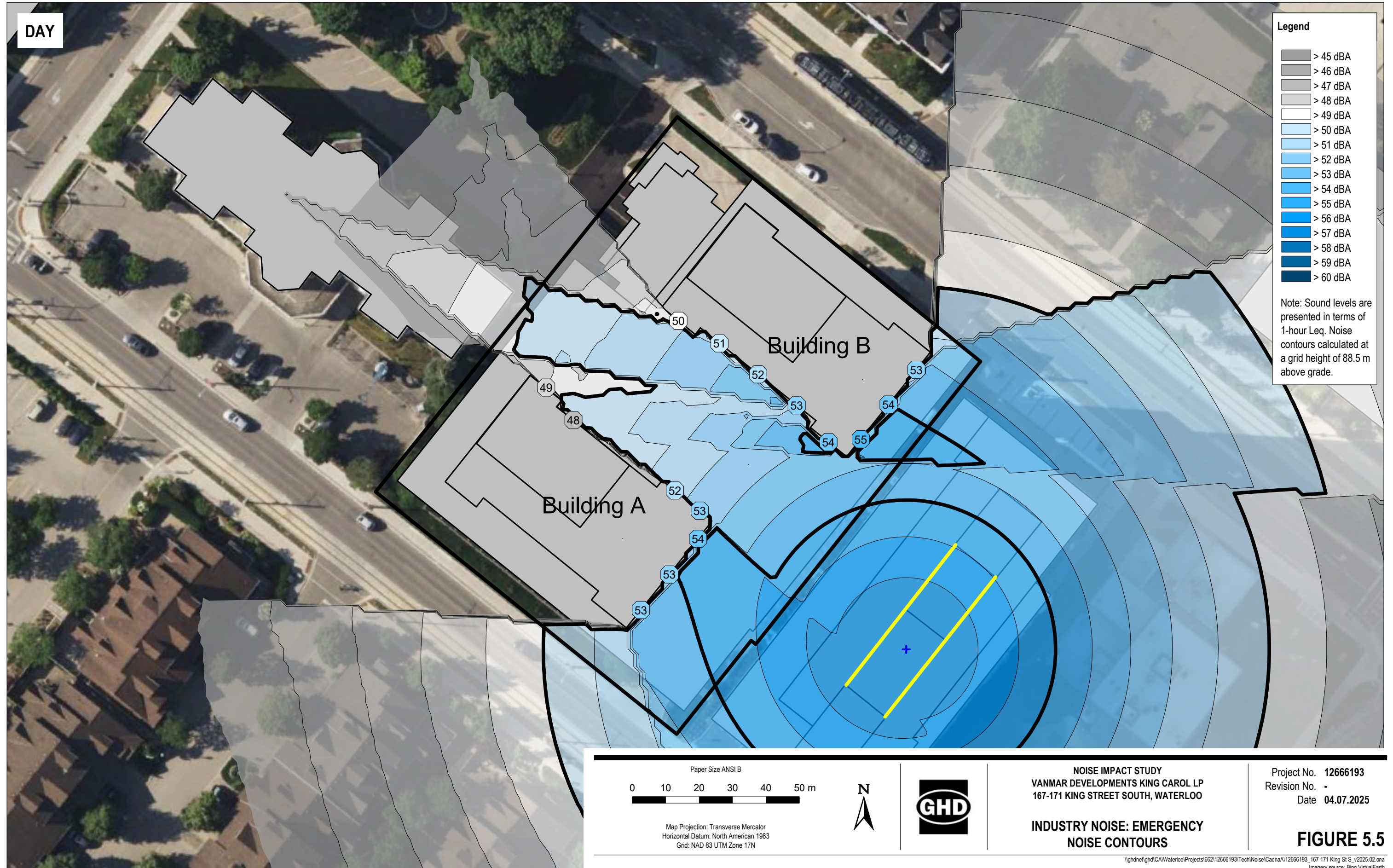
FIGURE 5.4

DAY

Legend

- > 45 dBA
- > 46 dBA
- > 47 dBA
- > 48 dBA
- > 49 dBA
- > 50 dBA
- > 51 dBA
- > 52 dBA
- > 53 dBA
- > 54 dBA
- > 55 dBA
- > 56 dBA
- > 57 dBA
- > 58 dBA
- > 59 dBA
- > 60 dBA

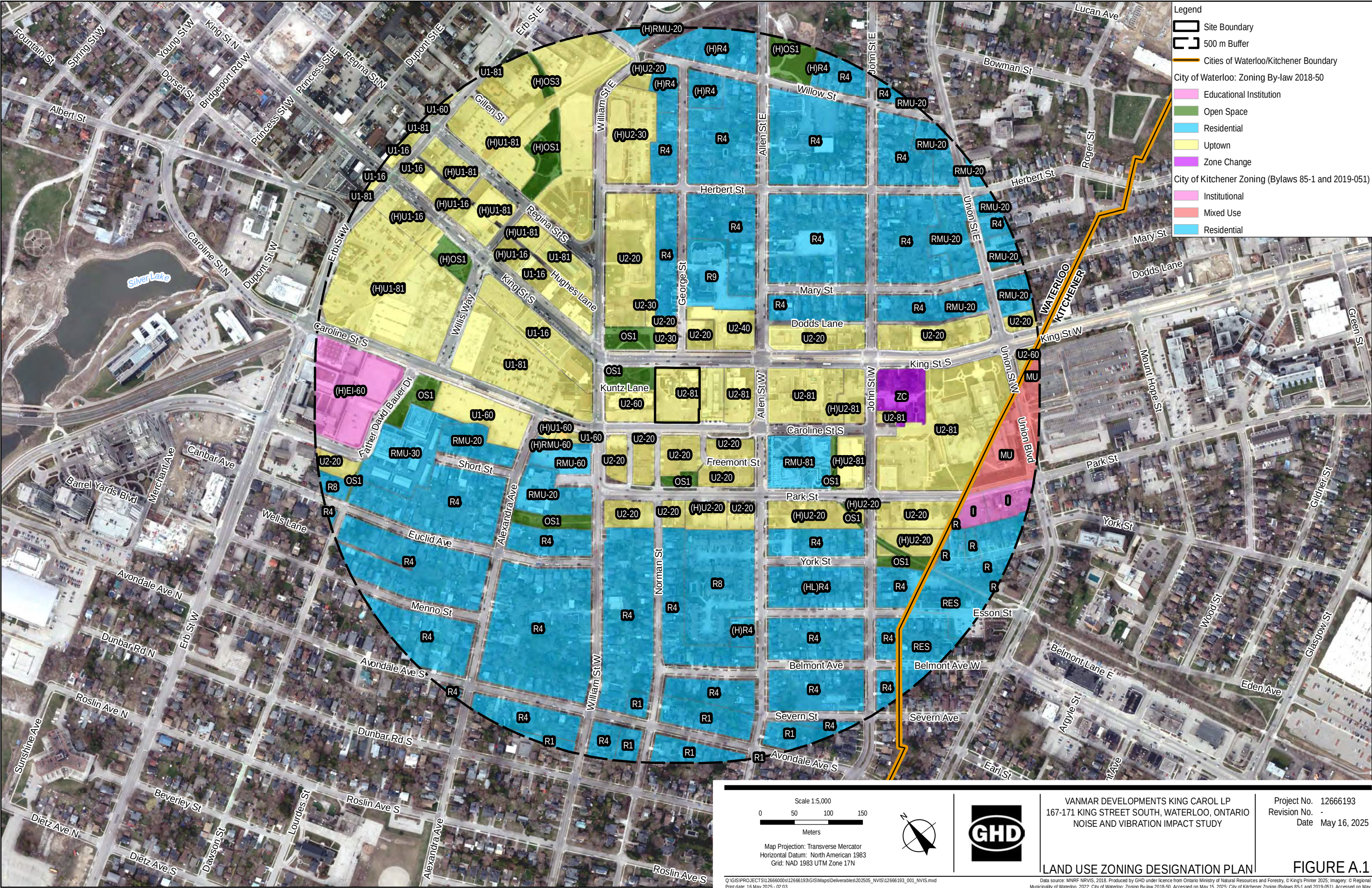
Note: Sound levels are presented in terms of 1-hour Leq. Noise contours calculated at a grid height of 88.5 m above grade.



Appendices

Appendix A

Zoning Map and Site Plan



167-171 King St S

Proposed Mixed-Use Development



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**LANDSCAPE
ARCHITECT**

NAME
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ADDRESS 2
T: PHONE
PRIMARY CONTACT PERSON

**GEOTECHNICAL
ENGINEER**

NAME
ADDRESS 1
ADDRESS 2
T: PHONE
PRIMARY CONTACT PERSON

HERITAGE
CONSULTANT

NAME
ADDRESS 1
ADDRESS 2
T: PHONE
PRIMARY CONTACT PERSON

DRAWING LIST		Issue#1 (Add Date)	Issue#2 (Add Date)	Issue#3 (Add Date)	Issue#4 (Add Date)	Issue#5 (Add Date)
Sheet Number	Sheet Name					
dA0.00	Cover Sheet	■				
1						
dA1.01	Context Plan	■				
dA1.02	Site Statistics	■				
dA1.03	Site Plan	■				
3						
dA2.00	Floor Plan - Level 1	■				
dA2.01	Floor Plan - Level 1 (Upper)	■				
dA2.02	Floor Plan - Level 2	■				
dA2.03	Floor Plans - Level 3	■				
dA2.04	Floor Plans - Level 4	■				
dA2.05	Floor Plans - Level 5	■				
dA2.06	Floor Plans - Level 6 - 33	■				
7						
dA3.01	Elevations	■				
dA3.02	Elevations	■				
dA3.03	Elevations	■				
dA3.04	Elevations	■				
dA3.05	Elevations	■				
dA3.06	Elevations	■				
dA3.07	Elevations	■				
dA3.08	Elevations	■				
dA3.09	Elevations	■				
dA3.10	Elevations	■				
dA3.11	Elevations	■				
dA3.12	Elevations	■				
12						
dA4.01	Building Section	■				
1						
dA6.01	Renderings	■				
1						

TOTAL NUMBER OF SHEETS: 25

TOTAL NUMBER OF SHEETS: 25

SURVEYOR

NAME
ADDRESS 1
ADDRESS 2
T: PHONE
PRIMARY CONTACT PERSON

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20 De Boers Drive Suite 400
Toronto ON M3J 0H1

Revisions:

No.:	Revision:	Date:
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No.:	Issued For:	Date:
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Client:

Urban Legend Developments Ltd/ VanMar
Developments

167-171 King St. S, Waterloo, ON
Proposed Residential Development

Drawing Title:

Cover Sheet

Scale:

Drawn by:
AR, NA

Checked by:
VPS

Project No.:
24-036

Date:
2025-06-24

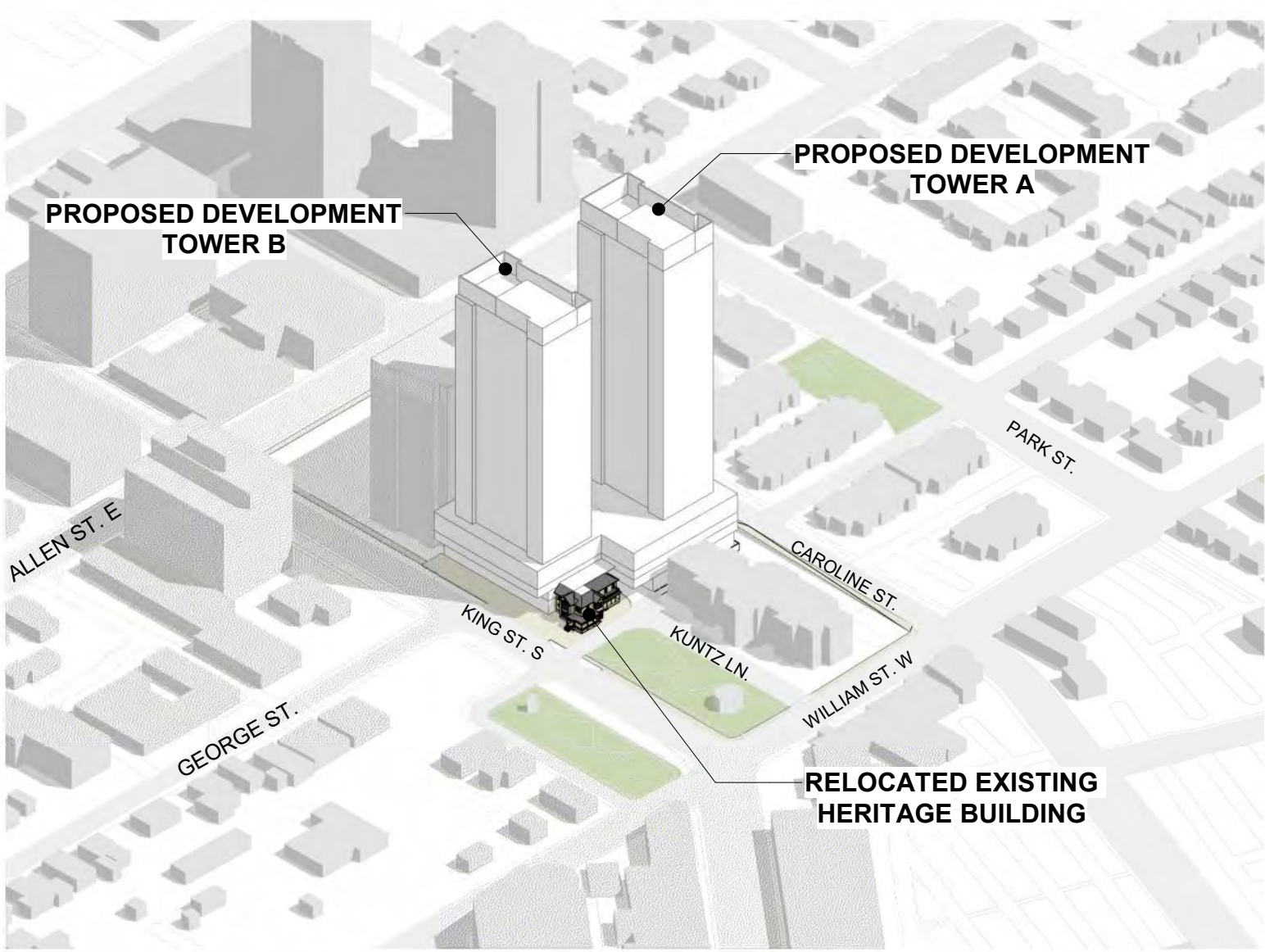
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1 | Context Plan
1 : 1500



2 | Context Plan - 3D

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No.:	Revision:	

No.:	Issued For:	Date:

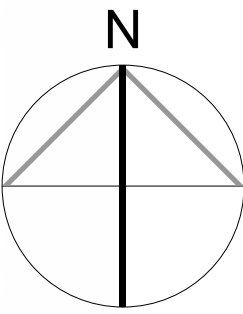


Client:
Urban Legend Developments Ltd/ VanMar Developments

167-171 King St. S, Waterloo, ON
Proposed Mixed-Use Development

Drawing Title:
Context Plan

Scale:	1 : 1500
Drawn by:	AR, NA
Checked by:	VPS
Project No.:	24-036
Date:	2025-05-01
Drawing No.:	



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167-171 King Street - Waterloo

Project Statistics										Project No. 24-036					
June 25, 2025															
1.0 LOT AREA															
1.1 Gross Site Area															
										hectare	acres	sq. m.	sq. ft.		
Total Site Area										0.53	1.30	5,254.01	56,554		
1.2 Road Widening Area (King Street South)															
										hectare	acres	sq. m.	sq. ft.		
Total Site Area										0.01	0.02	83.42	698		
1.3 Road Widening Area (Caroline Street)															
										hectare	acres	sq. m.	sq. ft.		
Total Site Area										0.02	0.06	245.26	2,643		
1.4 Net Site Area															
										hectare	acres	sq. m.	sq. ft.		
Total Site Area										0.49	1.22	4,925.33	53,016		
2.0 Proposed BFA															
BUILDING FLOOR AREA : means the gross floor area of a BUILDING measured between the outside of all exterior walls. Includes an attic with a clear ceiling height of two-point-one-five metres (2.15m) for at least fifty percent (50%) of the attic floor area. Excludes STRUCTURED															
Phase 1 - 37-Storey															
BFA Podium															
										floors	sq. m.	sq. m.	sq. ft.		
Level 1										1 x	832	832	8,926		
Level 1 (Upper)										1 x	1,106	1,106	11,907		
Level 2										1 x	210	210	2,260		
Level 3										1 x	185	185	1,995		
Levels 4 to 5										2 x	185	371	3,991		
Total												2,704	29,111		
2.2 BFA Residential (TOWER A)															
										floors	sq. m.	sq. m.	sq. ft.		
Level 6										1 x	812	812	8,740		
Levels 7 to 37										31 x	812	25,172	270,949		
Total (TOWER A)												25,984	279,689		
PHASE 2 - 33-Storey															
BFA Podium															
										floors	sq. m.	sq. m.	sq. ft.		
Level 1										1 x	1,215	1,215	13,082		
Level 1 (Mezzanine)										1 x	157	157	1,693		
Level 2										1 x	506	506	5,446		
Level 3										1 x	146	146	1,569		
Levels 4 to 5										2 x	146	292	3,138		
Total												2,316	24,930		
2.4 BFA Residential (TOWER B)															
										floors	sq. m.	sq. m.	sq. ft.		
Level 6										1 x	814	814	8,759		
Levels 7 to 33										27 x	814	21,870	236,432		
Total (TOWER B)												22,784	245,241		
										floors	sq. m.	sq. m.	sq. ft.		
Total BFA PHASE 1												38,688.46	365,800		
Total BFA PHASE 2												25,099.61	270,170		
Grand Total BFA												63,788.07	678,970		
3.0 Proposed GCA															
3.1 Podium Parking Area															
										PHASE 1	PHASE 2				
										floors	sq. m.	sq. m.	sq. ft.		
Level 1										1 x	1,430	335	1,815	19,537	
Level 2										1 x	1,882	803	2,685	28,898	
Level 3										1 x	2,553	1,431	4,285	46,265	
Levels 4 to 5										2 x	2,553	1,431	7,068	85,771	
Total Proposed Parking GCA												16,452	177,091		
3.2 Total Proposed GCA															
										TOWER A	TOWER B				
										sq. m.	sq. m.	sq. m.	sq. ft.		
Total Proposed Parking GCA												16,452	177,091		
Grand Total BFA												53,788	578,970		
Total Proposed GCA												70,240	766,061		
4.0 FSI															
4.1 Gross FSI Calculation based on Total Floor area divided by Gross Site area															
BFA / Lot Area													10.24		
4.2 Net FSI Calculation based on Total Floor area divided by Net Site area															
BFA / Lot Area													10.93		
5.0 Proposed Retail Area															
5.1 Commercial (PHASE 2)															
										floors	sq. m.	sq. m.	sq. ft.		
Level 1										1 x	546.74	546.74	5,885		
Total Retail Saleable Area												546.74	5,885		
6.0 Unit Count															
6.1 Residential (TOWER A)															
										floors	Total Units	1BR	2BR	3BR	Total
Floor Levels															
Level 1										1 x	4	0	0	0	4
Level 6										1 x	0	0	0	0	0
Levels 7 to 37										31 x	14	10	4	0	434
Total Units (TOWER A)											314	124	0	0	438
												72%	28%	0%	100%
6.2 Residential (TOWER B)															
										floors	Total Units	1BR	2BR	3BR	Total
Floor Levels															
Level 2										1 x	5	0	5	0	5
Level 6										1 x	13	9	4	0	13
Levels 7 to 33										27 x	14	10	4	0	378
Total Units (TOWER B)											279	117	0	0	396
												70%	30%	0%	100%
Total Units															834
7.0 Amenity Areas															
7.1 Amenity Required															
										sq. m./Unit	Bedroom		sq. m.	sq. m.	sq. ft.
										1.2	1,075		1,200.00	13,885	
Total Amenity Required (Indoor+Outdoor)													1,200.00	13,885	
7.2 Indoor Amenity Provided															
										sq. m.		sq. m.	sq. m.	sq. ft.	
Indoor Amenity on L6											758.97		758.97	8,169	
Total Indoor Amenity Provided											758.97		758.97	8,169	
7.3 Outdoor Amenity Provided															
										sq. m.		sq. m.	sq. m.	sq. ft.	
Outdoor Amenity on L6											1,162.46		1,162.46	12,728	
Total Outdoor Amenity Provided											1,162.46		1,162.46	12,728	
7.4 Total Indoor & Outdoor Amenity Provided															
										sq. m.		sq. m.	sq. m.	sq. ft.	
Indoor Amenity												758.97		8,169	
Outdoor Amenity												1,162.46		12,728	
Total Indoor & Outdoor Amenity Provided												1,921.43		20,897	
8.0 Vehicular Parking															
8.1 Parking Ratio Proposed															
										ratio	units		spaces		
Total										0.48	x 834		400		
8.2 Parking Provided Phase 1															
										floors	No.		spaces		
L1										1 x	24		24		
L2										1 x	48		48		
L3										1 x	70		70		
L4										1 x	70		70		
L5										1 x	72		72		
Total Parking Provided													284		
8.3 Parking Provided Phase 2															
										floors	No.		spaces		
L1										1 x	1		1		
L2										1 x	20		20		
L3										1 x	33		33		
L4 to L5										2 x	33		66		
Total Parking Provided													120		
Grand Total Parking Provided													404		
8.4 Accessible Parking Required															
										Type A	Type B		spaces		
Total										5	5		10		
8.5 Accessible Parking Provided															
										Type A	Type B		spaces		
Total										5	7		12		
9.0 Bike Parking															
9.1 Bike Parking Ratio Proposed															
										ratio	units		spaces		
Total										0.30	x 834		250		
9.2 Bike Parking Provided															
										floors	No.		spaces		
L1 (Lower)										1 x	262		262		
Total Bike Parking Provided													262		

1 Project Statistics

Site Plan Data Chart		Proposed	Required
Number of lots:			N/A
Site Area:			
Existing Site Area: (in square metres and hectares)		0.53 hectare / 5,254.01 sqm	-
Road Widening Area: (in square metres for Regional Roads)		328.68 sqm	-
Net Site Area: (in square metres and hectares excluding Regional road widening)		0.49 hectare / 4925.33 sqm	-
Property Zoning: List all zoning categories that apply to site:		U2-81, By-law 2018-050	
Site Specific Zoning (Special Provisions):		Site Specific Regulation 159	
Setback Information:			
Front Yard Setback: (north)		0m	4.0m
Side Yard Setbacks: (west)		1.5m	1.5m
Side Yard Setbacks: (east)		1.5m	1.5m
Rear Yard Setback (south):		0m	5.0m
Underground Parking Setbacks: (show location of parking structure)		0m	N/A
Parking Information:			
Total parking spaces provided (list by use and parking requirement):		404	-
Parking ratio		0.48 / unit	Bill 185, no parking requirements
Total building Information:			
Building Storeys: (list number of storeys)		Building A - 37 Storeys Building B - 33 Storeys	N/A
Building Height: (in metres)		Building A - 115.35m Building B - 105.9m	-
Minimum ground floor height:		Building A - 5.36m Building B - 3.1m	4.5m
Maximum podium height:		19.550m	21.0m
Maximum tower width:		Building A - 38.90m Building B - 39.69m	40.0m
Density Information:			
Building Coverage (building coverage/site area excluding road widening area):		4149.643 sqm	-
Total BFA (in square metres):		53788.07 sqm	-
Total Units:		834	-
Total Bedrooms:		1,075	-
Total Density/BPH (beds per hectare calculation excluding road widening area):		2,193.88 beds per hectare	-
Amenity area:			
Amenity Ratio		-	1.2 sqm / unit
Proposed Amenity Area		1,941.43sqm	1290.00sqm
Total Combined Commercial area:		546.74 sqm	-

2 Site Data Chart

Authorities Having Jurisdiction

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Date:

KIRKOR
ARCHITECTS AND PLANNERS

20 De Boers Drive Suite 400
Toronto ON M3J 0H1

Revisions:		
No.:	Revision:	Date:

No.:	Issued For:	Date:

URBAN LEGEND
DEVELOPMENTS

VanMar
DEVELOPMENTS

Client:
Urban Legend Developments Ltd/ VanMar
Developments

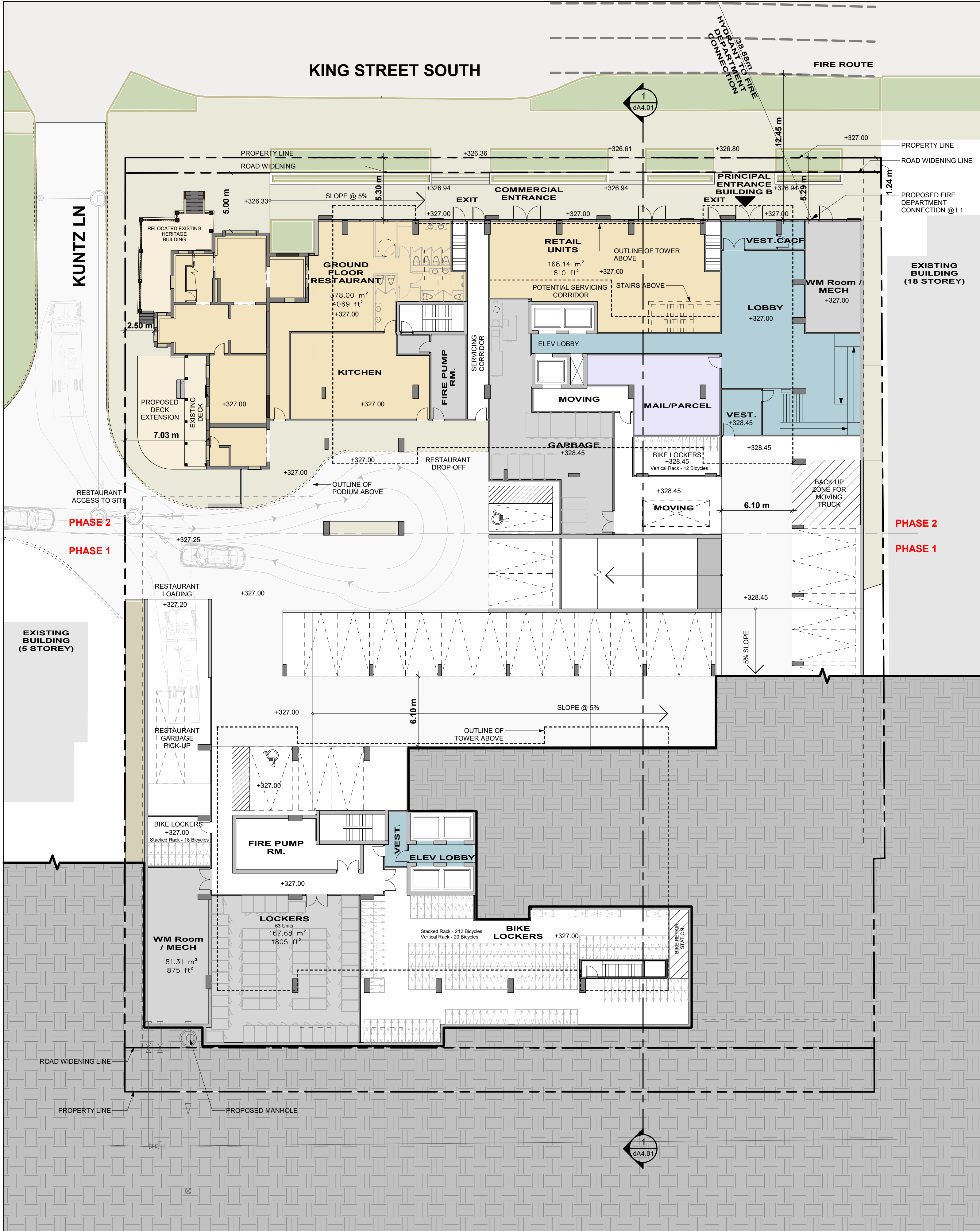
167-171 King St. S, Waterloo, ON
Proposed Mixed-Use Development

Drawing Title:
Site Statistics

Scale:

Drawn by:
AR, NA
Checked by:
VPS
Project No.:
24-036
Date:
2025-06-24
Drawing No.:

dA1.02



1 | Floor Plan - Level 1
1 : 200

5 | Waste Management Notes

LEGEND

- PROPOSED ACCESS ROUTE FOR WASTE COLLECTION VEHICLE
- LOADING AREA
200MM REINFORCED CONCRETE WITH GRADE (NOT TO EXCEED 2%)

RESIDENTIAL GARBAGE/RECYCLING STORAGE ROOM

WASTE DIVERSION SYSTEM: SINGLE CHUTE WITH TRI-SORTER

GARBAGE/RECYCLING ROOM AREA PROVIDED:

TOWER A : 113.75 m²
TOWER B : 123.01 m²

NUMBER OF COLLECTION BINS PROVIDED:

TOWER A :
-GARBAGE = 5 (3yd3) BINS
-RECYCLING = 7 (3yd3) BINS
-ORGANICS = 3 (3yd3) BINS

TOWER B :
-GARBAGE = 5 (3yd3) BINS
-RECYCLING = 7 (3yd3) BINS
-ORGANICS = 2 (3yd3) BINS

COMMERCIAL
-GARBAGE= 1 (3yd3) BINS
-RECYCLING= 1 (3yd3) BINS

TOTAL NUMBER OF BINS: 40 BINS

BINS DESIGNATION:

G = GARBAGE
R = RECYCLING
O = ORGANIC
C = COMMERCIAL

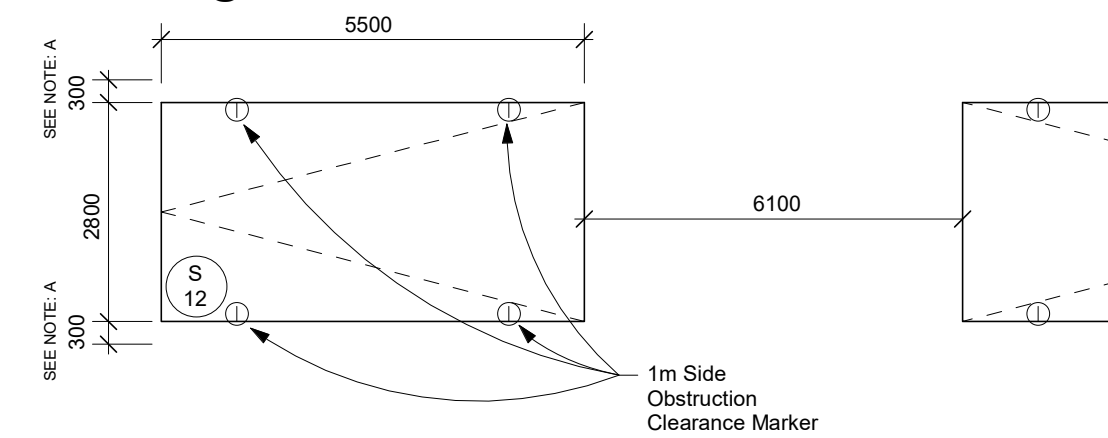
STAGING AREA: 78.3m²

PROPOSED ACCESS ROUTE FOR WASTE COLLECTION VEHICLE TO HAVE MINIMUM 4.4m VERTICAL CLEARANCE THROUGHOUT AND DESIGNED TO SAFELY SUPPORT 35,000kg. STRUCTURAL ENGINEER TO DESIGN AREA TO CONFORM AS FOLLOWS:
(A) DESIGN CODE - ONTARIO BUILDING CODE
(B) DESIGN LOAD - CITY BULK LIFT VEHICLE IN ADDITION TO BUILDING CODE REQUIREMENTS
(C) IMPACT FACTOR - 5% FOR MAXIMUM VEHICLE SPEEDS TO 15KM/H AND 20% FOR HIGHER SPEEDS

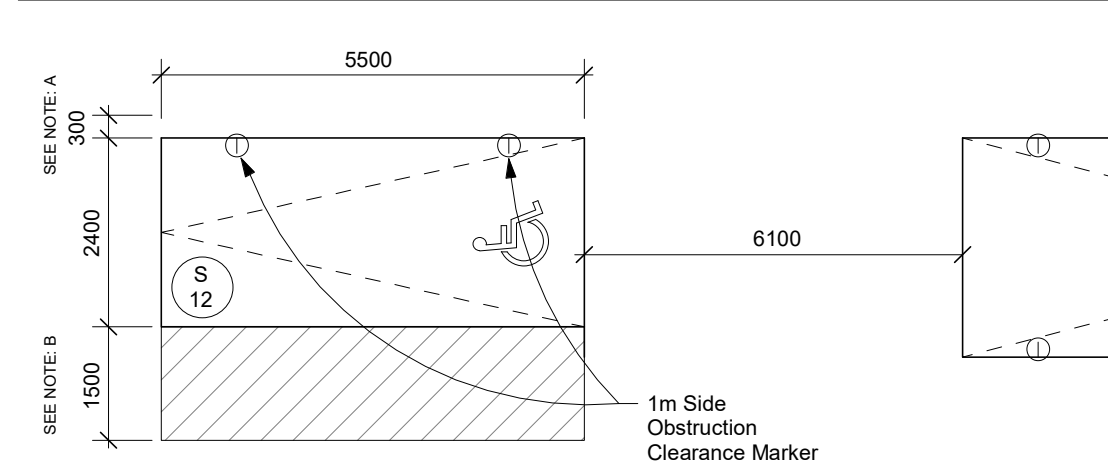
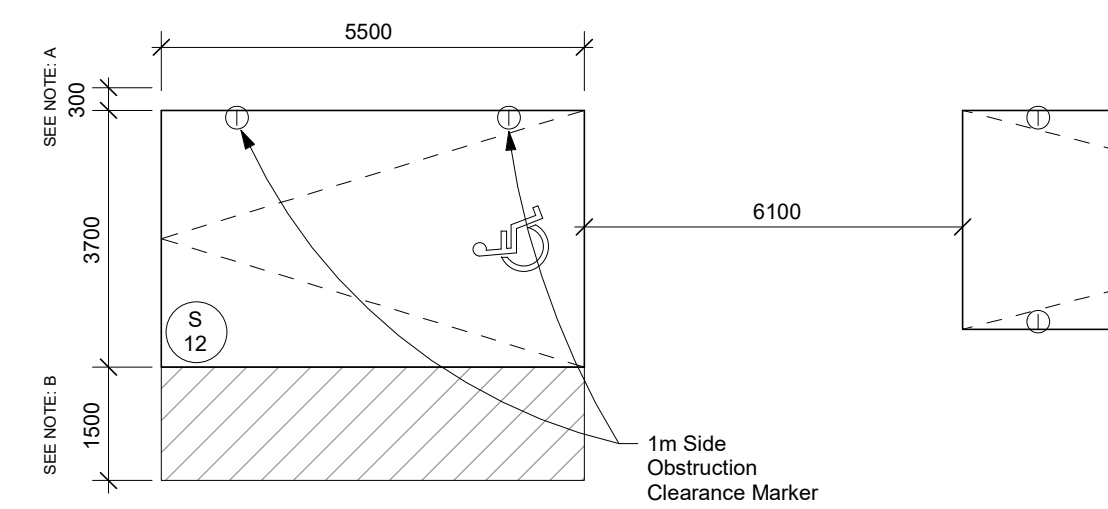
A TRAINED ON-SITE STAFF MEMBER MUST BE AVAILABLE TO MANOEUVRE BINS FOR THE COLLECTION DRIVER AND ALSO ACT AS A FLAGMAN WHEN THE TRUCK IS REVERSING. IN THE EVENT THE ON-SITE STAFF MEMBER IS UNAVAILABLE AT THE TIME THE CITY COLLECTION VEHICLES ARRIVE ON SITE, THE COLLECTION VEHICLE WILL LEAVE THE SITE AND NOT RETURN UNTIL THE NEXT SCHEDULED COLLECTION DAY.

WASTE BINS FOR NON-RESIDENTIAL COMPONENT WILL BE LABELLED SEPARATELY FROM THOSE FOR THE RESIDENTIAL COMPONENT. SHARED LOADING SPACE WILL NOT BE OCCUPIED ON DAYS WHEN CITY COLLECTION SERVICES ARE SCHEDULED FOR RESIDENTIAL COMPONENT. A PRIVATE CONTRACTOR MUST COLLECT ALL SOLID WASTE FROM THE COMMERCIAL COMPONENT.

Drive Aisle @ 6.1m MIN.

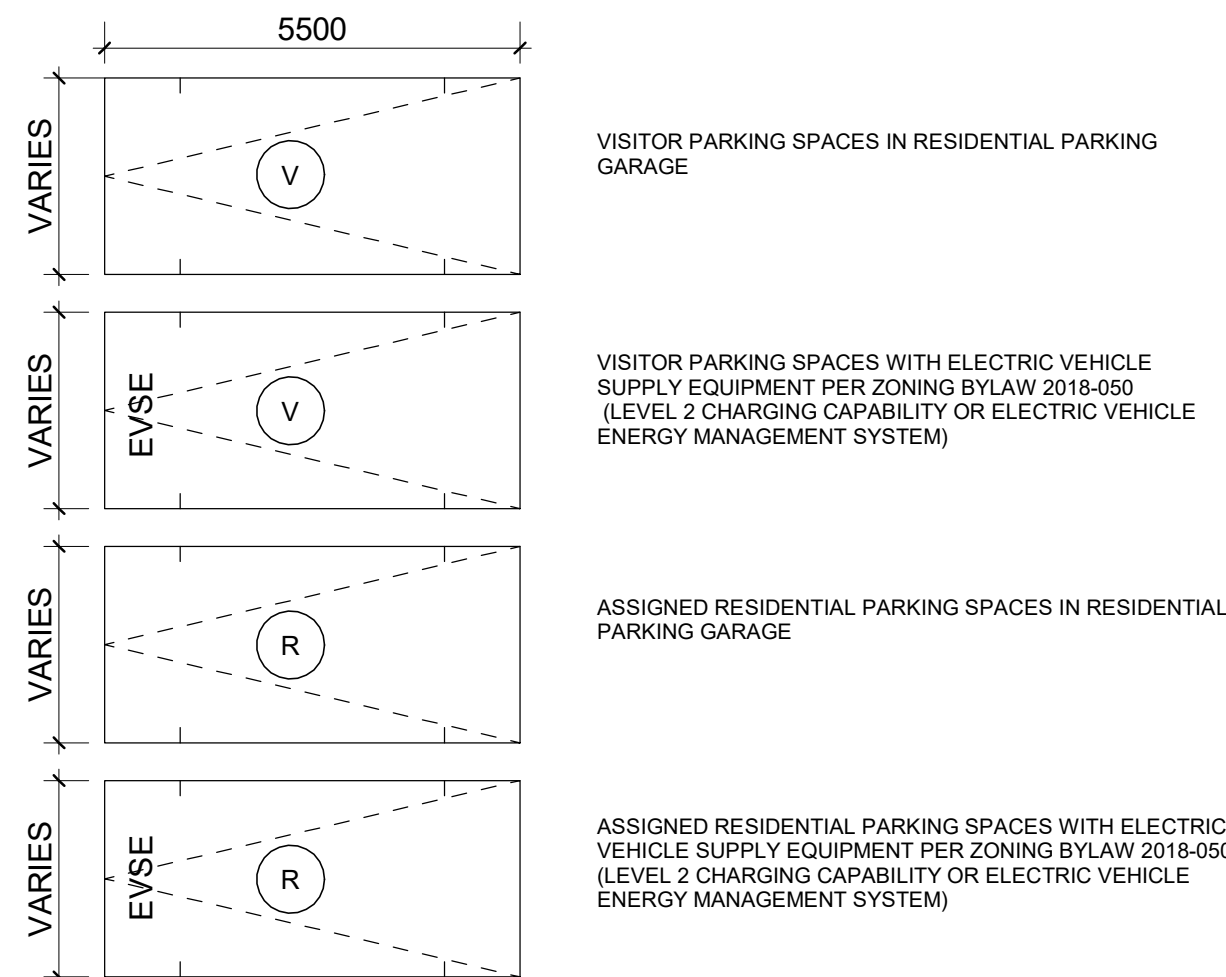


Accessible Parking Space



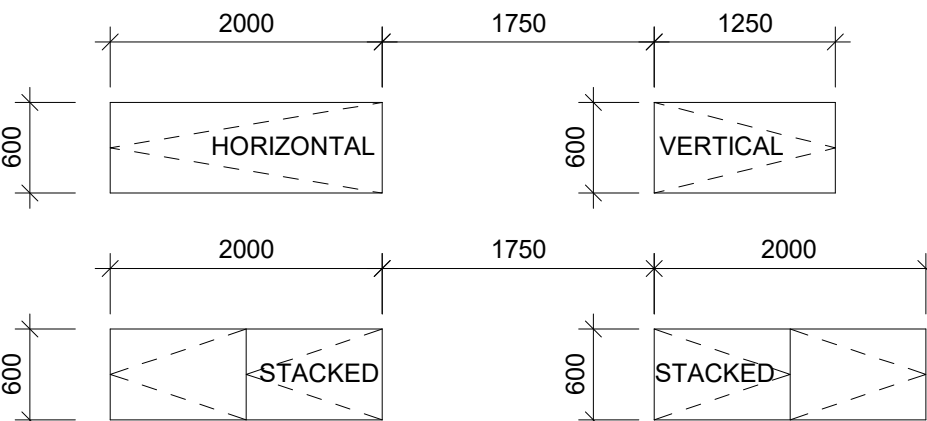
- NOTES:
- A. PROVIDE AN ADDITIONAL 300mm FOR PARKING SPACE WIDTH WHEN OBSTRUCTIONS OCCUR BETWEEN THE FRONT AND REAR 1000mm.
 - B. PROVIDE A 1500mm WALKWAY ON AT LEAST ONE SIDE OF AN ACCESSIBLE PARKING STALL. THIS WALKWAY MAY BE SHARED WITH ADJOINING ACCESSIBLE SPACE.
 - C. PROVIDE A 3700mm WIDTH FOR TYPE A ACCESSIBLE PARKING SPACE, 2400mm WIDTH FOR B TYPE A ACCESSIBLE PARKING SPACE

2 | Vehicular Parking Space Details and Notes



3 | Vehicular Parking Space Legend

WALKWAY: 1250mm (L) x 600mm (W)
VERTICAL PARKING SPACE: 1800mm (L) x 600mm (W)
STACKED PARKING SPACE: 1830mm (L) x 450mm (W)



4 | Bicycle Parking Space Details and Legend

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Toronto ON M3J 0H1

Revisions:

No.:	Revision:	Date:
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No.:

Issued For:

Date:

URBAN LEGEND DEVELOPMENTS

VanMar DEVELOPMENTS

Client:

Urban Legend Developments Ltd/ VanMar Developments

167-171 King St. S, Waterloo, ON
Proposed Mixed-Use Development

Drawing Title:

Floor Plan - Level 1

Scale:

As indicated

Drawn by:

AR, NA

Checked by:

VPS

Project No.:

24-036

Date:

2025-05-01

Drawing No.:

North Arrow

dA2.00



1 | Floor Plan Level 1 (Upper)
1 : 200

5 | Waste Management Notes

A TRAINED ON-SITE STAFF MEMBER MUST BE AVAILABLE TO MANOEUVRE BINS FOR THE COLLECTION DRIVER AND ALSO ACT AS A FLAGMAN WHEN THE TRUCK IS REVERSING. IN THE EVENT THE ON-SITE STAFF MEMBER IS UNAVAILABLE AT THE TIME THE CITY COLLECTION VEHICLES ARRIVE ON SITE, THE COLLECTION VEHICLE WILL LEAVE THE SITE AND NOT RETURN UNTIL THE NEXT SCHEDULED COLLECTION DAY.

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LEGEND

PROPOSED ACCESS ROUTE FOR WASTE COLLECTION VEHICLE

LOADING AREA
200MM REINFORCED CONCRETE WITH GRADE (NOT TO EXCEED 2%)

RESIDENTIAL GARBAGE/RECYCLING STORAGE ROOM

WASTE DIVERSION SYSTEM: SINGLE CHUTE WITH TRI-SORTER

GARBAGE/RECYCLING ROOM AREA PROVIDED:

TOWER A : 113.75 m²
TOWER B : 123.01 m²

NUMBER OF COLLECTION BINS PROVIDED:

TOWER A :
-GARBAGE = 5 (3yd3) BINS
-RECYCLING = 7 (3yd3) BINS
-ORGANICS = 3 (3yd3) BINS

TOWER B :
-GARBAGE = 5 (3yd3) BINS
-RECYCLING = 7 (3yd3) BINS
-ORGANICS = 2 (3yd3) BINS

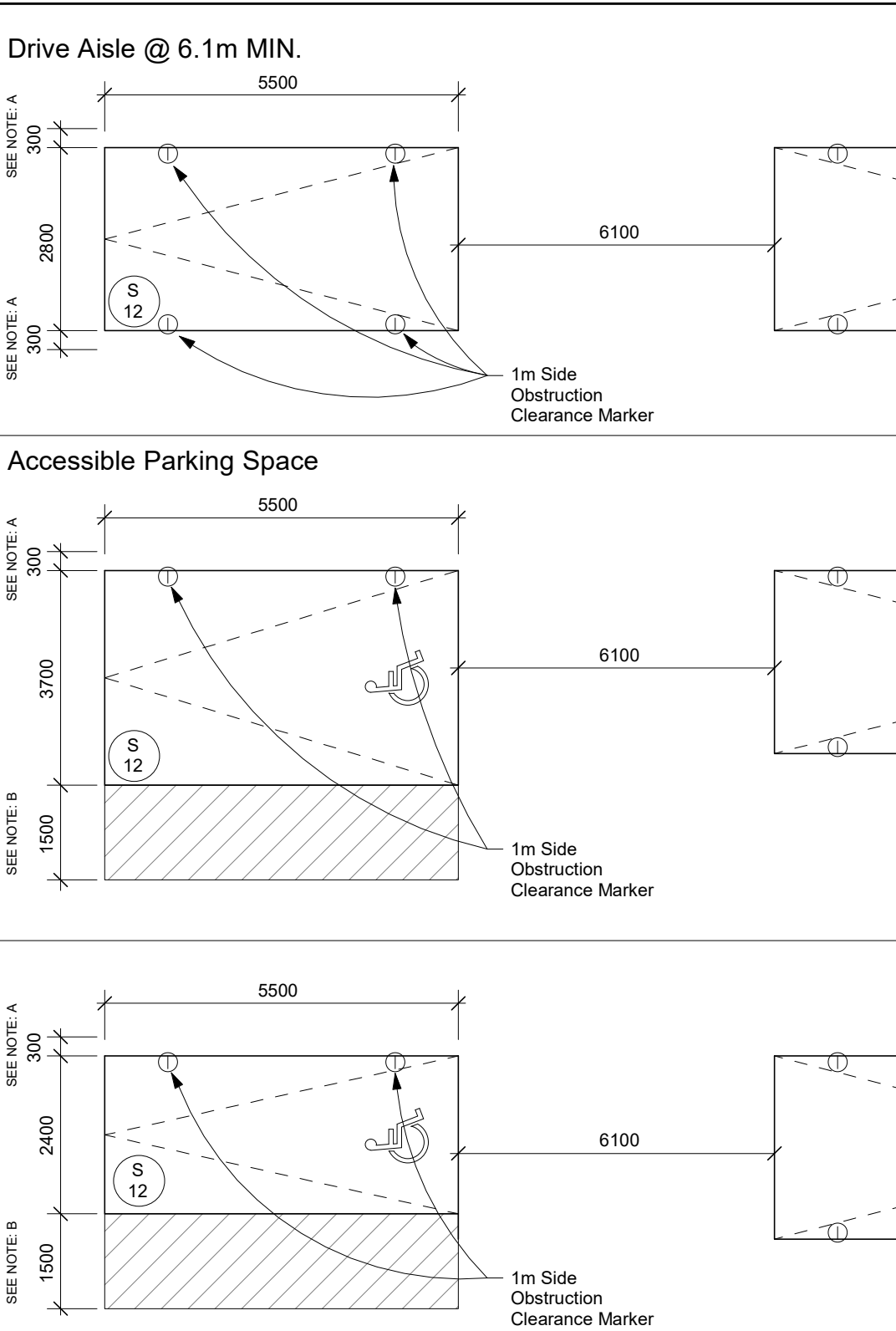
COMMERCIAL
-GARBAGE = 1 (3yd3) BINS
-RECYCLING = 1 (3yd3) BINS

TOTAL NUMBER OF BINS: 40 BINS

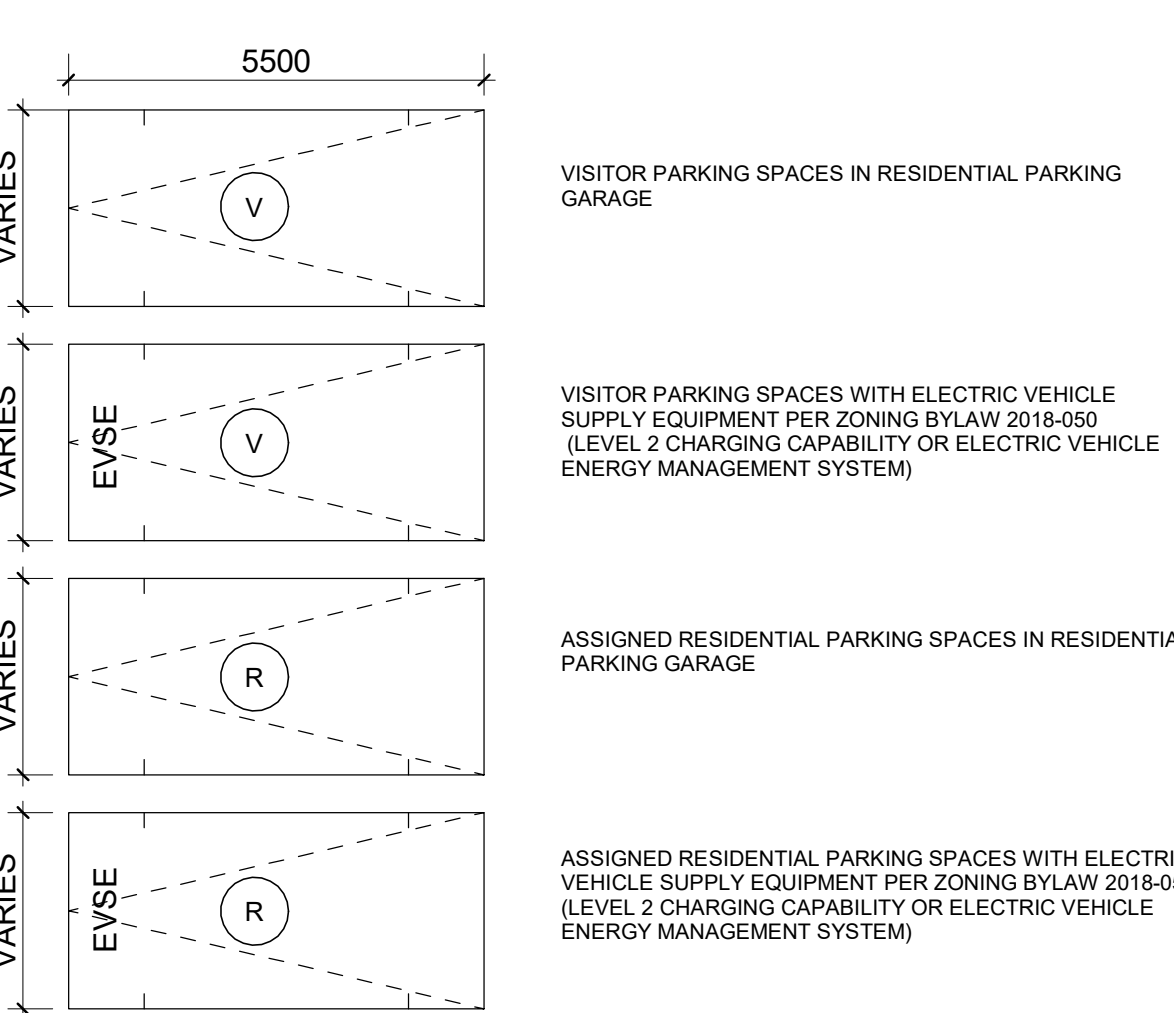
BINS DESIGNATION:
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O = ORGANIC
C = COMMERCIAL

STAGING AREA: 78.3m²

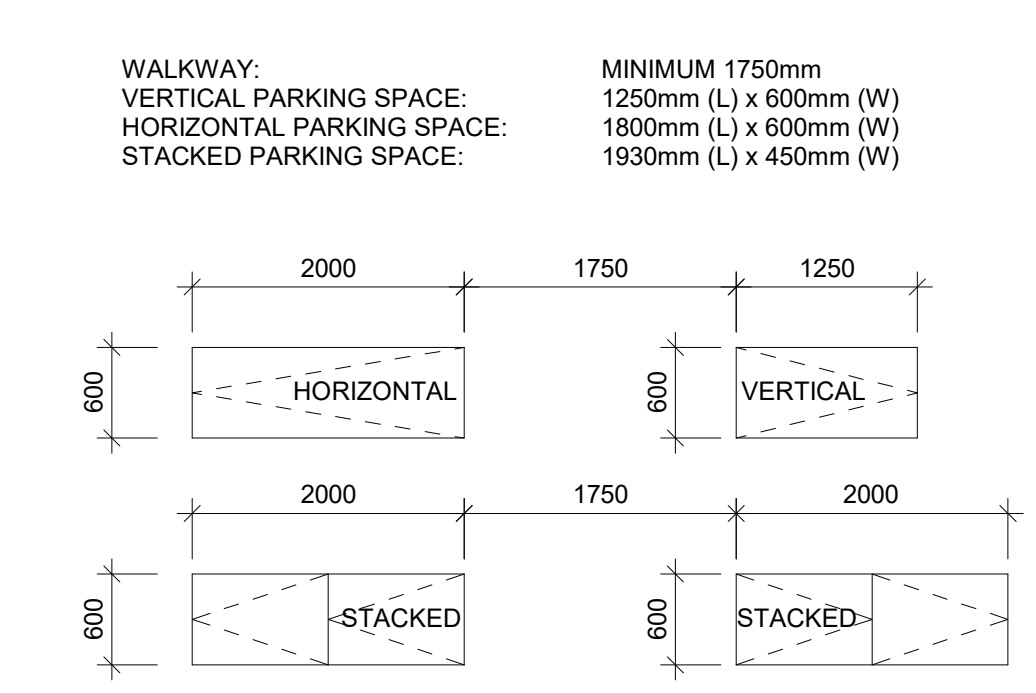
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(C) IMPACT FACTOR - 5% FOR MAXIMUM VEHICLE SPEEDS TO 15KM/H AND 20% FOR HIGHER SPEEDS



2 | Vehicular Parking Space Details and Notes



3 | Vehicular Parking Space Legend



4 | Bicycle Parking Space Details and Legend

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No.:	Revision:	Date:

No.:

Issued For:

Date:

URBAN LEGEND DEVELOPMENTS

VanMar DEVELOPMENTS

Client:
Urban Legend Developments Ltd/ VanMar Developments

167-171 King St. S, Waterloo, ON
Proposed Mixed-Use Development

Drawing Title:
Floor Plan - Level 1 (Upper)

Scale:
As indicated

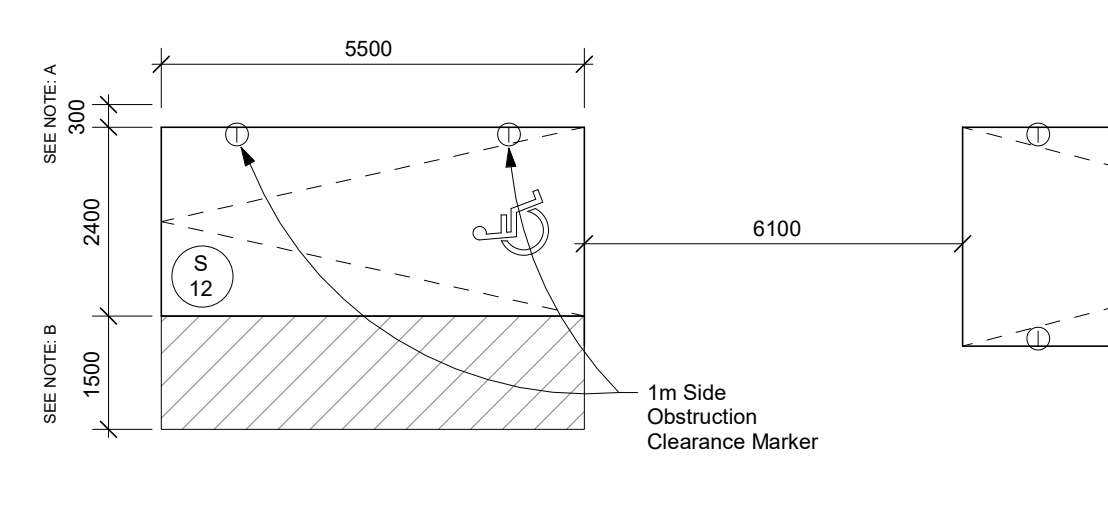
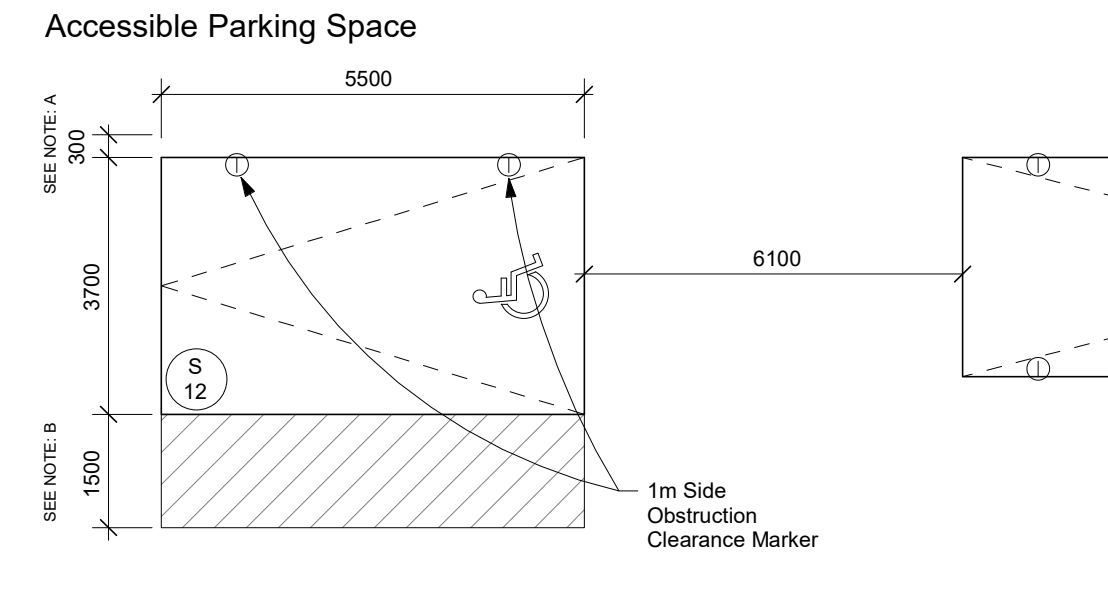
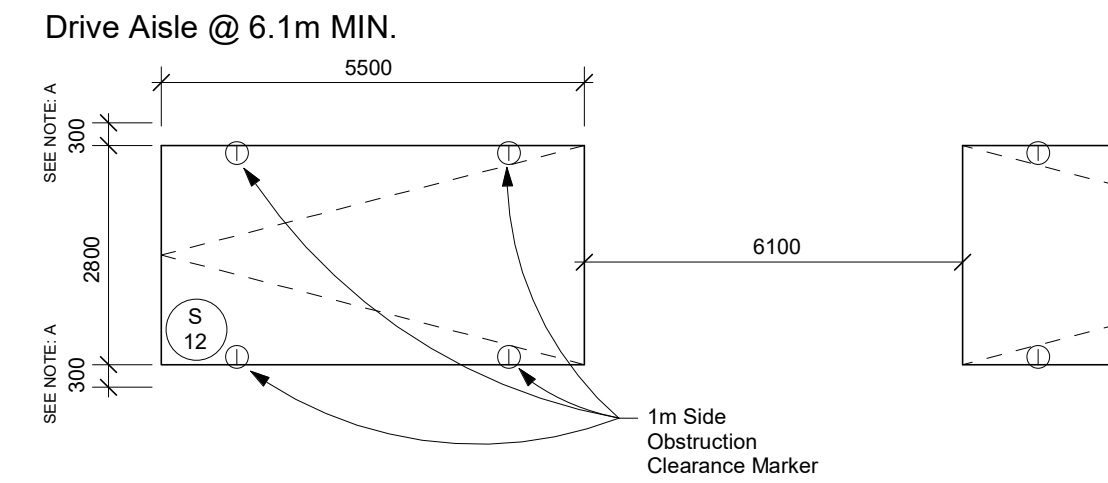
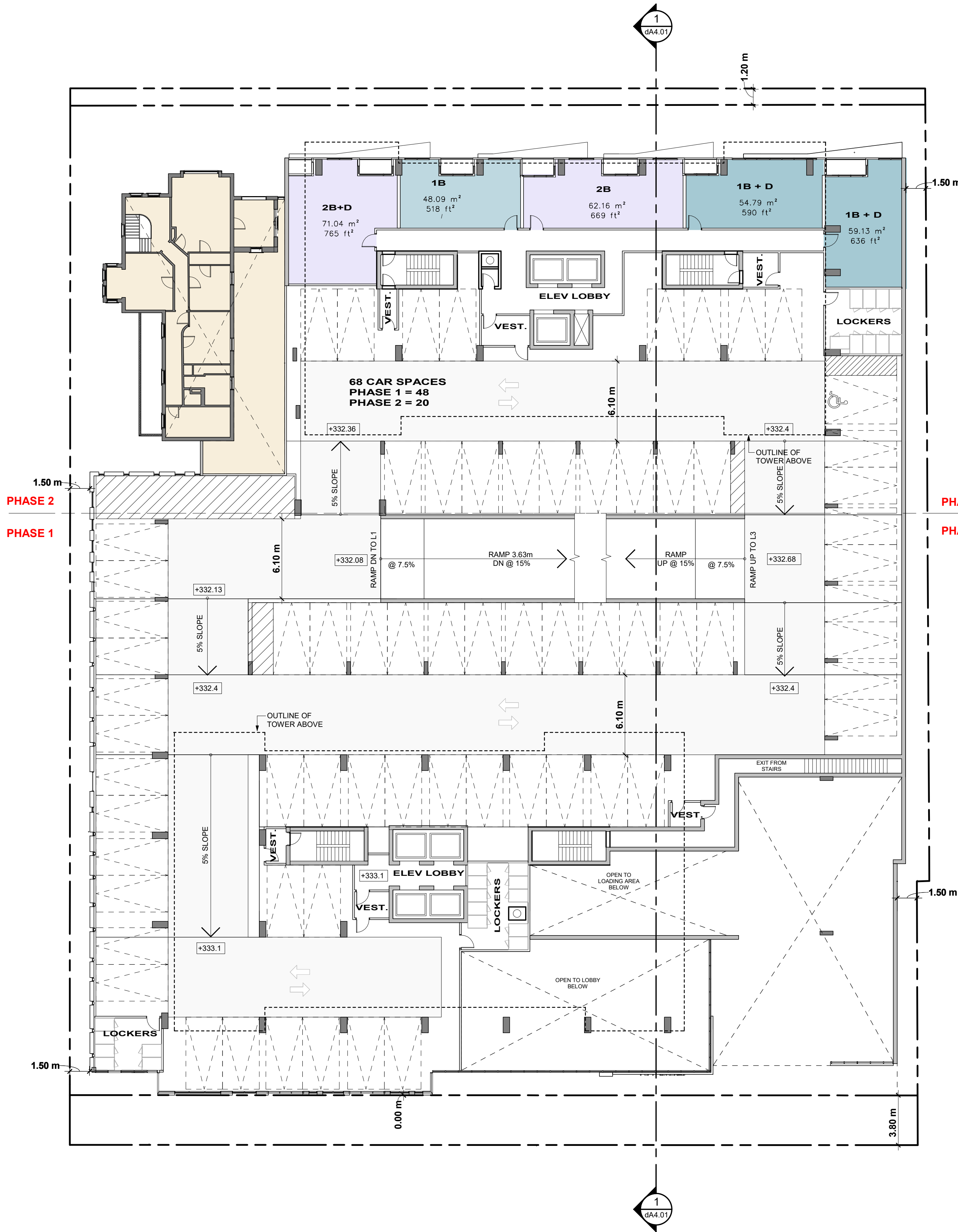
Drawn by:
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Checked by:
VPS

Project No.:
24-036

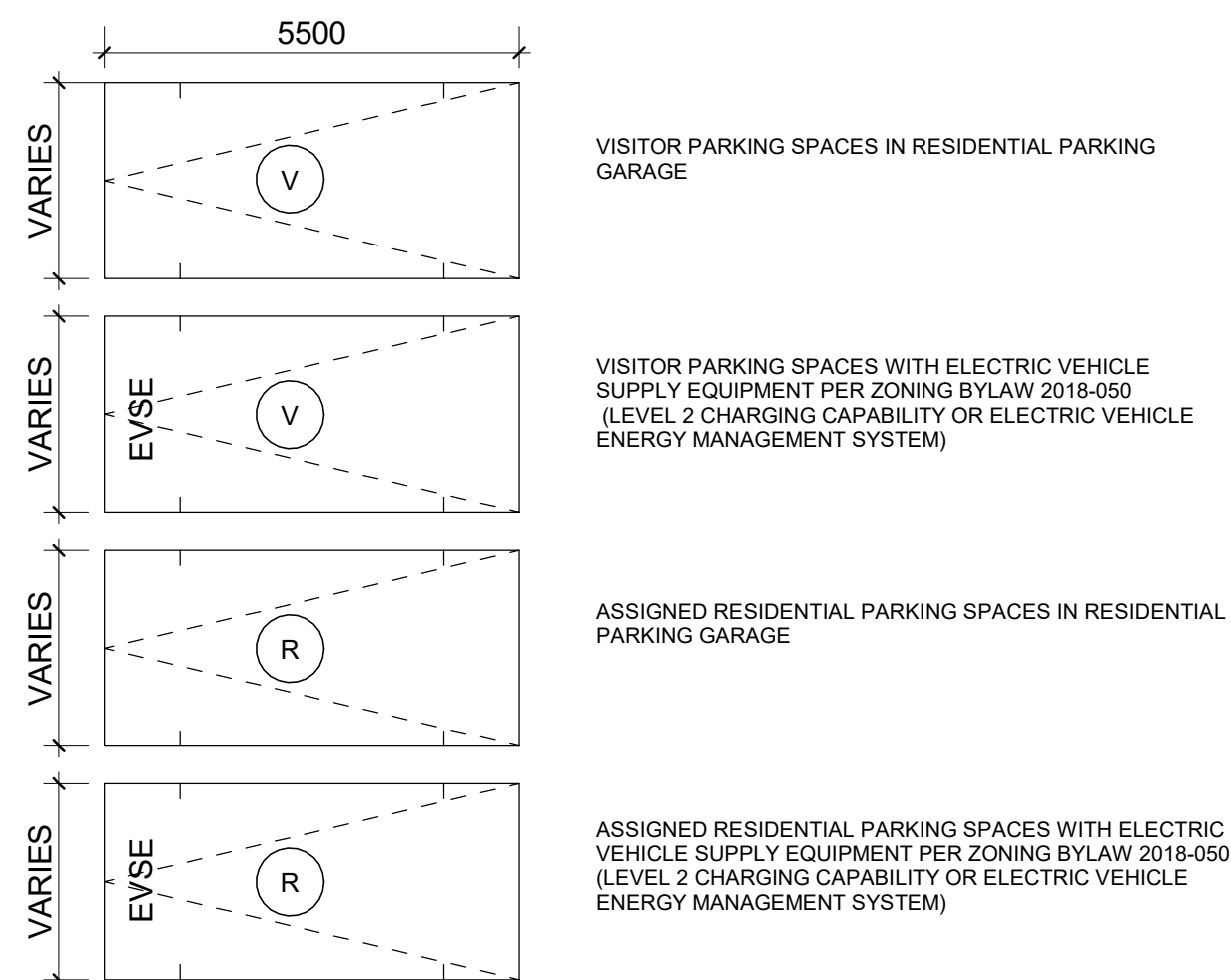
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Drawing No.:
dA2.01



- NOTES:
- A. PROVIDE AN ADDITIONAL 300mm FOR PARKING SPACE WIDTH WHEN OBSTRUCTIONS OCCUR BETWEEN THE FRONT AND REAR 1000mm.
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- C. PROVIDE A 3700mm WIDTH FOR TYPE A ACCESSIBLE PARKING SPACE, 2400mm WIDTH FOR B TYPE A ACCESSIBLE PARKING SPACE

2 | Vehicular Parking Space Details and Notes



3 | Vehicular Parking Space Legend

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No.: Revision: Date:

No.: Issued For: Date:

URBAN LEGEND
DEVELOPMENTS

VanMar
DEVELOPMENTS

Client:
Urban Legend Developments Ltd/ VanMar Developments

167-171 King St. S, Waterloo, ON
Proposed Mixed-Use Development

Drawing Title:
Floor Plan - Level 2

Scale:
As indicated

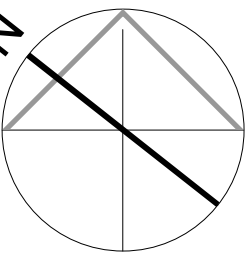
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Checked by:
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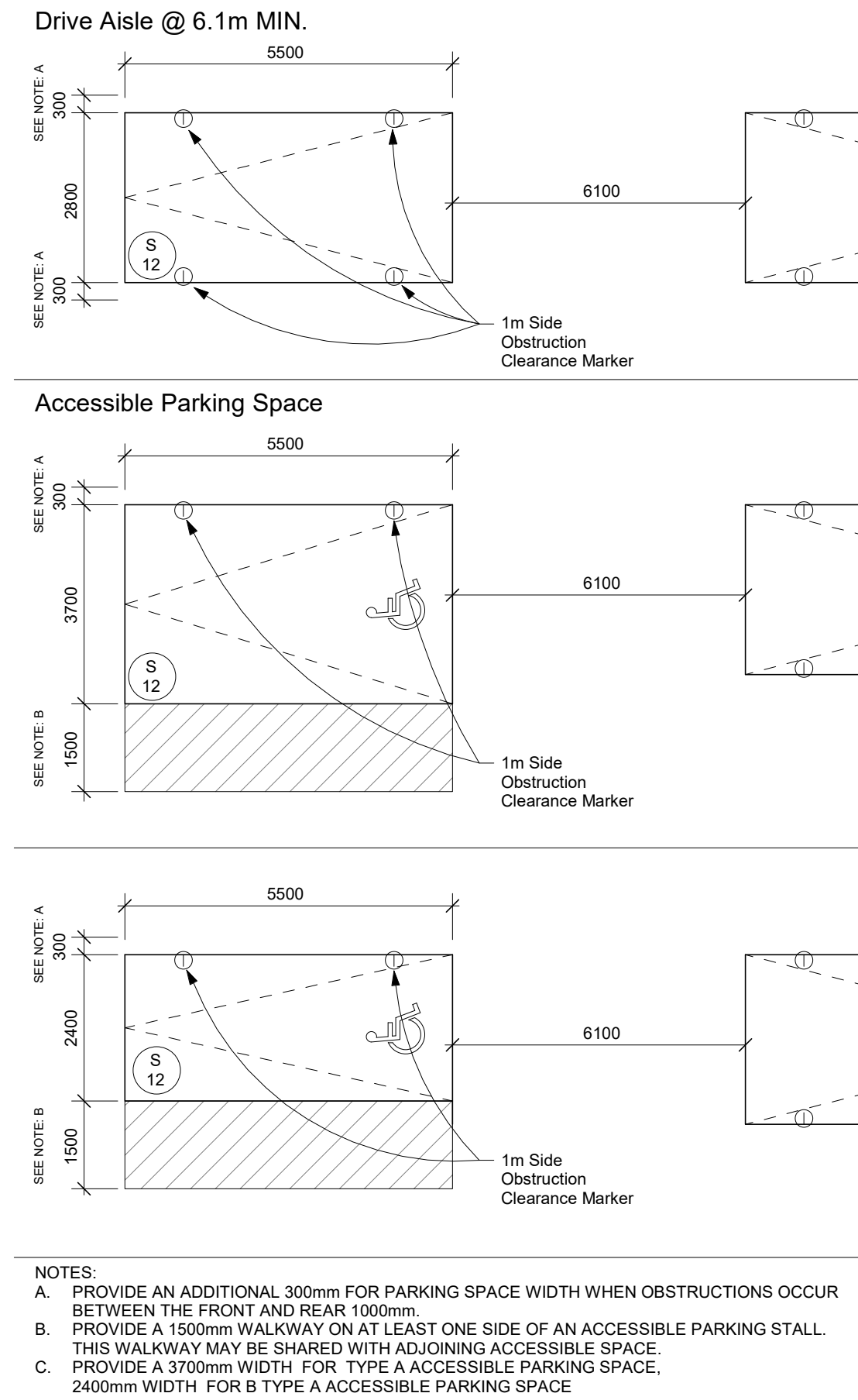
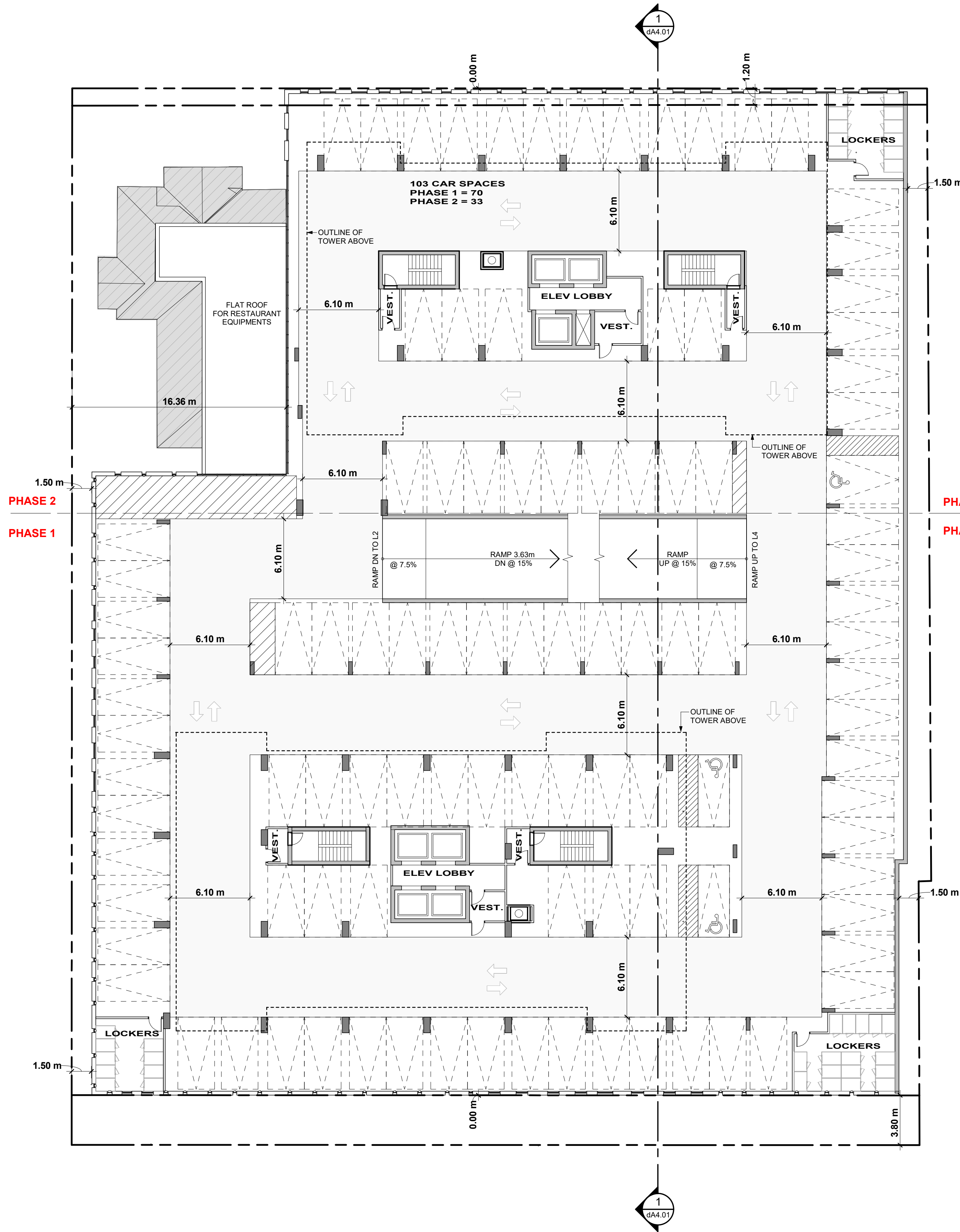
Project No.:
24-036

Date:
2025-05-01

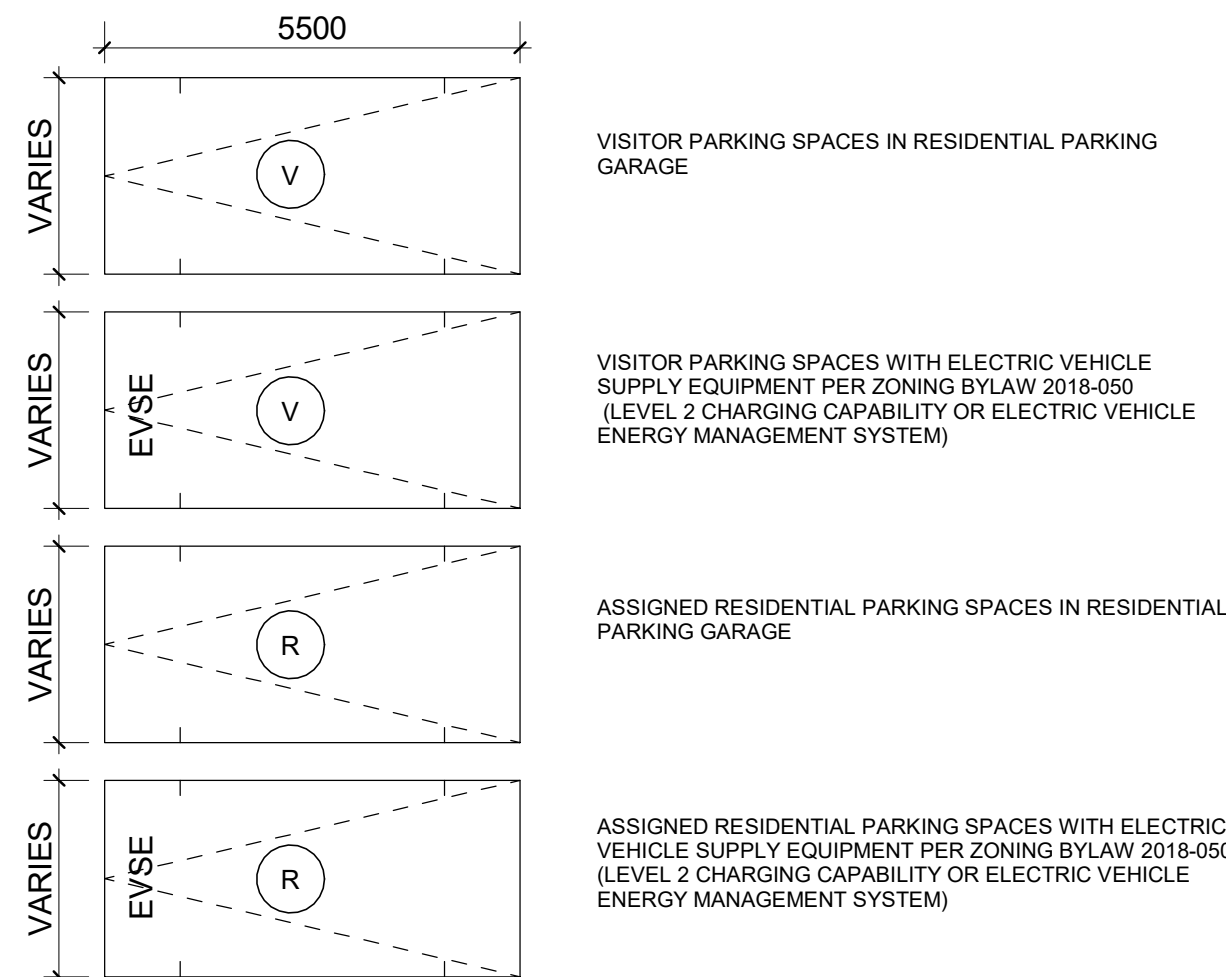
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dA2.02



2 | Vehicular Parking Space Details and Notes



3 | Vehicular Parking Space Legend

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Toronto ON M3J 0H1

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No.: Revision: Date:

No.: Issued For: Date:

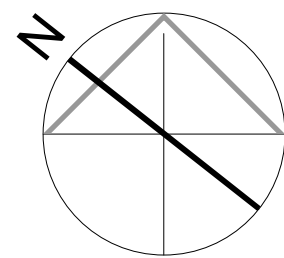
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VanMar DEVELOPMENTS

Client:
Urban Legend Developments Ltd/ VanMar Developments

167-171 King St. S, Waterloo, ON
Proposed Mixed-Use Development

Drawing Title:
Floor Plans - Level 3

Scale:
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Checked by:
VPS
Project No.:
24-036
Date:
2025-05-01
Drawing No.:

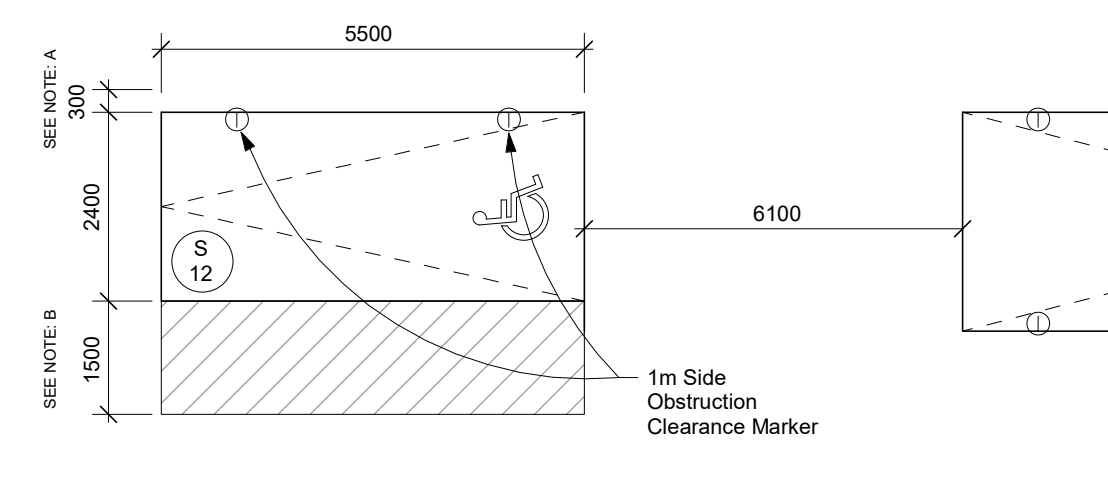


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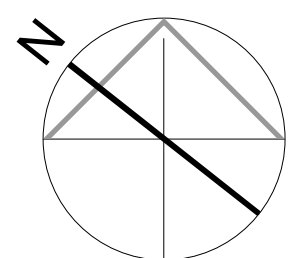
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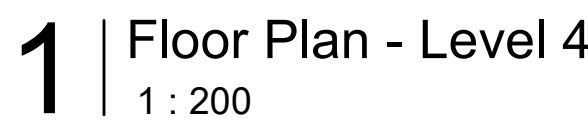
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	VISITOR PARKING SPACES IN RESIDENTIAL PARKING GARAGE
	VISITOR PARKING SPACES WITH ELECTRIC VEHICLE SUPPLY EQUIPMENT PER ZONING BYLAW 2018-050 (LEVEL 2 CHARGING CAPABILITY OR ELECTRIC VEHICLE ENERGY MANAGEMENT SYSTEM)
	ASSIGNED RESIDENTIAL PARKING SPACES IN RESIDENTIAL PARKING GARAGE
	ASSIGNED RESIDENTIAL PARKING SPACES WITH ELECTRIC VEHICLE SUPPLY EQUIPMENT PER ZONING BYLAW 2018-050 (LEVEL 2 CHARGING CAPABILITY OR ELECTRIC VEHICLE ENERGY MANAGEMENT SYSTEM)

3 | Vehicular Parking Space Legend

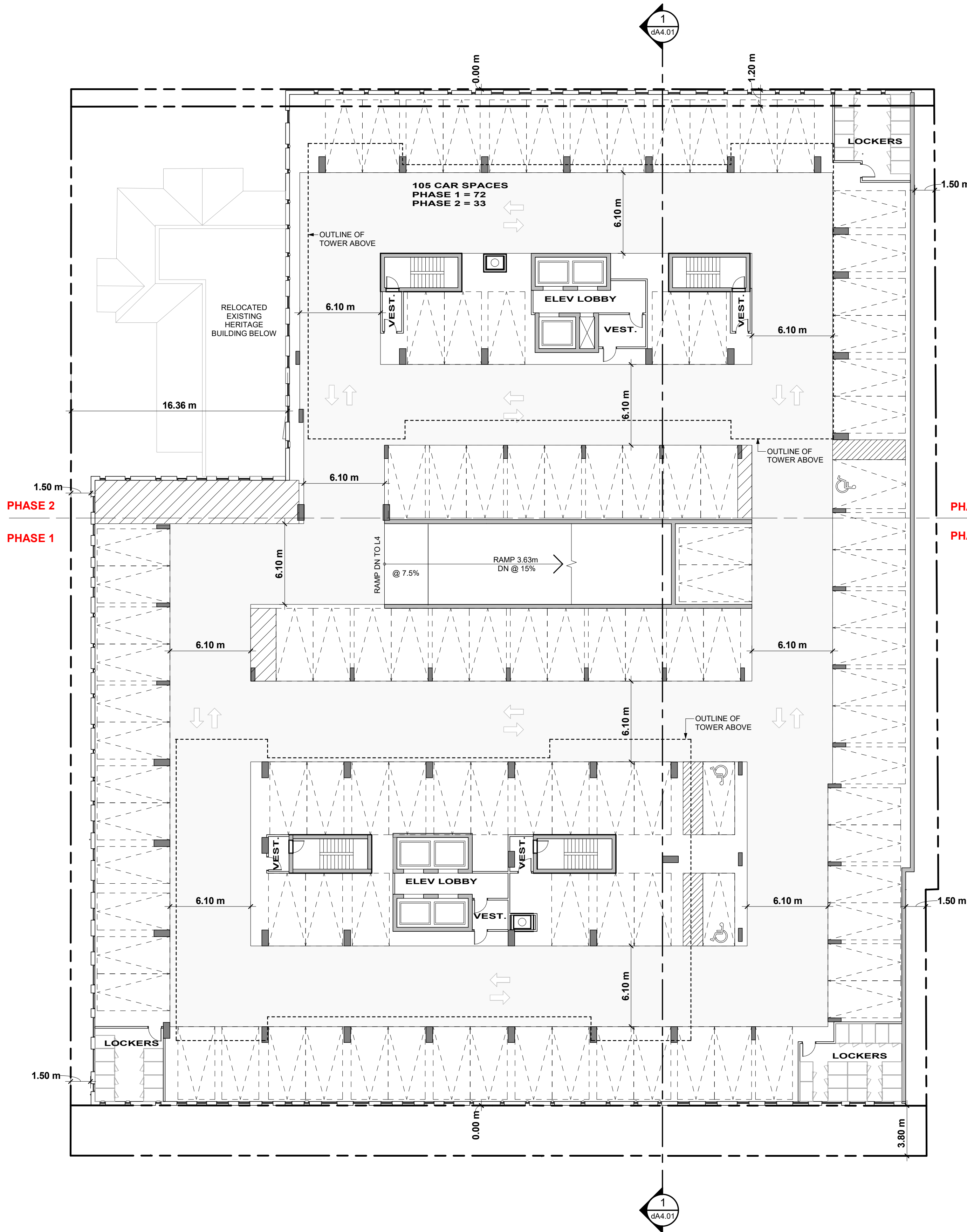


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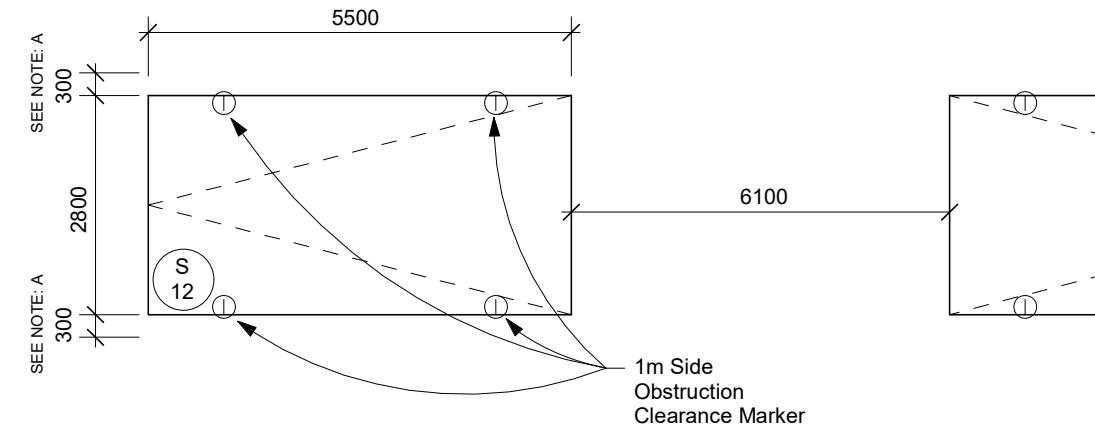


1 | Floor Plan - Level 5

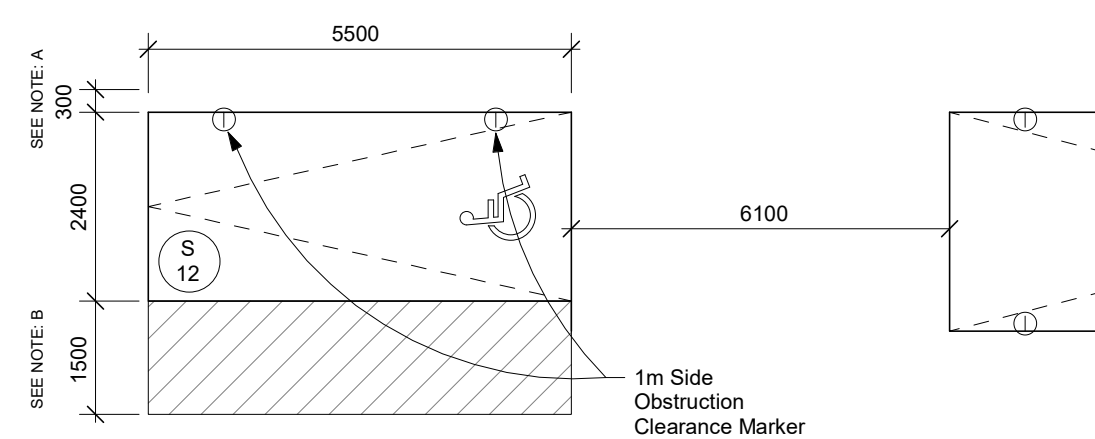
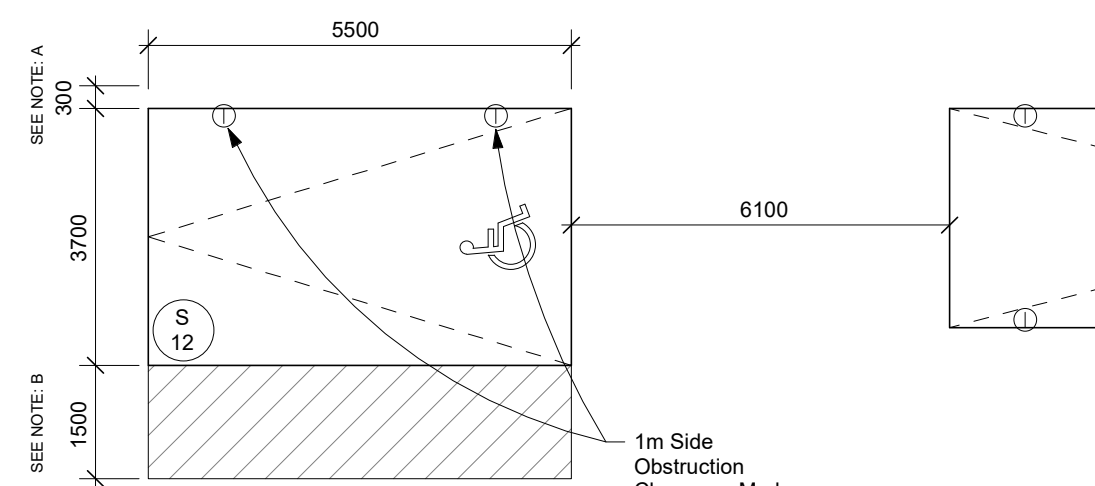
1 : 200



Drive Aisle @ 6.1m MIN.

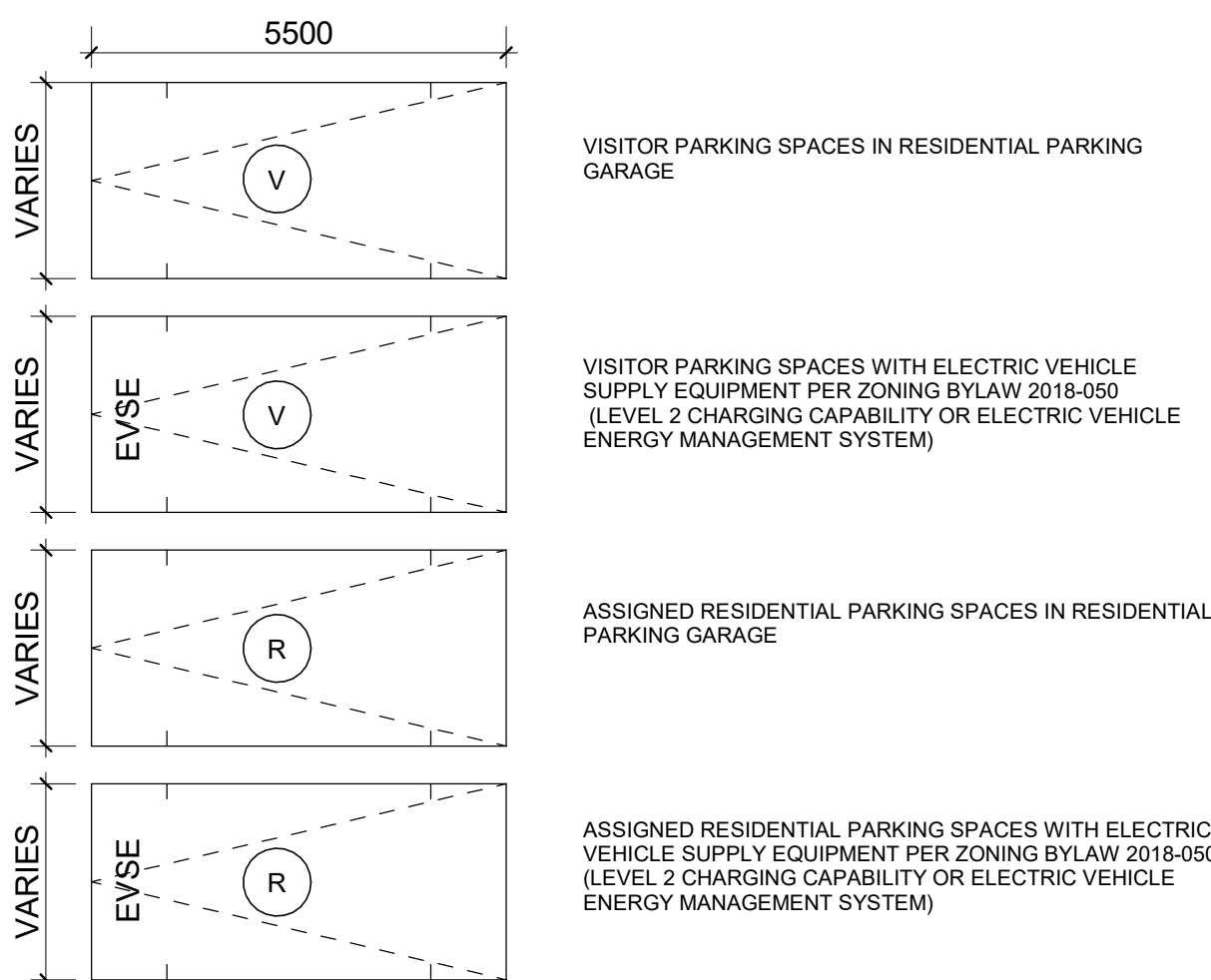


Accessible Parking Space



- NOTES:
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2 | Vehicular Parking Space Details and Notes



3 | Vehicular Parking Space Legend

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Revisions:		
No.:	Revision:	Date:

No.:	Issued For:	Date:



Client:
Urban Legend Developments Ltd/ VanMar Developments

167-171 King St. S, Waterloo, ON
Proposed Mixed-Use Development

Drawing Title:
Floor Plans - Level 5

Scale:	As indicated
Drawn by:	AR, NA
Checked by:	VPS
Project No.:	24-036
Date:	2025-05-01
Drawing No.:	

dA2.05

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Do not scale the drawings.

This Drawing is Not To Be Used For Construction Until Signed By The Architect.

Date:

KIRKOR
ARCHITECTS AND PLANNERS
20 De Boers Drive Suite 400
Toronto ON M3J 0H1

Revisions:		
No.:	Revision:	Date:

No.:	Issued For:	Date:

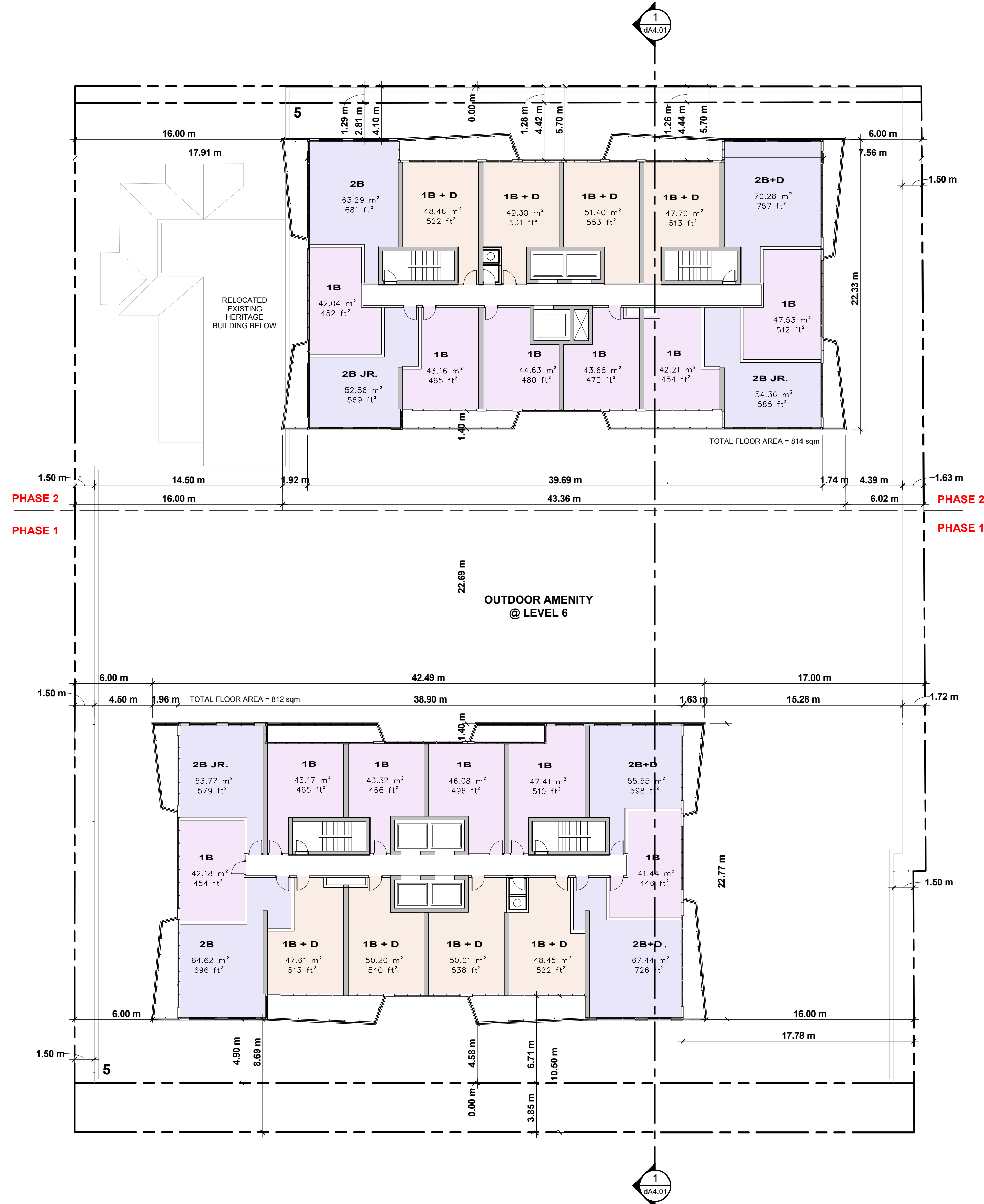
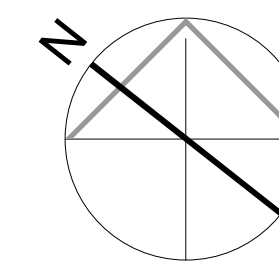


Client:
Urban Legend Developments Ltd/ VanMar Developments

167-171 King St. S, Waterloo, ON
Proposed Mixed-Use Development

Drawing Title:
Floor Plans - Level 6 - 33

Scale:	1 : 200
Drawn by:	AR, NA
Checked by:	VPS
Project No.:	24-036
Date:	2025-05-01
Drawing No.:	dA2.06



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Date:

KIRKOR
ARCHITECTS AND PLANNERS
20 De Boers Drive Suite 400
Toronto ON M3J 0H1

Revisions:
No.: Revision: Date:

No.: Issued For: Date:

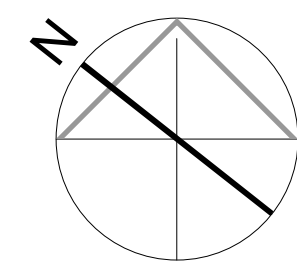
URBAN LEGEND
DEVELOPMENTS
VanMar
DEVELOPMENTS

Client:
Urban Legend Developments Ltd/ VanMar Developments

167-171 King St. S, Waterloo, ON
Proposed Mixed-Use Development

Drawing Title:
**Floor Plans - Bldg B MPH
- Bldg B MPH Roof**

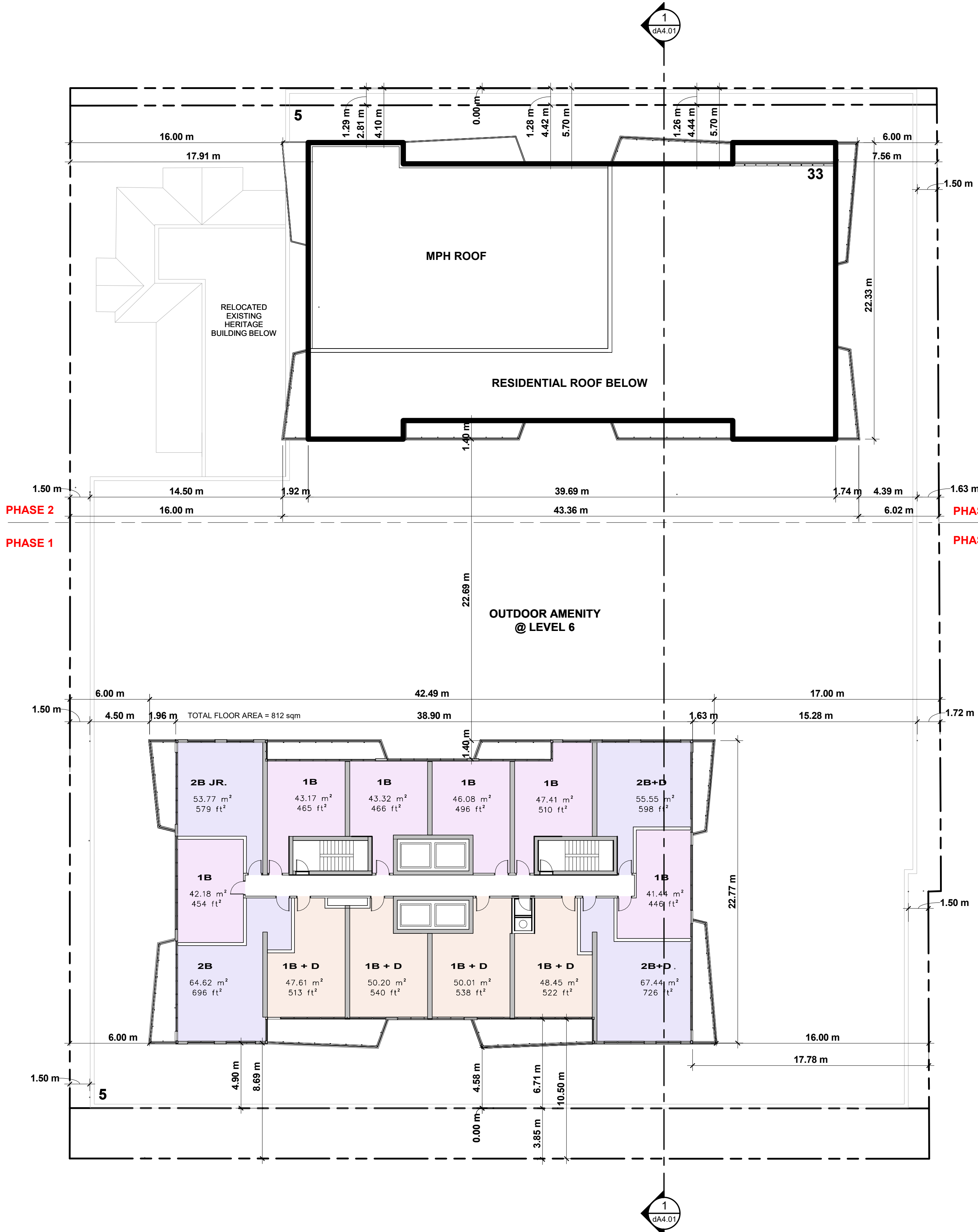
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Drawn by:
AR, NA
Checked by:
VPS
Project No.:
24-036
Date:
2025-05-01
Drawing No.:



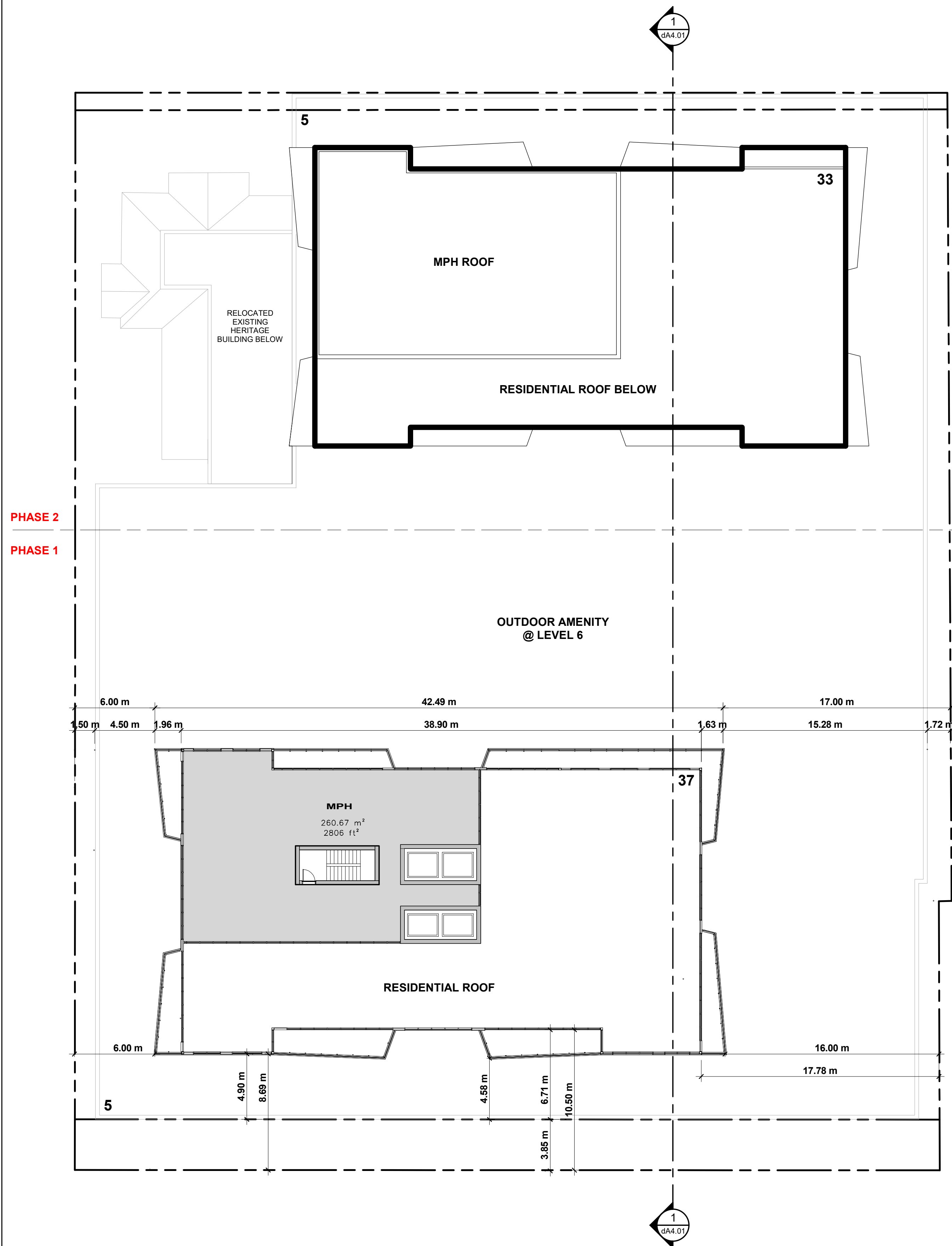
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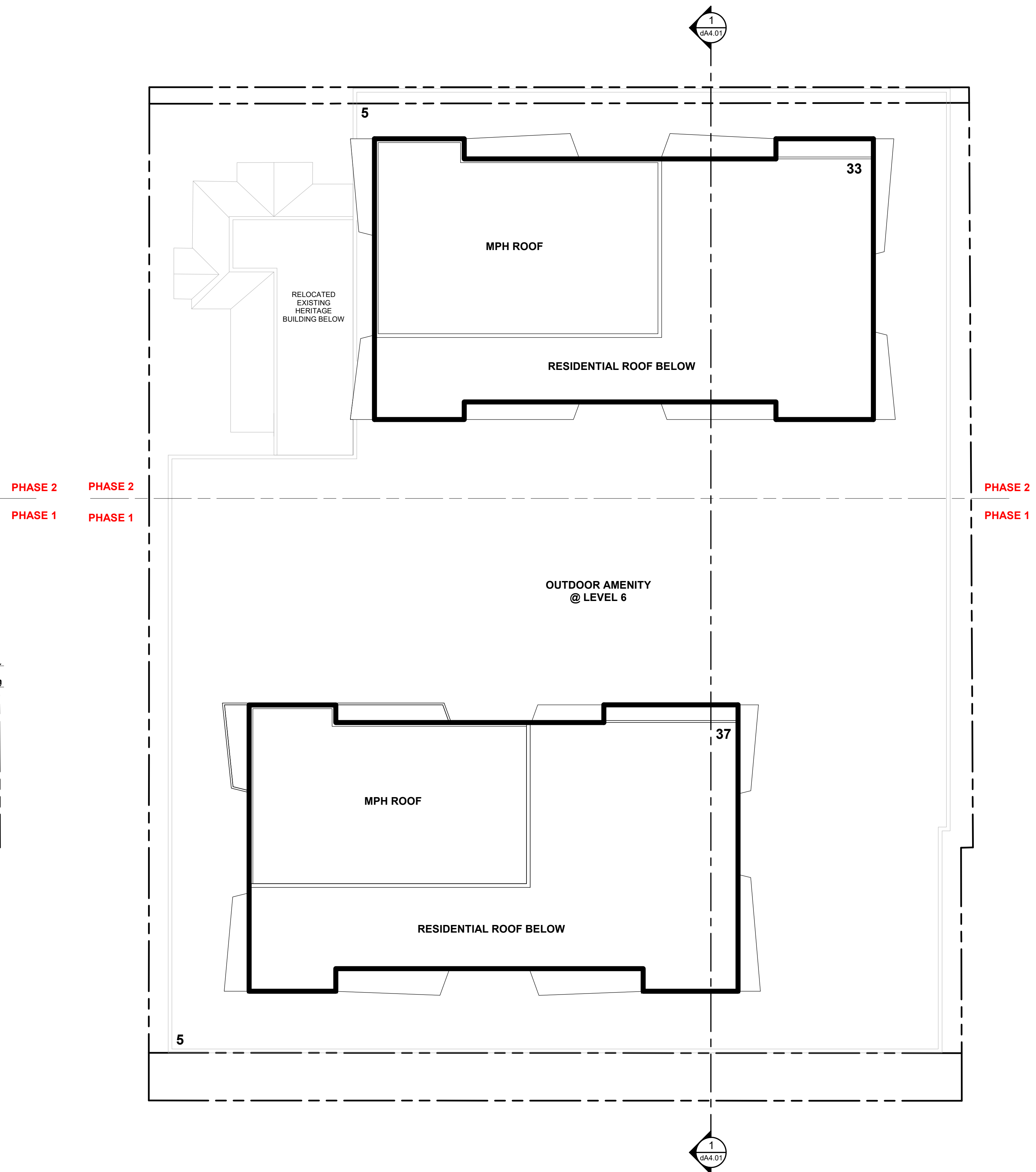
1 | Floor Plan - Bldg B -Level MPH
1 : 200



2 | Floor Plan - Bldg B -Level MPH Roof
1 : 200



1 | Floor Plan - Bldg A -Level MPH
1 : 200



2 | Floor Plan - Bldg A -Level MPH Roof

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Do not scale the drawings.

This Drawing Is Not To Be Used For Construction Until Signed
By The Architect.

Date:

KIRKOR
ARCHITECTS AND PLANNERS

20 De Boers Drive Suite 400
Toronto ON M3J 0H1

Revisions:

No.:	Revision:	Date:
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No.:	Issued For:	Date:
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Client:

**Urban Legend Developments Ltd/ VanMar
Developments**

167-171 King St. S, Waterloo, ON
Proposed Mixed-Use Development

Drawing Title:

Floor Plans - Bldg A MPH
- Bldg A MPH Roof

Scale:

1 : 200

Drawn by:

AR, NA

checked by:

VPS

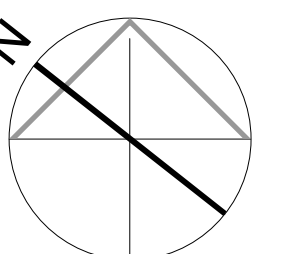
Project No.:
24-036

24-036

Date:

Date: -05-01

Drawing No.:



sdA2.08

Appendix B

Existing Nearby ECAs/EASRs



AMENDED ENVIRONMENTAL COMPLIANCE APPROVAL

NUMBER 2285-994NB3

Issue Date: July 2, 2013

Sun Life Assurance Company of Canada
227 King Street South, P.O. Box 1101 Stn Waterloo, No. 227
Waterloo, Ontario
N2J 4C5

Site Location: 227 King Street South
City of Waterloo, Regional Municipality Of Waterloo

You have applied under section 20.2 of Part II.1 of the Environmental Protection Act, R.S.O. 1990, c. E. 19 (Environmental Protection Act) for approval of:

- Three (3) natural gas fired boilers, one (1) natural gas fired hot water heater and one (1) natural gas fired rooftop unit, having a maximum combined thermal input of 47,089,259 kilojoules per hour;
- one (1) standby diesel generator set, having a rating of 1000 kilowatts, designated as Genset 1, to provide power for the facility during emergency situations;
- one (1) standby diesel generator set, having a rating of 1019 kilowatts, designated as Genset 2, to provide power for the facility during emergency situations;
- one (1) standby diesel generator set, having a rating of 1000 kilowatts, designated as Genset 3, to provide power for the facility during emergency situations;
- three (3) cooling towers;
- one (1) standby diesel generator set, having a rating of 2190 kilowatts, designated as Genset 4, to provide power for the facility during emergency situations;

all in accordance with the following:

1. Application for Approval (Air & Noise) dated March 10, 2008 and signed by Joan La Croix, (Director, Facilities Management, Canadian Operations), Sun Life Assurance Company of Canada, and all supporting information associated with the application provided by Pinchin Environmental Ltd., dated March 14, 2008, and signed by Shawn McDonald and additional letter dated July 21, 2008, and signed by Weidong Li, P. Eng.;
2. Environmental Compliance Approval Application submitted by Sun Life Assurance Company of Canada, dated July 31, 2012, and signed by Bill Cave, Operations Manager; and the supporting information, including the Emission Summary and Dispersion Modelling Report, submitted by Pinchin Environmental Ltd., dated July 31, 2012 and signed by Daniel Barbisan; and
3. Environmental Compliance Approval Application submitted by Sun Life Assurance Company of Canada, dated February 8, 2013, and signed by Bill Cave, Operations Manager; and the supporting information, including the Emission Summary and Dispersion Modelling Report, submitted by Pinchin Environmental Ltd., dated February 11, 2013 and signed by Daniel Barbisan.

For the purpose of this environmental compliance approval, the following definitions apply:

- (1) "Act" means the *Environmental Protection Act*;
- (2) "Approval" means this Environmental Compliance Approval issued in accordance with Section 9 of the Act;
- (3) "Equipment" means the diesel generator sets, combustion equipment and cooling towers described in the Owner's application, this Approval and in the supporting documentation submitted with the application, to the extent approved by this Approval;
- (4) "Generator Sets" means the diesel generator sets described in the Owner's application, this Approval and in the supporting documentation submitted with the application, to the extent approved by this Approval;
- (5) "Manual" means a document or a set of documents that provide written instructions to staff of the Owner;
- (6) "Ministry" means the Ontario Ministry of the Environment;
- (7) "Owner" means Sun Life Assurance Company of Canada, and includes its successors and assignees;
- (8) "Publication NPC-205" means Ministry Publication NPC-205, Sound Level Limits for Stationary Sources in Class 1 & 2 Areas (Urban), October, 1995; and
- (9) "Publication NPC-232" means Ministry Publication NPC-232, Sound Level Limits for Stationary Sources in Class 3 Areas (Rural), October, 1995.

You are hereby notified that this environmental compliance approval is issued to you subject to the terms and conditions outlined below:

TERMS AND CONDITIONS

GENERAL

- 1. Except as otherwise provided by these Conditions, the Owner shall design, build, install, operate and maintain the Equipment in accordance with the description given in this Approval, application for approval of the Equipment and the submitted supporting documents and plans and specifications as listed in this Approval.
- 2. Where there is a conflict between a provision of any submitted document referred to in this Approval and the Conditions of this Approval, the Conditions in this Approval shall take precedence, and where there is a conflict between the listed submitted documents, the document bearing the most recent date shall prevail.

PERFORMANCE

- 3. The Owner shall ensure that the noise emissions from the Generator Set comply with the limits set out in Publication NPC-205 or NPC-232, as applicable.

OPERATION AND MAINTENANCE

4. The Owner shall ensure that:

- (1) no other standby generator sets, located at 227 King Street South, Waterloo, Ontario, are operational during the periodic testing of the Genset 1; and,
- (2) no other standby generator sets, located at 227 King Street South, Waterloo, Ontario, are operational during the periodic testing of the Genset 2 and/or Genset 3; and,
- (3) no other standby generator sets, located at 227 King Street South, Waterloo, Ontario, are operational during the periodic testing of the Genset 4; and,
- (4) Genset 1 and Genset 2 are tested simultaneously for one hour. After one hour of simultaneous testing, one of the generators is shut down, while the remaining generator picks up the load for a second hour. The generator that remains running for the second hour is rotated each month.

5. The Owner shall ensure that no Generator Set is operated for testing and maintenance purposes for more than sixty (60) hours in any twelve (12) months period.

6. The Owner shall carry out periodic testing of the Generator Sets under practicable reduced loading conditions.

7. The Owner shall carry out the periodic testing of the Genset 2 and Genset 3 at a reduced load of 50% or less on each generator set.

8. The Owner shall restrict the periodic testing of the Genset 1 to one hour once per month, on a Saturday, between 8:00 pm and 9:00 pm.

9. The Owner shall restrict the periodic testing of the Genset 2 and Genset 3 to the daytime hours from 7:00 am to 7:00 pm.

10. The Owner shall ensure that the Generator Sets are properly operated and maintained at all times. The Owner shall:

- (1) prepare, not later than three (3) months after the date of this Approval or the date of commissioning of the Generator Sets, and update, as necessary, a Manual outlining the operating procedures and a maintenance program for the Generator Sets, including:
 - (a) routine operating and maintenance procedures in accordance with good engineering practices and as recommended by the Generator Set's suppliers;
 - (b) emergency procedures;
 - (c) procedures for any record keeping activities relating to operation and maintenance of the Generator Sets;
 - (d) all appropriate measures to minimize noise and odorous emissions from all potential sources;

(2) implement the recommendations of the Manual; and

(3) retain, for a minimum of two (2) years from the date of their creation, all records on the maintenance, repair and inspection of the Generator Sets, and make these records available for review by staff of the Ministry upon request.

The reasons for the imposition of these terms and conditions are as follows:

1. Condition Nos. 1 and 2 are imposed to ensure that the Equipment is built and operated in the manner in which it was described for review and upon which approval was granted. These conditions are also included to emphasize the precedence of Conditions in the Approval and the practice that the Approval is based on the most current document, if several conflicting documents are submitted for review.
2. Condition No. 3 is included to provide the minimum performance requirement considered necessary to prevent an adverse effect resulting from the operation of the Generator Sets.
3. Condition Nos. 4, 5, 6, and 7 are included to ensure that the proposed operation, excluding emergency situations, will not result in an adverse effect at a sensitive receptor.
4. Condition Nos. 8 and 9 is included to ensure that the proposed operation, excluding emergency situations, is not extended beyond specific daytime hours to prevent an adverse effect resulting from the operation of the Generator Sets.
5. Condition No. 10 is included to emphasize that the Equipment must be maintained and operated according to a procedure that will result in compliance with the Act, the regulations and this Approval. In addition the Owner is required to keep records and provide information to staff of the Ministry so that compliance with the Act, the regulations and this Approval can be verified.

Upon issuance of the environmental compliance approval, I hereby revoke Approval No(s). 5605-92MP24 issued on January 25, 2013

In accordance with Section 139 of the Environmental Protection Act, you may by written Notice served upon me and the Environmental Review Tribunal within 15 days after receipt of this Notice, require a hearing by the Tribunal. Section 142 of the Environmental Protection Act provides that the Notice requiring the hearing shall state:

1. The portions of the environmental compliance approval or each term or condition in the environmental compliance approval in respect of which the hearing is required, and;
2. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

Pursuant to subsection 139(3) of the Environmental Protection Act, a hearing may not be required with respect to any terms and conditions in this environmental compliance approval, if the terms and conditions are substantially the same as those contained in an approval that is amended or revoked by this environmental compliance approval.

The Notice should also include:

3. The name of the appellant;

4. The address of the appellant;
5. The environmental compliance approval number;
6. The date of the environmental compliance approval;
7. The name of the Director, and;
8. The municipality or municipalities within which the project is to be engaged in.

And the Notice should be signed and dated by the appellant.

This Notice must be served upon:

The Secretary*
Environmental Review Tribunal
655 Bay Street, Suite 1500
Toronto, Ontario
M5G 1E5

AND

The Director appointed for the
purposes of Part II.1 of the
Environmental Protection Act
Ministry of the Environment
2 St. Clair Avenue West, Floor
12A
Toronto, Ontario
M4V 1L5

*** Further information on the Environmental Review Tribunal 's requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 212-6349, Fax: (416) 314-4506 or www.ert.gov.on.ca**

The above noted activity is approved under s.20.3 of Part II.1 of the Environmental Protection Act.

DATED AT TORONTO this 2nd day of July, 2013

Sherif Hegazy, P.Eng.
Director
appointed for the purposes of Part II.1 of
the *Environmental Protection Act*

SS/
c: District Manager, MOE Guelph District Office
Daniel Barbisan, Pinchin Environmental Ltd.



CERTIFICATE OF APPROVAL

AIR

NUMBER 6460-8HFQK6

Issue Date: June 6, 2011

Domain Hospitality Corporation
110 Erb Street West
Waterloo, Ontario
N2L 1T5

Site Location: 110 Erb Street West
Waterloo City, Regional Municipality of Waterloo

You have applied in accordance with Section 9 of the Environmental Protection Act for approval of:

- two (2) natural gas-fired boilers, having a maximum combined thermal input of 2,111,000 kilojoules per hour;
- one (1) natural gas-fired make-up air unit, having a maximum combined thermal input of 2,111,000 kilojoules per hour;
- one (1) standby natural gas-fuelled generator set, having a rating of 150 kilowatts and a maximum overall sound pressure level of 66 dBA, when measured at a distance of 7 metres from the unit, to provide power for the hotel during emergency situations; and
- one (1) cooling tower,

all in accordance with the Application for Approval (Air & Noise) dated July 21, 2010 and signed by Jordan M. Teperman, Vice President, Domain Hospitality Corporation, and all supporting information associated with the application provided by Pollutech Environmental Limited, dated July 8, 2010, and signed by Olivera Obradovic.

For the purpose of this Certificate of Approval and the terms and conditions specified below, the following definitions apply:

- (1) "Act" means the *Environmental Protection Act*;
- (2) "Certificate" means this Certificate of Approval issued in accordance with Section 9 of the Act;
- (3) "Equipment" means the natural gas-fuelled generator set, combustion equipment and cooling tower described in the Owner's application, this Certificate and in the supporting documentation submitted with the application, to the extent approved by this Certificate;
- (4) "Generator Set" means the natural gas-fuelled generator set described in the Owner's application, this Certificate and in the supporting documentation submitted with the application, to the extent approved by this Certificate;
- (5) "Manual" means a document or a set of documents that provide written instructions to staff of the Owner;
- (6) "Ministry" means the Ontario Ministry of the Environment;
- (7) "Owner" means Domain Hospitality Corporation, and includes its successors and assignees;
- (8) "Publication NPC-205" means Ministry Publication NPC-205, Sound Level Limits for Stationary Sources in Class 1 & 2 Areas (Urban), October, 1995; and

(9) "Publication NPC-232" means Ministry Publication NPC-232, Sound Level Limits for Stationary Sources in Class 3 Areas (Rural), October, 1995.

You are hereby notified that this approval is issued to you subject to the terms and conditions outlined below:

TERMS AND CONDITIONS

GENERAL

1. Except as otherwise provided by these Conditions, the Owner shall design, build, install, operate and maintain the Equipment in accordance with the description given in this Certificate, application for approval of the Equipment and the submitted supporting documents and plans and specifications as listed in this Certificate.
2. Where there is a conflict between a provision of any submitted document referred to in this Certificate and the Conditions of this Certificate, the Conditions in this Certificate shall take precedence, and where there is a conflict between the listed submitted documents, the document bearing the most recent date shall prevail.

PERFORMANCE

3. The Owner shall ensure that the noise emissions from the Generator Set and cooling tower comply with the limits set out in Publication NPC-205 or NPC-232, as applicable.

OPERATION AND MAINTENANCE

4. The Owner shall restrict the periodic testing of the Generator Set to the daytime hours from 7:00 am to 7:00 pm.
5. The Owner shall ensure that the Generator Set is properly operated and maintained at all times. The Owner shall:
 - (1) prepare, not later than three (3) months after the date of this Certificate or the date of commissioning of the Generator Set, and update, as necessary, a Manual outlining the operating procedures and a maintenance program for the Generator Set, including:
 - (a) routine operating and maintenance procedures in accordance with good engineering practices and as recommended by the Generator Set suppliers;
 - (b) emergency procedures;
 - (c) procedures for any record keeping activities relating to operation and maintenance of the Generator Set;
 - (d) all appropriate measures to minimize noise and odorous emissions from all potential sources;
 - (2) implement the recommendations of the Manual; and
 - (3) retain, for a minimum of two (2) years from the date of their creation, all records on the maintenance, repair and inspection of the Generator Set, and make these records available for review by staff of the Ministry upon request.

The reasons for the imposition of these terms and conditions are as follows:

1. Condition Nos. 1 and 2 are imposed to ensure that the Equipment is built and operated in the manner in which it was described for review and upon which approval was granted. These conditions are also included to emphasize the precedence of Conditions in the Certificate and the practice that the Approval is based on the most current document, if several conflicting documents are submitted for review.
2. Condition No. 3 is included to provide the minimum performance requirement considered necessary to prevent an adverse effect resulting from the operation of the Generator Set and cooling tower.
3. Condition No. 4 is included to ensure that the proposed operation, excluding emergency situations, is not extended

beyond specific daytime hours to prevent an adverse effect resulting from the operation of the Generator Set.

4. Condition No. 5 is included to emphasize that the Generator Set must be maintained and operated according to a procedure that will result in compliance with the Act, the regulations and this Certificate. In addition the Owner is required to keep records and provide information to staff of the Ministry so that compliance with the Act, the regulations and this Certificate can be verified.

In accordance with Section 139 of the Environmental Protection Act, R.S.O. 1990, Chapter E-19, as amended, you may by written Notice served upon me, the Environmental Review Tribunal and in accordance with Section 47 of the Environmental Bill of Rights, S.O. 1993, Chapter 28, the Environmental Commissioner, within 15 days after receipt of this Notice, require a hearing by the Tribunal. The Environmental Commissioner will place notice of your appeal on the Environmental Registry. Section 142 of the Environmental Protection Act, provides that the Notice requiring the hearing shall state:

1. The portions of the approval or each term or condition in the approval in respect of which the hearing is required, and;
2. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

The Notice should also include:

3. The name of the appellant;
4. The address of the appellant;
5. The Certificate of Approval number;
6. The date of the Certificate of Approval;
7. The name of the Director;
8. The municipality within which the works are located;

And the Notice should be signed and dated by the appellant.

This Notice must be served upon:

The Secretary*
Environmental Review Tribunal
655 Bay Street, 15th Floor
Toronto, Ontario
M5G 1E5

AND

The Environmental Commissioner
1075 Bay Street, 6th Floor
Suite 605
Toronto, Ontario
M5S 2B1

AND

The Director
Section 9, *Environmental Protection Act*
Ministry of the Environment
2 St. Clair Avenue West, Floor 12A
Toronto, Ontario
M4V 1L5

*** Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 314-4600, Fax: (416) 314-4506 or www.ert.gov.on.ca**

This instrument is subject to Section 38 of the Environmental Bill of Rights, that allows residents of Ontario to seek leave to appeal the decision on this instrument. Residents of Ontario may seek leave to appeal within 15 days from the date this decision is placed on the Environmental Registry. By accessing the Environmental Registry at www.ene.gov.on.ca, you can determine when the leave to appeal period ends.

The above noted works are approved under Section 9 of the Environmental Protection Act.

DATED AT TORONTO this 6th day of June, 2011

Sherif Hegazy, P.Eng.
Director
Section 9, *Environmental Protection Act*

KB/
c: District Manager, MOE Guelph District Office

Olivera Obradovic, Pollutech Environmental Limited



Ministry
of the
Environment

Ministère
de
l'Environnement

AMENDED CERTIFICATE OF APPROVAL
AIR
NUMBER 4955-5HLPUA

Ontario

Grand River Health Services
operating as Kitchener-Waterloo Health Centre
835 King Street West
Kitchener, Ontario
N2G 1G3

Site Location: 835 King Street West
Kitchener City, Regional Municipality of Waterloo, Ontario

You have applied in accordance with Section 9 of the Environmental Protection Act for approval of:

- three (3) existing Miura natural gas or No. 2 fuel oil fired steam boilers, designated as B1, B2, and B3, each having a maximum heat input of 7,000,000 kilojoules per hour, discharging into the atmosphere through a common stack, as outlined in Schedule "A";
- one (1) existing Volcano natural gas or No. 2 fuel oil fired hot water boiler, designated as B4, having a maximum heat input of 7,100,000 kilojoules per hour, discharging into the atmosphere through a stack, as outlined in Schedule "A";
- one (1) existing Volcano natural gas or No. 2 fuel oil fired hot water boiler, designated as B5, having a maximum heat input of 10,600,000 kilojoules per hour, discharging into the atmosphere through a stack, as outlined in Schedule "A";
- one (1) new Volcano natural gas or No. 2 fuel oil fired hot water boiler, designated as B6, having a maximum heat input of 7,100,000 kilojoules per hour, discharging into the atmosphere through a stack, as outlined in Schedule "A";
- one (1) existing Evapco AT 12-136B cooling tower, designated as C1, equipped with two cooling fans, having a maximum water flow rate of 190 litres per second, each fan exhausting into the atmosphere as outlined in Schedule "A";
- one (1) existing Evapco AT 112-218 cooling tower, designated as C2, equipped with one cooling fan, having a maximum water flow rate of 190 litres per second, exhausting into the atmosphere as outlined in Schedule "A";
- one (1) new Evapco AT 112-218 cooling tower, designated as C3, equipped with one cooling fan, having a maximum water flow rate of 190 litres per second, exhausting into the atmosphere as outlined in Schedule "A";
- one (1) 5.0 metres high, two sided acoustic barrier, located at the south west corner of the cooling tower building, extending from the existing power house building to the south west corner of the cooling tower building and to a point 4 metres north from the south west corner of the cooling tower building, identified in correspondence from Walter Fedy Partnership dated August 10, 1999. The barrier must be continuous without holes, gaps and other penetrations, and having surface mass at least 20 kilograms per square metre;
- one (1) Caterpillar standby diesel generator set, designated as D1, having a rating of 600 kilowatts, to provide power during emergency situations, exhausting into the atmosphere through a stack, as outlined in Schedule "A";
- two (2) inline mufflers for the engine combustion exhaust of the generator set designated as D1, respectively capable of providing the following values of Insertion-Loss in 1/1 octave frequency bands:

Centre Frequency (Hertz)	63	125	250	500	1000	2000	4000	8000
Insertion-Loss (decibel)	16	30	38	35	30	28	28	30

and,

Insertion-Loss (decibel)	6	12	20	28	38	34	30	20
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- two (2) Mitsubishi standby diesel generator sets, designated as D2 and D3, each having a rating of 600 kilowatts, to provide power during emergency situations, each exhausting into the atmosphere through two separate stacks, as outlined in Schedule "A";

- two (2) mufflers, one for each engine combustion exhaust of the generators designated as D2 and D3, capable of providing the following values of Insertion-Loss in 1/1 octave frequency bands:

Centre Frequency (Hertz)	63	125	250	500	1000	2000	4000	8000
Insertion-Loss (decibel)	7	23	29	30	28	22	21	19

- one (1) exhaust system serving the left side room in the Histology Department, designated as L1, complete with a fume hood, ductwork and a fan, discharging into the atmosphere through a louvred opening in the side wall, as outlined in Schedule "A";

- one (1) exhaust system serving the left rear room in the Histology Department, designated as L2, complete with a fume hood, ductwork and a fan, discharging into the atmosphere through a louvred opening in the side wall, as outlined in Schedule "A";

- one (1) exhaust system serving the Central Processing Laboratory (Core Lab), designated as L3, complete with a fume hood, ductwork and a fan, discharging into the atmosphere through a louvred opening in the wall, as outlined in Schedule "A";

- one (1) exhaust system serving the Chemotherapy Medication Preparation Room of the Main Pharmacy, designated as L4, complete with a fume hood, ductwork and a fan, discharging into the atmosphere through a stack, as outlined in Schedule "A";

- one (1) exhaust system serving the Frozen Specimen Laboratory, designated as L5, complete with a fume hood, ductwork and a fan, discharging into the atmosphere through a louvred opening in the wall, as outlined in Schedule "A";

- one (1) exhaust system serving the Medical Imaging Darkroom, designated as L6, complete with a fume hood, ductwork and a fan, discharging into the atmosphere through a louvred opening in the wall, as outlined in Schedule "A";

- one (1) exhaust system serving the Endoscopy Suite, designated as L7, complete with a fume hood, ductwork and a fan, discharging into the atmosphere through a louvred opening in the wall, as outlined in Schedule "A"; and

- three (3) exhaust systems serving the Pharmacy and Rooms J 433B and J 433C in the Cancer Centre Building, designated as L8, L9 and L10, complete with fume hoods, ductwork and fans, discharging into the atmosphere through a common stack, as outlined in Schedule "A";

all in accordance with the Application for a Certificate of Approval (Air) dated August 15, 2002 and signed by Richard Dixon, Director Facilities Development, and all supporting information associated with the application including two letters with drawings regarding the diesel generating-sets installation and noise control equipment details, submitted by The Walter Fedy Partnership, dated January 23 and February 4, 2003 and signed by D. Stephen Nash and additional information provided by C.H. Beek, P.Eng., Environmental Training and Consulting on behalf of Grand River Health Services operating as Kitchener-Waterloo Health Centre and received on January 23, 2003; the Application for a Certificate of Approval (Air) for two new replacement cooling towers dated May 5, 1999 and signed by Roy Ferrier, Manager of Environmental Services; the Application for a Certificate of Approval (Air) for Combustion Equipment signed by R. Noble and received by the Ministry June 13, 1991; drawing labelled "Kitchener-Waterloo Hospital Roof Plan", prepared by JTD Engineering, drawn May 1, 1991; correspondence from A. Yip, Rose Technology Group Limited, to Y. Hall of the Ministry, dated February 18, 1992; telephone conversation between A. Yip, Rose Technology Group Limited, to Y. Hall of the Ministry, on February 24, 1992; and Application for a Certificate of Approval (Air), and attachments submitted by Thermal Energy International Inc., on behalf of the Kitchener-Waterloo Hospital, signed by M.F. Bendik and dated June 17, 1992.

SCHEDULE "A"

CONTENT COPY OF ORIGINAL

Source Identifier	Description	Exhaust Conditions		Stack Parameters		
		Volumetric Flow Rate (cubic metres per second)	Temperature (degrees Celsius)	Exit Diameter/ Dimension (metre)	Height Above Roof (metres)	Height Above Grade (metres)
Heating Equipment						
B1	Miura Steam Boiler	0.855	95	0.61	1.83	11.14
B2	Miura Steam Boiler	0.855	95			
B3	Miura Steam Boiler	0.855	95			
B4	Volcano Hot Water Boiler	0.867	185	0.61	1.83	11.14
B5	Volcano Hot Water Boiler	1.295	190			
B6	Volcano Hot Water Boiler	0.867	185	0.51	3.33	12.64
Cooling Towers						
C1	Evapco Cooling Tower	-	-	-	-	9.77
C2	Evapco Cooling Tower	-	-	-	-	9.77
C3	Evapco Cooling Tower	-	-	-	-	9.77
Standby Diesel Generator Sets						
DE1	Caterpillar Diesel Engine (600 kW)	2.35	485	0.30	4.88	11.38
DE2	Mitsubishi Diesel Engine (600 kW)	2.32	520	0.25	1.83	6.55
DE3	Mitsubishi Diesel Engine (600 kW)	2.32	520	0.25	1.83	6.55
Laboratory Fume Hoods						
L1	Histology Department Left Side Room Fume Hood	0.378	ambient	0.25 x 0.28	-	6.39
L2	Histology Department Left Rear Room Fume Hood	0.378	ambient	0.25 x 0.28	-	29.60
L3	Central Processing Laboratory Fume Hood	0.236	ambient	0.2	-	29.60
L4	Pharmacy Fume Hood	0.260	ambient	0.3	1.22	7.23
L5	Frozen Specimen Laboratory Fume Hood	0.236	ambient	0.2	-	33.25
L6	Medical Imaging Darkroom Fume Hood	0.236	ambient	0.2	-	2.90
L7	Endoscopy Suite Fume Hood	0.378	ambient	0.2	-	2.89
L8	Cancer Centre Fume Hoods (3)	0.283	ambient	0.5	0.91	21.82
L9		0.283	ambient			
L10		0.283	ambient			

For the purpose of this Certificate of Approval and the terms and conditions specified below, the following definitions apply:

- (i) "Act" means the Environmental Protection Act;
- (ii) "Certificate" means this Certificate of Approval issued in accordance with Section 9 of the Act;
- (iii) "Company" means the Grand River Health Services operating as Kitchener-Waterloo Health Centre;

(iv) "Equipment" means the six boilers, three cooling towers, three standby generator sets, and ten fume hoods, described in the Company's application, this Certificate and in the supporting documentation submitted with the application, to the extent approved by this Certificate;

(v) "Manual" means a document or a set of documents that provide written instructions to staff of the Company;

(vi) "Ministry" means the Ontario Ministry of the Environment; and

(vii) "Publication NPC-205" means Ministry Publication NPC-205, Sound Level Limits for Stationary Sources in Class 1 & 2 Areas (Urban), October, 1995.

You are hereby notified that this approval is issued to you subject to the terms and conditions outlined below:

TERMS AND CONDITIONS

PERFORMANCE

1. The Company shall ensure that the noise emissions from the Equipment comply with the limits set out in Publication NPC-205.

OPERATION AND MAINTENANCE

2. The Company shall ensure that only one (1) of the three (3) standby diesel generator sets approved under this Certificate is periodically tested at any one time.

3. The Company shall ensure that the doorways of the engine room remain completely closed during the operation of the generator-set.

4. The Company shall restrict the periodic testing of the standby generator sets to the daytime hours from 7:00 am to 7:00 pm.

5. The Company shall ensure that the Equipment is properly operated and maintained at all times. The Company shall:

(1) prepare, not later than three (3) months after the date of this Certificate, and update, as necessary, a Manual outlining the operating procedures and a maintenance program for the Equipment, including:

(a) routine operating and maintenance procedures in accordance with good engineering practices and as recommended by the Equipment suppliers;

(b) emergency procedures;

(c) procedures for any record keeping activities relating to operation and maintenance of the Equipment;

(d) all appropriate measures to minimize noise and odorous emissions from all potential sources, including spill clean-up procedures;

(2) implement the recommendations of the Manual; and

(3) retain, for a minimum of two (2) years from the date of their creation, all records on the maintenance, repair and inspection of the Equipment, including records of any spills, complete with the date, name and amount of substance spilled and action taken to clean-up the spill, and make these records available for review by staff of the Ministry upon request.

The reasons for the imposition of these terms and conditions are as follows:

1. Condition No. 1 and 3 is included to provide the minimum performance requirement considered necessary to prevent an

adverse effect resulting from the operation of the Equipment.

2. Condition No. 2 is included to ensure that the nitrogen oxide emissions will not result in an adverse effect at a sensitive receptor.

3. Condition No. 4 is included to ensure that the proposed operation, excluding emergency situations, is not extended beyond specific daytime hours to prevent an adverse effect resulting from the operation of the Equipment.

4. Condition No. 5 is included to emphasize that the Equipment must be maintained and operated according to a procedure that will result in compliance with the Act, the regulations and this Certificate. In addition the Company is required to keep records and provide information to staff of the Ministry so that compliance with the Act, the regulations and this Certificate can be verified.

This Certificate of Approval revokes and replaces Certificate(s) of Approval No. 8-2112-91-008 issued on November 2, 2000.

In accordance with Section 139 of the Environmental Protection Act, R.S.O. 1990, Chapter E-19, as amended, you may by written Notice served upon me, the Environmental Review Tribunal and in accordance with Section 47 of the Environmental Bill of Rights, S.O. 1993, Chapter 28, the Environmental Commissioner, within 15 days after receipt of this Notice, require a hearing by the Tribunal. The Environmental Commissioner will place notice of your appeal on the Environmental Registry. Section 142 of the Environmental Protection Act, provides that the Notice requiring the hearing shall state:

1. The portions of the approval or each term or condition in the approval in respect of which the hearing is required, and;
2. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

The Notice should also include:

3. The name of the appellant;
4. The address of the appellant;
5. The Certificate of Approval number;
6. The date of the Certificate of Approval;
7. The name of the Director;
8. The municipality within which the works are located;

And the Notice should be signed and dated by the appellant.

This Notice must be served upon:

The Secretary*
Environmental Review Tribunal
2300 Yonge St., 12th Floor
P.O. Box 2382
Toronto, Ontario
M4P 1E4

AND

The Environmental Commissioner
1075 Bay Street, 6th Floor
Suite 605
Toronto, Ontario
M5S 2B1

AND

The Director
Section 9, *Environmental Protection Act*
Ministry of Environment and Energy
2 St. Clair Avenue West, Floor 12A
Toronto, Ontario
M4V 1L5

*** Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 314-4600, Fax: (416) 314-4506 or www.ert.gov.on.ca**

This instrument is subject to Section 38 of the Environmental Bill of Rights, that allows residents of Ontario to seek leave to appeal the decision on this instrument. Residents of Ontario may seek leave to appeal within 15 days from the date this decision is placed on the Environmental Registry. By accessing the Environmental Registry at www.ene.gov.on.ca, you can determine when the leave to appeal period ends.

The above noted works are approved under Section 9 of the Environmental Protection Act.

CONTENT COPY OF ORIGINAL

DATED AT TORONTO this 26th day of February, 2003

Neil Parrish, P.Eng.
Director
Section 9, *Environmental Protection Act*

CL/

c: District Manager, MOE Guelph

C.H. Beek, Environmental Training and Consulting



Ministry
of the
Environment

Ministère
de
l'Environnement

CERTIFICATE OF APPROVAL
AIR
NUMBER 5501-6V5P5S
Issue Date: November 29, 2006

The Corporation of the City of Waterloo
P.O. Box 337, 100 Regina Street South
Waterloo, Ontario
N2J 4A8

Site Location: Waterloo City Centre Building
100 Regina Street South
City of Waterloo, Regional Municipality of Waterloo, Ontario
N2J 4A8

You have applied in accordance with Section 9 of the Environmental Protection Act for approval of:

- one (1) standby diesel generator set, having a rating of 600 kilowatts, to provide power for the Waterloo City Centre Building during emergency situations;

all in accordance with the Application for Approval (Air & Noise) dated June 6, 2006 and signed by James Walsh, Property Management Consultant, The Corporation of the City of Waterloo, and all supporting information associated with the application including information provided by RWDI AIR Inc., dated June 6, 2006, and signed by Greg Conley, M.Eng., P.Eng.

For the purpose of this Certificate of Approval and the terms and conditions specified below, the following definitions apply:

- (1) "Act" means the *Environmental Protection Act*;
- (2) "Certificate" means this Certificate of Approval issued in accordance with Section 9 of the Act;
- (3) "Equipment" means the diesel generator set described in the Owner's application, this Certificate and in the supporting documentation submitted with the application, to the extent approved by this Certificate;
- (4) "Manual" means a document or a set of documents that provide written instructions to staff of the Owner;
- (5) "Ministry" means the Ontario Ministry of the Environment;
- (6) "Owner" means The Corporation of the City of Waterloo, and includes its successors and assignees;
- (7) "Publication NPC-205" means Ministry Publication NPC-205, Sound Level Limits for Stationary Sources in Class 1 & 2 Areas (Urban), October, 1995.

You are hereby notified that this approval is issued to you subject to the terms and conditions outlined below:

TERMS AND CONDITIONS

GENERAL

1. Except as otherwise provided by these Conditions, the Owner shall design, build, install, operate and maintain the Equipment in accordance with the description given in this Certificate, application for approval of the Equipment and the submitted supporting documents and plans and specifications as listed in this Certificate.
2. Where there is a conflict between a provision of any submitted document referred to in this Certificate and the

Conditions of this Certificate, the Conditions in this Certificate shall take precedence, and where there is a conflict between the listed submitted documents, the document bearing the most recent date shall prevail.

PERFORMANCE

3. The Owner shall ensure that the noise emissions from the Equipment comply with the limits set out in Publication NPC-205.

OPERATION AND MAINTENANCE

4. The Owner shall restrict the periodic testing of the Equipment to the daytime hours from 7:00 am to 7:00 pm.

5. The Owner shall ensure that the Equipment is properly operated and maintained at all times. The Owner shall:

(1) prepare, not later than three (3) months after the date of this Certificate or the date of commissioning of the Equipment, and update, as necessary, a Manual outlining the operating procedures and a maintenance program for the Equipment, including:

(a) routine operating and maintenance procedures in accordance with good engineering practices and as recommended by the Equipment suppliers;

(b) emergency procedures;

(c) procedures for any record keeping activities relating to operation and maintenance of the Equipment;

(d) all appropriate measures to minimize noise and odorous emissions from all potential sources;

(2) implement the recommendations of the Manual; and

(3) retain, for a minimum of two (2) years from the date of their creation, all records on the maintenance, repair and inspection of the Equipment, and make these records available for review by staff of the Ministry upon request.

The reasons for the imposition of these terms and conditions are as follows:

1. Condition Nos. 1 and 2 are imposed to ensure that the Equipment is built and operated in the manner in which it was described for review and upon which approval was granted. These conditions are also included to emphasize the precedence of Conditions in the Certificate and the practice that the Approval is based on the most current document, if several conflicting documents are submitted for review.

2. Condition No. 3 is included to provide the minimum performance requirement considered necessary to prevent an adverse effect resulting from the operation of the Equipment.

3. Condition No. 4 is included to ensure that the proposed operation, excluding emergency situations, is not extended beyond specific daytime hours to prevent an adverse effect resulting from the operation of the Equipment.

4. Condition No. 5 is included to emphasize that the Equipment must be maintained and operated according to a procedure that will result in compliance with the Act, the regulations and this Certificate. In addition the Owner is required to keep records and provide information to staff of the Ministry so that compliance with the Act, the regulations and this Certificate can be verified.

In accordance with Section 139 of the Environmental Protection Act, R.S.O. 1990, Chapter E-19, as amended, you may by written notice served upon me and the Environmental Review Tribunal within 15 days after receipt of this Notice, require a hearing by the Tribunal. Section 142 of the Environmental Protection Act, provides that the Notice requiring the hearing shall state:

CONTENT COPY OF ORIGINAL

1. The portions of the approval or each term or condition in the approval in respect of which the hearing is required, and;
2. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

The Notice should also include:

3. The name of the appellant;
4. The address of the appellant;
5. The Certificate of Approval number;
6. The date of the Certificate of Approval;
7. The name of the Director;
8. The municipality within which the works are located;

And the Notice should be signed and dated by the appellant.

This Notice must be served upon:

The Secretary*
Environmental Review Tribunal
2300 Yonge St., Suite 1700
P.O. Box 2382
Toronto, Ontario
M4P 1E4

AND

The Director
Section 9, *Environmental Protection Act*
Ministry of the Environment
2 St. Clair Avenue West, Floor 12A
Toronto, Ontario
M4V 1L5

*** Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal at:
Tel: (416) 314-4600, Fax: (416) 314-4506 or www.ert.gov.on.ca**

The above noted works are approved under Section 9 of the Environmental Protection Act.

DATED AT TORONTO this 29th day of November, 2006

Sarah Paul, P.Eng.
Director
Section 9, *Environmental Protection Act*

AM/
c: District Manager, MOE Guelph District Office
Greg Conley, RWDI AIR Inc.


CERTIFICATE OF APPROVAL
AIR

NUMBER 9025-8JRL6Z

Issue Date: July 14, 2011

The Centre for International Governance Innovation
 67 Erb Street West
 Waterloo, Ontario
 N2L 6C2

Site Location: 67 Erb Street West
 City of Waterloo, Regional Municipality of Waterloo

You have applied in accordance with Section 9 of the Environmental Protection Act for approval of:

- two (2) natural gas fired boilers, and four (4) natural gas fired humidifiers, having a maximum combined thermal input of 4,114,718 kilojoules per hour;
- one (1) standby diesel generator set, having a rating of 300 kilowatts, to provide power during emergency situations, and;
- one (1) cooling tower;

all in accordance with the application for a Certificate of Approval (Air) submitted by The Centre for International Governance Innovation, dated December 23, 2010, and signed by Neve Peric, Vice-President of Operations; and the supporting information, including the Emission Summary and Dispersion Modelling Report, submitted by Pollutech Environmental Limited, dated November 30, 2010 and signed by Greg Fullarton; and the updated Emission Summary Table and information submitted by Pollutech Environmental Limited, dated November 30, 2010 and prepared by Greg Fullarton.

For the purpose of this Certificate of Approval and the terms and conditions specified below, the following definitions apply:

1. "Act" means the *Environmental Protection Act*;
2. "Certificate" means this Certificate of Approval issued in accordance with Section 9 of the Act;
3. "Equipment" means the diesel generator set, natural gas fired combustion equipment, and cooling tower described in the Owner's application(s), this Certificate and in the supporting documentation submitted with the application, to the extent approved by this Certificate;
4. "Generator Set" means the diesel generator set described in the Owner's application(s), this Certificate and in the supporting documentation submitted with the application(s), to the extent approved by this Certificate;
5. "Manual" means a document or a set of documents that provide written instructions to staff of the Owner;
6. "Ministry" means the Ontario Ministry of the Environment;
7. "Owner" means The Centre for International Governance Innovation, and includes its successors and assignees;
8. "Publication NPC-205" means Ministry Publication NPC-205, Sound Level Limits for Stationary Sources in Class 1 & 2 Areas (Urban), October, 1995; and
9. "Publication NPC-232" means Ministry Publication NPC-232, Sound Level Limits for Stationary Sources in Class 3

Areas (Rural), October, 1995.

You are hereby notified that this approval is issued to you subject to the terms and conditions outlined below:

TERMS AND CONDITIONS

GENERAL

1. Except as otherwise provided by these Conditions, the Owner shall design, build, install, operate and maintain the Equipment in accordance with the description given in this Certificate, application for approval of the Equipment and the submitted supporting documents and plans and specifications as listed in this Certificate.
2. Where there is a conflict between a provision of any submitted document referred to in this Certificate and the Conditions of this Certificate, the Conditions in this Certificate shall take precedence, and where there is a conflict between the listed submitted documents, the document bearing the most recent date shall prevail.

PERFORMANCE

3. The Owner shall ensure that the noise emissions from the Generator Set and cooling tower comply with the limits set out in Publication NPC-205 or NPC-232, as applicable.

OPERATION AND MAINTENANCE

4. The Owner shall restrict the periodic testing of the Generator Set to the daytime hours from 7:00 am to 7:00 pm.
5. The Owner shall ensure that the Generator Set is properly operated and maintained at all times. The Owner shall:
 - (1) prepare, not later than three (3) months after the date of this Certificate or the date of commissioning of the Generator Set, and update, as necessary, a Manual outlining the operating procedures and a maintenance program for the Generator Set, including:
 - (a) routine operating and maintenance procedures in accordance with good engineering practices and as recommended by the Generator Set suppliers;
 - (b) emergency procedures;
 - (c) procedures for any record keeping activities relating to operation and maintenance of the Generator Set;
 - (d) all appropriate measures to minimize noise and odorous emissions from all potential sources;
 - (2) implement the recommendations of the Manual; and
 - (3) retain, for a minimum of two (2) years from the date of their creation, all records on the maintenance, repair and inspection of the Generator Set, and make these records available for review by staff of the Ministry upon request.

The reasons for the imposition of these terms and conditions are as follows:

1. Condition Nos. 1 and 2 are imposed to ensure that the Equipment is built and operated in the manner in which it was described for review and upon which approval was granted. These conditions are also included to emphasize the precedence of Conditions in the Certificate and the practice that the Approval is based on the most current document, if several conflicting documents are submitted for review.
2. Condition No. 3 is included to provide the minimum performance requirement considered necessary to prevent an adverse effect resulting from the operation of the Generator Set and cooling tower.
3. Condition No. 4 is included to ensure that the proposed operation, excluding emergency situations, is not extended beyond specific daytime hours to prevent an adverse effect resulting from the operation of the Generator Set.

4. Condition No. 5 is included to emphasize that the Generator Set must be maintained and operated according to a procedure that will result in compliance with the Act, the regulations and this Certificate. In addition the Owner is required to keep records and provide information to staff of the Ministry so that compliance with the Act, the regulations and this Certificate can be verified.

In accordance with Section 139 of the Environmental Protection Act, R.S.O. 1990, Chapter E-19, as amended, you may by written Notice served upon me, the Environmental Review Tribunal and in accordance with Section 47 of the Environmental Bill of Rights, S.O. 1993, Chapter 28, the Environmental Commissioner, within 15 days after receipt of this Notice, require a hearing by the Tribunal. The Environmental Commissioner will place notice of your appeal on the Environmental Registry. Section 142 of the Environmental Protection Act, provides that the Notice requiring the hearing shall state:

1. The portions of the approval or each term or condition in the approval in respect of which the hearing is required, and;
2. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

The Notice should also include:

3. The name of the appellant;
4. The address of the appellant;
5. The Certificate of Approval number;
6. The date of the Certificate of Approval;
7. The name of the Director;
8. The municipality within which the works are located;

And the Notice should be signed and dated by the appellant.

This Notice must be served upon:

The Secretary*
Environmental Review Tribunal
655 Bay Street, 15th Floor
Toronto, Ontario
M5G 1E5

AND

The Environmental Commissioner
1075 Bay Street, 6th Floor
Suite 605
Toronto, Ontario
M5S 2B1

AND

The Director
Section 9, *Environmental Protection Act*
Ministry of the Environment
2 St. Clair Avenue West, Floor 12A
Toronto, Ontario
M4V 1L5

*** Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 314-4600, Fax: (416) 314-4506 or www.ert.gov.on.ca**

This instrument is subject to Section 38 of the Environmental Bill of Rights, that allows residents of Ontario to seek leave to appeal the decision on this instrument. Residents of Ontario may seek leave to appeal within 15 days from the date this decision is placed on the Environmental Registry. By accessing the Environmental Registry at www.ene.gov.on.ca, you can determine when the leave to appeal period ends.

The above noted works are approved under Section 9 of the Environmental Protection Act.

DATED AT TORONTO this 14th day of July, 2011

Sherif Hegazy, P.Eng.
Director
Section 9, *Environmental Protection Act*

JO/
c: District Manager, MOE Guelph District Office.
Greg Fullarton, Pollutech Environmental Ltd.



Ministry
of the
Environment

Ministère
de
l'Environnement

Ontario

AMENDED CERTIFICATE OF APPROVAL
AIR
NUMBER 1205-6JCQHD
Issue Date: November 29, 2005

Grand River Health Services
835 King Street West
Kitchener, Ontario
N2G 1G3

Site Location: 835 King Street West
Kitchener City, Regional Municipality of Waterloo, Ontario

You have applied in accordance with Section 9 of the Environmental Protection Act for approval of:

- one (1) in-situ bioremediation process to treat soil contaminated with petroleum hydrocarbons by the injection of nutrient enhanced water into the impacted soil,

- one (1) in-situ remediation process to treat soil contaminated with petroleum hydrocarbons, including a soil vapour extraction system consisting of an underground vapour collection piping system and a vacuum pump and a vapour control system consisting of two (2) granular activated carbon (GAC) units, connected in series, each containing approximately 450 kilograms of activated carbon, exhausting into the atmosphere at a volumetric flow rate of 0.047 cubic metre per second through a stack, having an exit diameter of 0.1 metre, extending 1.23 metres above the roof and 8.24 metres above grade,

all in accordance with the Application for Approval (Air) dated February 22, 2005 and signed by Stewart Boecker, Vice President and C.F.O., and all supporting documentation and information associated with the application including additional information provided by Carol L. Mitchell, P. Eng., Naylor Engineering Associates Ltd. on May 31, 2005.

For the purpose of this Certificate of Approval and the terms and conditions specified below, the following definitions apply:

(1) "Act" means the *Environmental Protection Act*.

(2) "Certificate" means this Certificate of Approval issued in accordance with Section 9 of the Act.

(3) "Company" means Grand River Health Services

(4) "District Manager" means the District Manager, Guelph District Office, West Central Region of the Ministry.

(5) "Equipment" means the GAC units as described in the Company's application, this Certificate and in the supporting documentation submitted with the application, to the extent approved by this Certificate.

(6) "Exhausted/Exhaustion" means the capacity of the Equipment to adsorb emissions is reached and the Equipment is no longer able to effectively reduce emissions.

(7) "Guideline" means the Ministry publication "Guideline for Use at Contaminated Sites in Ontario" dated February 1997, as amended.

(8) "Ministry" means Ontario Ministry of the Environment.

(9) "Process" means the bioremediation process and the remediation process as described in the Company's application, this Certificate and in the supporting documentation submitted with the application, to the extent approved by this Certificate.

(10) "Remedial Work Plan" means the overall plan that contains as a minimum the remedial objectives, an overview of the extent of contamination at the site and closure conditions to remove the Process from the site.

(11) "Supporting Documents" means the Ministry publications that accompany the Guideline including "Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario" dated May 1996, as amended.

(12) "Target Compounds" means the petroleum hydrocarbons that the Process is designed to treat as part of the Remedial Work Plan.

You are hereby notified that this approval is issued to you subject to the terms and conditions outlined below:

TERMS AND CONDITIONS

Performance Requirements

1. The Company shall, at all times, design and operate the Process so that no Target Compounds or their decomposition compounds are permitted to migrate off the site, in soil vapour, at concentrations greater than the appropriate criteria provided in the Guideline, appropriate worker health and safety criteria or site specific criteria developed in accordance with the Supporting Documents.
2. The company shall, before commencement of operation of the Process, prepare a Remedial Work Plan for the site.

Operating Procedures and Maintenance Manual

3. The Company shall prepare, before commencement of operation of the Process, and implement an operating procedures and maintenance manual for the Process and the Equipment. The manual shall specify, as a minimum:
 - (a) frequency of inspections and scheduled preventative maintenance;
 - (b) procedures to test the Exhaustion of the Equipment and replace it before it is Exhausted;
 - (c) procedures to record the amount of nutrient enhanced water each time material is injected by the Process;
 - (d) procedures to prevent any upset conditions and contingency measures to address any off-site migration of contamination;
 - (e) procedures to prevent and/or minimize any odorous emissions;
 - (f) procedures to record and respond to any environmental complaints.
4. The Company shall ensure that the Equipment is not Exhausted when it is in operation.

Monitoring Plan

5. The Company shall design, before commencement of operation of the Process, and implement a Monitoring Plan, in accordance with the Supporting Documents, for the soil vapour at the site to document that the Target Compounds and their decomposition compounds are not migrating off the site, the Performance Requirements outlined above are not exceeded and that the Remedial Work Plan objectives are met. The Monitoring Plan shall specify, as a minimum:
 - (a) Monitoring Plan objectives;
 - (b) list of analytical parameters;

- (c) monitoring locations and frequency;
- (d) sampling methodology and QA/QC procedures;
- (e) Remedial Work Plan objectives.

Notification Requirements

6. The Company shall notify the District Manager in writing, if the Process is not operated in accordance with the Performance Requirements or the Operating Procedures and Maintenance Manual or the Monitoring Plan outlined above.

Record Keeping Requirements

7. The Company shall retain, for a minimum of two (2) years from the date of their creation, all reports, records and information described in this Certificate, related to or resulting from the operation of the Process and the Equipment, and shall include, but is not limited to:

- (a) the Remedial Work Plan;
- (b) records on the inspection and maintenance of the Equipment;
- (c) records on the type, frequency and quantity of nutrient enhanced water used in the Process;
- (d) all monitoring results, including the verification sampling to demonstrate that the Remedial Work Plan objectives and the Monitoring Plan objectives are met;
- (e) records on the environmental complaints; including:
 - (1) a description, time and date of the incident,
 - (2) wind direction at the time of the incident,
 - (3) a description of the measure taken to address the cause of the incident.

These records shall be made available, upon request, to Ministry personnel, or Ministry authorized representative(s), upon presentation of credentials.

The reasons for the imposition of these terms and conditions are as follows:

1. Conditions 1 and 2 are included to outline the minimum performance requirements considered necessary to prevent an adverse effect resulting from the operation of the Process.
2. Conditions 3 and 4 are included to emphasize that the Process and the Equipment must be operated according to a procedure that will result in compliance with the Act, the regulations and this Certificate.
3. Condition 5 is included to require the Company to gather accurate information so that the environmental impact and subsequent compliance with the Act, the regulations and this Certificate can be verified.
4. Condition 6 is included to require the Company to notify the Ministry so that the environmental impact and subsequent compliance with the Act, the regulations and this Certificate can be verified.
5. Condition 7 is included to require the Company to retain records and provide information to the Ministry so that the environmental impact and subsequent compliance with the Act, the regulations and this Certificate can be verified.

This Certificate of Approval revokes and replaces Certificate(s) of Approval No. 5753-5TXMVP issued on December 8, 2003

In accordance with Section 139 of the Environmental Protection Act, R.S.O. 1990, Chapter E-19, as amended, you may by written notice served upon me and the Environmental Review Tribunal within 15 days after receipt of this Notice, require a hearing by the Tribunal. Section 142 of the Environmental Protection Act, provides that the Notice requiring the hearing shall state:

1. The portions of the approval or each term or condition in the approval in respect of which the hearing is required, and;
2. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

The Notice should also include:

3. The name of the appellant;
4. The address of the appellant;
5. The Certificate of Approval number;
6. The date of the Certificate of Approval;
7. The name of the Director;
8. The municipality within which the works are located;

And the Notice should be signed and dated by the appellant.

This Notice must be served upon:

The Secretary*
Environmental Review Tribunal
2300 Yonge St., 12th Floor
P.O. Box 2382
Toronto, Ontario
M4P 1E4

AND

The Director
Section 9, *Environmental Protection Act*
Ministry of Environment and Energy
2 St. Clair Avenue West, Floor 12A
Toronto, Ontario
M4V 1L5

*** Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 314-4600, Fax: (416) 314-4506 or www.ert.gov.on.ca**

The above noted works are approved under Section 9 of the Environmental Protection Act.

DATED AT TORONTO this 29th day of November, 2005

Aziz Ahmed, P.Eng.
Director
Section 9, *Environmental Protection Act*

JD/
c: District Manager, MOE Guelph District Office
Carol L. Mitchell, P.Eng., Naylor Engineering Associates Ltd.



AMENDED ENVIRONMENTAL COMPLIANCE APPROVAL

NUMBER 9446-A6CJZ6

Issue Date: January 25, 2016

Sun Life Assurance Company of Canada
227 King Street South
Waterloo, Ontario
N2A 4J5

Site Location: 227 King Street South
Waterloo City, Regional Municipality Of Waterloo, Ontario

You have applied under section 20.2 of Part II.1 of the Environmental Protection Act, R.S.O. 1990, c. E. 19 (Environmental Protection Act) for approval of:

- two (2) standby diesel generator sets, each having a rating of 1,800 kilowatts, to provide power for the facility during emergency situations;

all in accordance with the Environmental Compliance Approval dated April 15, 2015 and signed by Jason Rauchfleisz, Manager, Critical Facilities, and all supporting information associated with the application including the Emission Summary and Dispersion Modelling Report prepared by BluMetric Environmental Inc., dated April 8, 2015, and signed by Gayle Giesbrecht, P.Eng.

For the purpose of this environmental compliance approval, the following definitions apply:

1. "Acoustic Assessment Report" means the report, prepared in accordance with Publication NPC-233 submitted in support of the application, that documents all sources of noise emissions and Noise Mitigation Measures present at the Facility. "Acoustic Assessment Report" also means the Acoustic Assessment Report dated April 7, 2015, prepared by Allan Munro of Aercoustics Engineering;
2. "Approval" means this Environmental Compliance Approval, including the application and supporting documentation listed above;
3. "Company" means Sun Life Assurance Company of Canada that is responsible for the construction or operation of the Facility and includes any successors and assigns;
4. "District Manager" means the District Manager of the appropriate local district office of the Ministry, where the Facility is geographically located;
5. "EPA" means the Environmental Protection Act, R.S.O. 1990, c.E.19, as amended;
6. "Equipment" means equipment described in the Company's application, this Approval and in the supporting documentation submitted with the application, to the extent approved by this Approval;
7. "Facility" means the entire operation located on the property where the Equipment is located;
8. "Manual" means a document or set of documents that provide written instructions to staff of the Company;

9. "Ministry" means the ministry of the government of Ontario responsible for the EPA and includes all officials, employees or other persons acting on its behalf;

10. "Noise Mitigation Measures" means measures to reduce the noise emission from the Facility and/or Equipment specified in Section 6 of the Acoustic Assessment Report, but not limited to, silencers, acoustic louvres, enclosures, absorptive treatment, plenums and barriers;

11. "Publication NPC-233" means the Ministry Publication NPC-233, "Information to be Submitted for Approval of Stationary Sources of Sound", October, 1995 as amended; and

12. "Publication NPC-300" means the Ministry Publication NPC-300, "Environmental Noise Guideline, Stationary and Transportation Sources – Approval and Planning, Publication NPC-300", August 2013, as amended.

You are hereby notified that this environmental compliance approval is issued to you subject to the terms and conditions outlined below:

TERMS AND CONDITIONS

GENERAL

1. Except as otherwise provided by these Conditions, the Company shall design, build, install, operate and maintain the Equipment in accordance with the description given in this Approval, application for approval of the Equipment and the submitted supporting documents and plans and specifications as listed in this Approval.

2. Where there is a conflict between a provision of any submitted document referred to in this Approval and the Conditions of this Approval, the Conditions in this Approval shall take precedence, and where there is a conflict between the listed submitted documents, the document bearing the most recent date shall prevail.

OPERATION AND MAINTENANCE

3. The Company shall ensure that no other standby generator sets, located at 227 King Street South, Waterloo, Ontario, are operational during the periodic testing of the Equipment;

4. The Company shall ensure that the Equipment is properly operated and maintained at all times. The Company shall:

(1) prepare, not later than three (3) months after the date of this Approval, and update, as necessary, a Manual outlining the operating procedures and a maintenance program for the Equipment, including:

(a) routine operating and maintenance procedures in accordance with good engineering practices and as recommended by the Equipment suppliers;

(b) emergency procedures;

(c) procedures for any record keeping activities relating to operation and maintenance of the Equipment; and

(d) all appropriate measures to minimize noise and odorous emissions from all potential sources;

(2) implement the recommendations of the Manual.

(3) The Company shall train all users of the Equipment in the procedures developed pursuant to subsection (1).

(4) The procedures shall be amended from time to time as required by changes in operation.

PERFORMANCE

5. The Company shall restrict the periodic testing of the standby diesel generator sets to the daytime hours from 7:00 a.m. to 7:00 p.m.

6. The Company shall ensure, subsequent to the completion of the Noise Mitigation Measures, that the noise emissions from the Facility comply with the limits set out in Ministry Publication NPC-300.

NOISE MITIGATION MEASURES

7. The Company shall:

(1) fully implement the Noise Mitigation Measures specified in the Acoustic Assessment Report; and

(2) ensure that the Noise Mitigation Measures are properly maintained and continue to provide the acoustical performance outlined in the Acoustic Assessment Report.

RECORD RETENTION

8. The Company shall retain, for a minimum of two (2) years from the date of their creation, all records and information related to or resulting from the recording activities required by this Approval, and make these records available for review by staff of the Ministry upon request. The Company shall retain:

(1) all records on the maintenance, repair and inspection of the Equipment; and

(2) all records of any environmental complaints; including:

(a) a description, time and date of each incident to which the complaint relates;

(b) wind direction at the time of the incident to which the complaint relates; and

(c) a description of the measures taken to address the cause of the incident to which the complaint relates and to prevent a similar occurrence in the future.

NOTIFICATION OF COMPLAINTS

9. The Company shall notify the District Manager, in writing, of each environmental complaint within two (2) business days of the complaint. The notification shall include:

(1) a description of the nature of the complaint; and

(2) the time and date of the incident to which the complaint relates.

The reasons for the imposition of these terms and conditions are as follows:

1. Conditions No. 1 and 2 are imposed to ensure that the Equipment is built and operated in the

manner in which they were described for review and upon which approval was granted. These conditions are also included to emphasize the precedence of Conditions in the Approval and the practice that the Approval is based on the most current document, if several conflicting documents are submitted for review.

2. Condition No. 3 is included to ensure that the nitrogen oxide emissions will not result in an adverse effect at a sensitive receptor.

3. Condition No. 4 is included to emphasize that the Equipment must be maintained and operated according to a procedure that will result in compliance with the EPA, the regulations and this Approval. In addition it is to ensure that the Equipment is operated to minimize contaminant discharges to the environment.

4. Condition No. 5 is included to ensure that the proposed operation, excluding emergency situations, is not extended beyond specific daytime hours to prevent an adverse effect resulting from the operation of the Equipment.

5. Condition No. 6 is included to provide the minimum performance requirement considered necessary to prevent an adverse effect resulting from the operation of the Facility.

6. Condition No. 7 is included to require the Company to implement Noise Mitigation Measures designed to ensure that the noise emissions from the Facility will be in compliance with applicable limits set in the Ministry's noise guidelines.

7. Condition No. 8 is included to require the Company to keep records and to provide information to staff of the Ministry so that compliance with the EPA, the regulations, and this Approval can be verified.

8. Condition No. 9 is included to require the Company to notify staff of the Ministry so as to assist the Ministry with the review of the site's compliance.

Upon issuance of the environmental compliance approval, I hereby revoke Approval No(s). 0011-A4DKVL issued on November 19, 2015.

In accordance with Section 139 of the Environmental Protection Act, you may by written Notice served upon me and the Environmental Review Tribunal within 15 days after receipt of this Notice, require a hearing by the Tribunal. Section 142 of the Environmental Protection Act provides that the Notice requiring the hearing shall state:

1. The portions of the environmental compliance approval or each term or condition in the environmental compliance approval in respect of which the hearing is required, and;
2. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

Pursuant to subsection 139(3) of the Environmental Protection Act, a hearing may not be required with respect to any terms and conditions in this environmental compliance approval, if the terms and conditions are substantially the same as those contained in an approval that is amended or revoked by this environmental compliance approval.

The Notice should also include:

3. The name of the appellant;
4. The address of the appellant;
5. The environmental compliance approval number;

6. The date of the environmental compliance approval;
7. The name of the Director, and;
8. The municipality or municipalities within which the project is to be engaged in.

And the Notice should be signed and dated by the appellant.

This Notice must be served upon:

The Secretary*
Environmental Review Tribunal
655 Bay Street, Suite 1500
Toronto, Ontario
M5G 1E5

AND

The Director appointed for the
purposes of Part II.1 of the
Environmental Protection Act
Ministry of the Environment and
Climate Change
135 St. Clair Avenue West, 1st Floor
Toronto, Ontario
M4V 1P5

*** Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 212-6349, Fax: (416) 326-5370 or www.ert.gov.on.ca**

The above noted activity is approved under s.20.3 of Part II.1 of the Environmental Protection Act.

DATED AT TORONTO this 25th day of January, 2016

Gregory Zimmer, P.Eng.
Director
appointed for the purposes of Part II.1 of
the *Environmental Protection Act*

TT/
c: District Manager, MOECC Guelph District Office
Gayle Giesbrecht, WESA



CERTIFICATE OF APPROVAL

AIR

NUMBER 5342-84CLAK

Issue Date: April 9, 2010

COB GP Inc.
445 Dutton Dr 2nd floor
Waterloo, Ontario
N2L 4C7

Site Location: 187 King Street South
Waterloo City, Regional Municipality Of Waterloo, Ontario

You have applied in accordance with Section 9 of the Environmental Protection Act for approval of:

- four (4) natural gas fired air make-up units and six (6) natural gas fired boilers, having a maximum combined thermal input of 10.9 Gigajoules per hour;

- one (1) standby diesel generator set, having a rating of 250 kilowatts, to provide power for the buildings during emergency situations; and

- two (2) cooling towers;

all in accordance with the Application for Approval (Air & Noise) dated March 4, 2009 and signed by Peter Schwartz, (President), COB GP Inc., and all supporting information associated with the application including the Emission Summary and Dispersion Modelling Report dated March 4, 2009 and prepared by Church & Trought Inc. and additional information dated March 11, 2010, March 26, 2010 and signed by Steven Thomas.

For the purpose of this Certificate of Approval and the terms and conditions specified below, the following definitions apply:

(1) "Act" means the *Environmental Protection Act*;

(2) "Certificate" means this Certificate of Approval issued in accordance with Section 9 of the Act;

(3) "Equipment" means the diesel generator set, combustion equipment and cooling towers described in the Owner's application, this Certificate and in the supporting documentation submitted with the application, to the extent approved by this Certificate;

(4) "Generator Set" means the diesel generator set described in the Owner's application, this Certificate and in the supporting documentation submitted with the application, to the extent approved by this Certificate;

(5) "Manual" means a document or a set of documents that provide written instructions to staff of the Owner;

(6) "Ministry" means the Ontario Ministry of the Environment;

(7) "Owner" means COB GP Inc., and includes its successors and assignees;

(8) "Publication NPC-205" means Ministry Publication NPC-205, Sound Level Limits for Stationary Sources in Class 1 & 2 Areas (Urban), October, 1995; and

(9) "Publication NPC-232" means Ministry Publication NPC-232, Sound Level Limits for Stationary Sources in Class 3

Areas (Rural), October, 1995.

You are hereby notified that this approval is issued to you subject to the terms and conditions outlined below:

TERMS AND CONDITIONS

GENERAL

1. Except as otherwise provided by these Conditions, the Owner shall design, build, install, operate and maintain the Equipment in accordance with the description given in this Certificate, application for approval of the Equipment and the submitted supporting documents and plans and specifications as listed in this Certificate.
2. Where there is a conflict between a provision of any submitted document referred to in this Certificate and the Conditions of this Certificate, the Conditions in this Certificate shall take precedence, and where there is a conflict between the listed submitted documents, the document bearing the most recent date shall prevail.

PERFORMANCE

3. The Owner shall ensure that the noise emissions from the Equipment comply with the limits set out in Publication NPC-205 or NPC-232, as applicable.

OPERATION AND MAINTENANCE

4. The Owner shall restrict the periodic testing of the Generator Set to the daytime hours from 7:00 am to 7:00 pm.
5. The Owner shall ensure that the Equipment is properly operated and maintained at all times. The Owner shall:
 - (1) prepare, not later than three (3) months after the date of this Certificate or the date of commissioning of the Equipment, and update, as necessary, a Manual outlining the operating procedures and a maintenance program for the Equipment, including:
 - (a) routine operating and maintenance procedures in accordance with good engineering practices and as recommended by the Equipment suppliers;
 - (b) emergency procedures;
 - (c) procedures for any record keeping activities relating to operation and maintenance of the Equipment;
 - (d) all appropriate measures to minimize noise and odorous emissions from all potential sources;
 - (2) implement the recommendations of the Manual; and
 - (3) retain, for a minimum of two (2) years from the date of their creation, all records on the maintenance, repair and inspection of the Equipment, and make these records available for review by staff of the Ministry upon request.

The reasons for the imposition of these terms and conditions are as follows:

1. Condition Nos. 1 and 2 are imposed to ensure that the Equipment is built and operated in the manner in which it was described for review and upon which approval was granted. These conditions are also included to emphasize the precedence of Conditions in the Certificate and the practice that the Approval is based on the most current document, if several conflicting documents are submitted for review.
2. Condition No. 3 is included to provide the minimum performance requirement considered necessary to prevent an adverse effect resulting from the operation of the Equipment.
3. Condition No. 4 is included to ensure that the proposed operation, excluding emergency situations, is not extended beyond specific daytime hours to prevent an adverse effect resulting from the operation of the Generator Set.

4. Condition No. 5 is included to emphasize that the Equipment must be maintained and operated according to a procedure that will result in compliance with the Act, the regulations and this Certificate. In addition the Owner is required to keep records and provide information to staff of the Ministry so that compliance with the Act, the regulations and this Certificate can be verified.

In accordance with Section 139 of the Environmental Protection Act, R.S.O. 1990, Chapter E-19, as amended, you may by written Notice served upon me, the Environmental Review Tribunal and in accordance with Section 47 of the Environmental Bill of Rights, S.O. 1993, Chapter 28, the Environmental Commissioner, within 15 days after receipt of this Notice, require a hearing by the Tribunal. The Environmental Commissioner will place notice of your appeal on the Environmental Registry. Section 142 of the Environmental Protection Act, provides that the Notice requiring the hearing shall state:

1. The portions of the approval or each term or condition in the approval in respect of which the hearing is required, and;
2. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

The Notice should also include:

3. The name of the appellant;
4. The address of the appellant;
5. The Certificate of Approval number;
6. The date of the Certificate of Approval;
7. The name of the Director;
8. The municipality within which the works are located;

And the Notice should be signed and dated by the appellant.

This Notice must be served upon:

The Secretary*
Environmental Review Tribunal
655 Bay Street, 15th Floor
Toronto, Ontario
M5G 1E5

AND

The Environmental Commissioner
1075 Bay Street, 6th Floor
Suite 605
Toronto, Ontario
M5S 2B1

AND

The Director
Section 9, *Environmental Protection Act*
Ministry of the Environment
2 St. Clair Avenue West, Floor 12A
Toronto, Ontario
M4V 1L5

*** Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 314-4600, Fax: (416) 314-4506 or www.ert.gov.on.ca**

This instrument is subject to Section 38 of the Environmental Bill of Rights, that allows residents of Ontario to seek leave to appeal the decision on this instrument. Residents of Ontario may seek leave to appeal within 15 days from the date this decision is placed on the Environmental Registry. By accessing the Environmental Registry at www.ene.gov.on.ca, you can determine when the leave to appeal period ends.

The above noted works are approved under Section 9 of the Environmental Protection Act.

DATED AT TORONTO this 9th day of April, 2010

Zafar Bhatti, P.Eng.
Director
Section 9, *Environmental Protection Act*

TT/
c: District Manager, MOE Guelph District Office
Steven Thomas, Church & Trought Inc.



AMENDED CERTIFICATE OF APPROVAL

AIR

NUMBER 2242-7DYGXC

Issue Date: April 29, 2008

Sun Life Assurance Company of Canada
227 King Steet South, P.O. Box 1101, Stn Waterloo, No. 227
Waterloo, Ontario
N2J 4C5

Site Location: 227 King Steet South, P.O. Box 1101, Stn Waterloo
Waterloo City, Regional Municipality of Waterloo
N2J 4C5

You have applied in accordance with Section 9 of the Environmental Protection Act for approval of:

- Three (3) standby diesel generator sets, having ratings of 1100, 100 and 500 kilowatts, to provide power for the John Street Parking Facility and information technology systems during emergency situations;

all in accordance with the Application for a Certificate of Approval (Air), and all supporting documentation and information, signed by Jeff Burdon (Project Manager, Stantec Consulting Ltd.), Sun Life Assurance Company of Canada, HGC Engineering Supplementary Assessment Report dated February 17, 2004, and Certificate of Approval 1064-5Q7R7C dated August 7, 2003.

For the purpose of this Certificate of Approval and the terms and conditions specified below, the following definitions apply:

- (1) "Act" means the *Environmental Protection Act*;
- (2) "Certificate" means this Certificate of Approval issued in accordance with Section 9 of the Act;
- (3) "Equipment" means the diesel generator sets described in the Company's application, this Certificate and in the supporting documentation submitted with the application, to the extent approved by this Certificate;
- (4) "Facility" means the entire operation where the Equipment is located;
- (5) "Ministry" means the Ontario Ministry of the Environment;
- (6) "Noise Control Measures" means the noise control equipment detailed in Schedule A of this Certificate;
- (7) "Owner" means Sun Life Assurance Company of Canada, and includes its successors and assignees;
- (8) "Publication NPC-205" means Ministry Publication NPC-205, Sound Level Limits for Stationary Sources in Class 1 & 2 Areas (Urban), October, 1995.

You are hereby notified that this approval is issued to you subject to the terms and conditions outlined below:

TERMS AND CONDITIONS

PERFORMANCE

1. The Company shall ensure that the noise emissions from the Equipment/Facility comply with the limits set out in Publication NPC-205.

OPERATION AND MAINTENANCE

2. The Company shall ensure that testing is conducted as per operating schedule below:

Schedule	500 kW alone	1100&1000 kW together	1100 kW alone	1000 kW alone
Number of hours per day at 50%	0.5	0.5		
Number of hours per week at 50%	2	2		
Number of weeks per year at 50%	52	52		
Number of hours per year at 100%	0.5	-	0.5	0.5
Number of times per year at 100%	1	-	1	1

3. The Company shall restrict periodic testing of the standby diesel generator-sets to the time period between 7:00 AM and 11:00 PM on weekdays (Monday to Friday), and 9:00 AM and 8:00 PM on weekends (Saturday and Sunday).

The reasons for the imposition of these terms and conditions are as follows:

1. Condition No. 1 is included to provide the minimum performance requirement considered necessary to prevent an adverse effect resulting from the operation of the Equipment;
2. Conditions Nos. 2 and 3 are included to ensure that the proposed standby operation, excluding emergency situations, is conducted according to approved schedule and not extended beyond the stated hours. Operation outside these hours, when ambient sound levels are significantly lower, may result in non-compliance with the established sound level limits.

SCHEDULE "A"

The certificate is issued for your emergency diesel generator sets with a general requirement for compliance with noise limits set out in the Ministry Publication NPC-205. Please note that in order to achieve compliance, it is necessary to have appropriate silencing equipment installed. The following minimum recommendations for noise control measures should be adequate for this installation:

The 500 kW generator shall have installed following noise control measures:

- One (1) exhaust muffler for the engine combustion exhaust, capable of providing the following values of Insertion-Loss in 1/1 octave frequency bands:

Centre Frequency (Hertz)	63	125	250	500	1000	2000	4000
Insertion -Loss (dB)	15	25	35	33	-	-	-

- One (1) intake silencer capable of providing the following values of Insertion-Loss in 1/1 octave frequency bands:

Centre Frequency (Hertz)	63	125	250	500	1000	2000	4000
Insertion -Loss (dB)	10	15	27	29	-	-	-

- One (1) ventilation outlet silencer capable of providing the following values of Insertion-Loss in 1/1 octave frequency bands:

CONTENT COPY OF ORIGINAL

Centre Frequency (Hertz)	63	125	250	500	1000	2000	4000
Insertion -Loss (dB)	7	15	25	29	-	-	-

The 1100 kW generator shall have installed following noise control measures:

- One (1) exhaust muffler for the engine combustion exhaust, capable of providing the following values of Insertion-Loss in 1/1 octave frequency bands:

Centre Frequency (Hertz)	63	125	250	500	1000	2000	4000
Insertion -Loss (dB)	15	35	48	51	42	38	38

- One (1) intake silencer capable of providing the following values of Insertion-Loss in 1/1 octave frequency bands:

Centre Frequency (Hertz)	63	125	250	500	1000	2000	4000
Insertion -Loss (dB)	6	20	30	35	30	25	16

- One (1) ventilation outlet silencer capable of providing the following values of Insertion-Loss in 1/1 octave frequency bands:

Centre Frequency (Hertz)	63	125	250	500	1000	2000	4000
Insertion -Loss (dB)	7	15	25	29	-	-	-

The 1000 kW generator shall have installed following noise control measures:

- One (1) exhaust muffler for the engine combustion exhaust, capable of providing the following values of Insertion-Loss in 1/1 octave frequency bands:

Centre Frequency (Hertz)	63	125	250	500	1000	2000	4000
Insertion -Loss (dB)	15	35	48	51	42	38	38

- One (1) intake silencer capable of providing the following values of Insertion-Loss in 1/1 octave frequency bands:

Centre Frequency (Hertz)	63	125	250	500	1000	2000	4000
Insertion -Loss (dB)	6	20	30	35	30	25	16

- One (1) ventilation outlet silencer capable of providing the following values of Insertion-Loss in 1/1 octave frequency bands:

Centre Frequency (Hertz)	63	125	250	500	1000	2000	4000
Insertion -Loss (dB)	10	17	33	38	46	30	23

This Certificate of Approval revokes and replaces Certificate(s) of Approval No. 1064-5Q7R7C issued on August 7, 2003

In accordance with Section 139 of the Environmental Protection Act, R.S.O. 1990, Chapter E-19, as amended, you may by written notice served upon me and the Environmental Review Tribunal within 15 days after receipt of this Notice, require a hearing by the Tribunal. Section 142 of the Environmental Protection Act, provides that the Notice requiring the hearing shall state:

1. The portions of the approval or each term or condition in the approval in respect of which the hearing is required, and;
2. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

The Notice should also include:

3. The name of the appellant;
4. The address of the appellant;
5. The Certificate of Approval number;
6. The date of the Certificate of Approval;
7. The name of the Director;
8. The municipality within which the works are located;

And the Notice should be signed and dated by the appellant.

This Notice must be served upon:

The Secretary*
Environmental Review Tribunal
655 Bay Street, 15th Floor
Toronto, Ontario
M5G 1E5

AND

The Director
Section 9, *Environmental Protection Act*
Ministry of the Environment
2 St. Clair Avenue West, Floor 12A
Toronto, Ontario
M4V 1L5

*** Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 314-4600, Fax: (416) 314-4506 or www.ert.gov.on.ca**

The above noted works are approved under Section 9 of the Environmental Protection Act.

DATED AT TORONTO this 29th day of April, 2008

Victor Low, P.Eng.
Director
Section 9, *Environmental Protection Act*

DZ/
c: District Manager, MOE Guelph
Alan Prits, Stantec Consulting Ltd.



Ministry of the Environment, Conservation and Parks
Operations Division

Confirmation of Registration

Registration Number: R-010-7111394673

Version Number: 001

Date Registration Filed: Jun 19, 2019 08:23:04 AM

Dear Sir/Madam,

KEOLIS GRAND RIVER LP

518 Dutton Drive
Waterloo ON N2L 4C6

You have registered, in accordance with Section 20.21(1) (a) of the *Environmental Protection Act*, the use, operation, construction, alteration, extension or replacement of any plant, structure, equipment, apparatus, mechanism or thing that is located at the facility noted below, or the alteration of a process or rate of production at the facility, including the activities set out in schedule 'A'.

904 King Street West Kitchener ON N2G 1G4

Please note that the facility noted above is subject to the applicable provisions of O. Reg. 245/11, and O. Reg.1/17.

The activity related information provided during the registration process is included as part of the confirmation of registration as schedule 'A'.

Dated on Jun 19, 2019

Director
Environmental Approvals Access and Service Integration Branch
Ministry of the Environment, Conservation and Parks
135 St. Clair Avenue West, 1st Floor
Toronto ON M4V 1P5

Any questions related to this registration and the Environmental Activity and the Sector Registry should be directed to:

Ministry of the Environment, Conservation and Parks

Customer Service Representative

Environmental Approvals Access and Service Integration Branch

Phone:(416) 314-8001

Toll free: 1-800-461-6290

Schedule 'A'

Part 3 - Activity Information

3.1 Industry Eligibility Check

a. Please select the facility's primary North American Industry Classification System (NAICS) code.	485110
b. Does the facility have any other applicable NAICS codes?	☐ Yes ☒ No
b. i. If yes, please select the facility's secondary NAICS code(s), and confirm any other applicable NAICS code(s).	
c. Are you engaged in an activity at the facility that may discharge or from which may be discharged a contaminant into any part of the natural environment other than water?	☒ Yes ☐ No
d. Is the activity exempt from requiring an Environmental Compliance Approval (ECA) under section 9 (1) of the Environmental Protection Act (EPA) other than an activity that has been prescribed by an EASR regulation under Part II.2 of the Act?	☐ Yes ☒ No
e. Are the only activities engaged in at the facility, other than activities described in question 3.1d above, prescribed under a single other EASR regulation?	☐ Yes ☒ No
f. Is an alternative low-carbon fuel site within the meaning of Ontario Regulation (O. Reg.) 79/15 (Alternative Low-Carbon Fuels) operated at the facility?	☐ Yes ☒ No
g. Is the activity a renewable energy project as defined in the EPA?	☐ Yes ☒ No
h. Is an end-of-life vehicle waste disposal site within the meaning of O. Reg. 85/16 operated at the facility?	☐ Yes ☒ No

3.2 Facility Related Information

a. Has a site-specific air standard ever been set for a contaminant discharged from the facility? (section 35 of O. Reg. 419/05 (Air Pollution -- Local Air Quality))	☐ Yes ☒ No
b. Has a person ever been registered in the Ministry's Technical Standards Registry – Air Pollution under section 39 of O. Reg. 419/05 (Air Pollution – Local Air Quality) in respect of the facility?	☐ Yes ☒ No
c. Do all of the activities to be registered occur exclusively at the site? <i>Please Note: Discrete activities that involve the use of equipment that is intended to be moved from one site to another to perform the same function (such as the use of mobile rock crushing equipment or mobile PCB destruction equipment) are not prescribed for the purpose of the Environmental Activity and Sector Registry, and an Environmental Compliance Approval may be required.</i>	☒ Yes ☐ No
d. Is the facility located on a property that has been deemed a single property under subsection 4 (2) of O. Reg. 419/05?	☐ Yes ☒ No
e. Is the facility located in an area of development control within the Niagara Escarpment Planning Area?	☐ Yes ☒ No
e. i. If yes, has a development permit required under section 24 of the Niagara Escarpment Planning and Development Act (NEPDA) in respect of the facility been issued?	☐ Yes ☐ No
f. Is there a landfilling site that is no longer permitted to accept waste for disposal located on the site on which the facility is located?	☐ Yes ☒ No
g. Is the activity part of an undertaking to which the Environmental Assessment Act applies?	☒ Yes ☐ No
g. i. If yes, is one or more of the following conditions met: - All class EA requirements have been completed, including decisions on any Part II order requests; OR - The facility has received approval to proceed with the undertaking.	☒ Yes ☐ No

h. Please provide a description of the facility. The description should include a summary of operations and activities at the facility that discharge contaminants, as well as what is produced, if applicable.

The Light Rail Vehicles (LRVs) travelling along the Waterloo LRT line will be powered by an electrification system that draws DC power from 13 Traction Power Substations (TPSSs) distributed strategically along the LRT alignment. The primary function of these TPSSs is to convert commercial alternating-current electricity into the direct-current electricity that powers the LRVs. Each TPSS includes a steel building that will house an electric transformer, and outdoor mechanical ventilation equipment. Noise emissions will be created by the TPSSs. The site will include 2.4 metre high cedar noise walls, located on top of a 0.6 to 1.9 metre high retaining wall. The site will also

include 3 to 3.5 metre high Durisol noise walls. The Durisol noise wall segments will include acoustically absorptive interior surfaces (facing the TPSS building), and will meet a minimum Noise Reduction Coefficient (NRC) rating of 0.7.

i. Please enter the date on which the facility commenced or will commence operations.

2018-04-30

j. Is the facility located in a multi-tenant building?

☐ Yes ☒ No

3.3 Activity Related Information

a. Does the land disposal of waste as defined in Regulation 347 General – Waste Management occur at the facility?

☐ Yes ☒ No

b. Does the facility process or dispose of waste by way of thermal treatment, other than the thermal treatment of wood fuel that meets the specifications in Chapter 5 of the EASR publication in a wood-fired combustor?

☐ Yes ☒ No

c. Does the facility use a wood-fired combustor?

☐ Yes ☒ No

c. i. If yes, does the wood-fired combustor have a nominal load heat input capacity of less than 3 megawatts?

☐ Yes ☐ No

c. ii. If yes, was the wood-fired combustor installed at the facility on or after January 31, 2017?

☐ Yes ☐ No

c. iii. If yes, does the wood-fired combustor exclusively use one or more of the following as fuel:

- Wood chips that meet the specifications set out in Chapter 5 of the EASR publication.
- Wood briquettes that meet the specifications set out in Chapter 5 of the EASR publication.
- Wood pellets that meet the specifications set out in Chapter 5 of the EASR publication.

☐ Yes ☐ No

d. Does the facility have any plating processes that use cadmium, cyanide, chromium or nickel, including chrome plating, electroplating or electroless plating?

☐ Yes ☒ No

e. Is an electrolytic stripping process that removes cadmium, chromium or nickel from an object used at the facility?

☐ Yes ☒ No

f. Are metals processed outdoors at the facility, including torching, shearing, shredding or plasma cutting, other than for the purpose of routine maintenance carried out at the facility on any plant, structure, equipment, apparatus or thing?

☐ Yes ☒ No

g. Is a fossil-fuel electric power generation facility with a maximum electrical power output capacity equal to or greater than 25 megawatts operated at the facility?

☐ Yes ☒ No

h. Is a combustion source that uses biogas, biomass, coal, petroleum coke or waste as a fuel, or that uses a fuel derived from biogas, biomass, coal, petroleum coke or waste other than a small wood-fired combustor operated at the facility?

☐ Yes ☒ No

i. Is a combustion turbine used at the facility?

☐ Yes ☒ No

Part 4 - Operational Information

4.1 Air

a. Does the EASR Emission Summary and Dispersion Modelling (ESDM) Report provide for modifications that have not yet been implemented at the facility?	☐ Yes	☒ No
a. i. If yes, please provide the date on which the modifications will be completed.		
b. Has an instrument under O. Reg. 419/05 been issued in respect of the facility?	☐ Yes	☒ No
b. i. If yes, what type(s) of instruments (including any notices, orders or approvals) has (have) been issued? (select all that apply)		
ss. 7(1) Specified Dispersion Models	☐	
ss. 8(2) Negligible Sources	☐	
ss. 10(2) Operating Conditions	☐	
ss. 11(2) Refined Emission Rates	☐	
ss. 13.1 Value of Dispersion Modelling Parameters	☐	
ss. 13(1) Meteorological Data	☐	
ss. 14(6) Area of Modelling Coverage	☐	
ss. 20(5) Speed-up Order	☐	
Other	☐	
List all that have been issued		
c. To what standard did the licensed engineering practitioner assess compliance of the facility's emissions (please select the applicable box(es)):		
Section 19 of O. Reg. 419/05 (Schedule 2)	☐	
Section 20 of O. Reg. 419/05 (Schedule 3)	☐	
N/A – The amount of any contaminant discharged from the site is negligible	☐	
N/A – Source(s) discharge only sound as a contaminant	☒	
N/A – Source(s) discharge sound as a contaminant and the amount of any other contaminant discharged is negligible	☐	
d. Please select all applicable boxes that apply to a discharge of a contaminant(s) to air from the facility:		
Contaminant(s) belonging to Benchmark 1 category of ACB list is at or below the concentration for each specified averaging period set out for the contaminant	☐	
Contaminant(s) belonging to Benchmark 2 category of ACB list is at or below the concentration for each specified averaging period set out for the contaminant	☐	
Contaminant(s) belonging to Benchmark 2 category of ACB list is above the concentration for a specified averaging period set out for the contaminant	☐	
The concentration of the contaminant(s) does not have a Ministry standard, guideline, or screening level set out for the contaminant	☐	

N/A – The amount of any contaminant discharged from the site is negligible ☐

N/A – Source(s) discharge only sound as a contaminant ☒

N/A – Source(s) discharge sound as a contaminant and the amount of any other contaminant discharged is negligible ☐

e. Does the facility operate a generator for non-emergency purposes? ☐ Yes ☒ No

f. Does the facility use or operate a large boiler or heater greater than 10.5 gigajoules per hour? ☐ Yes ☒ No

g. Will an Emissions Summary Table be uploaded? ☒ Yes ☐ No
Please Note: An Emissions Summary Table is required to be uploaded at the time of registration. An Emissions Summary Table is also required to be uploaded if any modifications to the facility require an update to the EASR ESDM. Additionally, as part of the 10 year review required by O. Reg. 1/17, an updated Emissions Summary Table is required to be uploaded.

h. Please provide the Name(s) and Licence Number(s) of the Licensed Engineering Practitioner(s) that signed and sealed the EASR ESDM Report and made statements in the EASR ESDM Report Supplement and the date signed.

First Name	Last Name	Licence Number(s)	Date Signed
Danielle	Arsenault	100083133	2017-10-24

4.2 Fugitive Dust Control

a. Does the EASR ESDM Report prepared for the facility identify a source of fugitive dust? ☐ Yes ☒ No

a. i. If yes, has a licensed engineering practitioner signed and sealed a Best Management Practice Plan (BMPP) for fugitive dust control? ☐ Yes ☐ No

b. Has a BMPP for fugitive dust control been prepared as a result of a written notice from the Director issued under O. Reg. 1/17? ☐ Yes ☒ No

c. Please provide the Name(s) and Licence Number(s) of the Licensed Engineering Practitioner(s) that signed and sealed the BMPP for fugitive dust control and the date signed and sealed.

First Name	Last Name	Licence Number(s)	Date Signed

4.3 Noise

a. Please select the noise assessment method that was completed for the facility:

The facility meets the 1000m setback distance ☐

Primary Noise Screening Method ☐

Secondary Noise Screening Method ☐

Acoustic Assessment Report ☒

a. i. If the Primary Noise Screening Method was used, is the actual separation distance from the facility to the closest Point of Noise Reception equal to or greater than the minimum separation distance as determined by the Primary Noise Screening Method? ☐ Yes ☐ No

a. ii. If the Secondary Noise Screening Method was used, is the combined sound level from the facility at each affected Point of Noise Reception as determined by the Secondary Noise Screening Method less than or equal to the applicable sound level limit set out in Chapter 3 of the EASR publication? ☐ Yes ☐ No

a. iii. If an acoustic assessment was completed, did the acoustic assessment determine that the combined sound level from the facility at each affected Point of Noise Reception less than or equal to of the applicable sound level limit set out in Chapter 3 of the EASR publication? ☒ Yes ☐ No

a. iii. a) If no, has a Noise Abatement Action Plan been developed for the facility? ☐ Yes ☐ No

a. iii. b) If yes, please provide the title of the Noise Abatement Action Plan and the date it was prepared.

Name of NAAP	Date Prepared

b. Has an Acoustic Audit Report been prepared as a result of a written notice from the Director? ☐ Yes ☒ No

b. i. If yes, please provide the Name(s) and Licence Number(s) of the Licensed Engineering Practitioner(s) that signed and sealed the acoustic audit report, and the date signed and sealed.

First Name	Last Name	Licence Number(s)	Date Signed

c. Will an Acoustic Assessment Summary Table be uploaded? ☒ Yes ☐ No

Please Note: An Acoustic Assessment Summary Table is required to be uploaded at the time of registration if an Acoustic Assessment was completed for the facility. An Acoustic Assessment Summary Table is also required to be uploaded if any modifications to the facility require an update to the facility's noise report. Additionally, as part of the 10 year review required by O. Reg. 1/17, an updated Acoustic Assessment Summary Table is required to be uploaded.

d. Please provide the Name(s) and Licence Number(s) of the Licensed Engineering Practitioner(s) that signed and sealed the noise report, and the date signed and sealed.

First Name	Last Name	Licence Number(s)	Date Signed
Atif	Bokhari	100151497	2017-09-22

4.4 Odour

a. Did the Odour Screening Report indicate that a circumstance which requires a BMPP for odour to be prepared exists at the facility? ☐ Yes ☒ No

b. Did the Odour Screening Report indicate that a circumstance which requires an Odour Control Report (OCR) to be prepared exists at the facility? ☐ Yes ☐ No

b. i. If yes, please provide the Name(s) and Licence Number(s) of the Licensed Engineering Practitioner(s) that signed and sealed the Odour Control Report and the date signed and sealed.

First Name	Last Name	Licence Number(s)	Date Signed

c. Has a BMPP for odour been prepared as a result of a written notice from the Director issued under O. Reg. 1/17? ☐ Yes ☒ No

d. Please provide the Name(s) and Licence Number(s) of the Licensed Engineering Practitioner(s) that signed and sealed the BMPP for odour and the date signed and sealed.

First Name	Last Name	Licence Number(s)	Date Signed

Table E-1: Emission Summary Table

Contaminant	CAS No.	Total Facility Emission Rate (g/s)	Air Dispersion Model Used	Maximum POI Concentration (µg/m³)	Averaging Period (hr)	POI Limit (µg/m³)	Limiting Effect	Guidelines/ Standards	% of POI/ Guideline
No expected contaminants ⁽¹⁾	-	-	-	-	-	-	-	-	-

Notes:

(1) There is no proposed site equipment or operation that is expected to release air emissions to the atmosphere from this Facility.

Table 6: Acoustic Assessment Summary Table

Point of Reception ID	MOECC Class	Point of Reception Location	Time Period	Predicted One Hour L _{eq} Noise Level (dBA)	One Hour L _{eq} Sound Level Limit (dBA)	Compliance with Sound Level Limit (Yes/No)	Verified by Acoustic Audit (Yes/No)
NSA1_POW	Class 2	Plane of Window	Daytime	36	51	Yes	No
			Evening	36	51	Yes	No
			Night time	36	51	Yes	No
NSA1_Out	Class 2	Outdoor	Daytime	36	51	Yes	No
			Evening	36	51	Yes	No
			Night time	-	-	-	-
NSA2_POW	Class 2	Plane of Window	Daytime	39	51	Yes	No
			Evening	39	51	Yes	No
			Night time	39	51	Yes	No
NSA3_POW	Class 2	Plane of Window	Daytime	36	51	Yes	No
			Evening	36	51	Yes	No
			Night time	36	51	Yes	No
NSA3_Out	Class 2	Outdoor	Daytime	36	51	Yes	No
			Evening	36	51	Yes	No
			Night time	-	-	-	-

Table 7: Noise Impact Table

Source ID	Plane of Window						Outdoor			
	NSA1_POW		NSA2_POW		NSA3_POW		NSA1_Out		NSA3_Out	
	Dist. (m)	L _{eq,1hr} (dBA)	Dist. (m)	L _{eq,1hr} (dBA)	Dist. (m)	L _{eq,1hr} (dBA)	Dist. (m)	L _{eq,1hr} (dBA)	Dist. (m)	L _{eq,1hr} (dBA)
HVAC1	49	0	82	36	92	33	36	0	88	33
HVAC2	45	32	86	36	89	34	33	33	84	34
HVAC3	42	33	89	0	86	0	30	33	82	0
TPSS_Roof_West	-	24	-	18	-	13	-	22	-	13
TPSS_Roof_East	-	23	-	18	-	17	-	21	-	17
TPSS_Wall_East	-	14	-	13	-	12	-	12	-	12
TPSS_Wall_North	-	11	-	1	-	4	-	13	-	4
TPSS_Wall_West	-	17	-	13	-	3	-	18	-	2
TPSS_Wall_South	-	5	-	10	-	-3	-	5	-	-3

Notes to Table 7:

1. Area source distances are not shown because they vary between these sources and receivers.

Appendix C

LRT Sound Level and Sample STAMSON Calculations

Parameter	Value	Unit
Reference Scenario	6 - Rail transit and streetcars at 50 mph - At-grade, ballast, welded rail	
SELref		82 dBA
No. Cars per Train (Ncars)	5	
Speed (S)	50	km/h
		31 mph
Current Volume of Trains (Day, 7am to 11pm)	87	
Current Volume of Trains (Night, 11pm to 7am)	9	
Current Year	2025	
Future Year	2035	
Growth Rate	2.5%	
Future Volume of Trains (Day)	111	
Future Volume of Trains (Night)	12	
Average hourly daytime volume of trains (Vd)	6.96	
Average hourly nighttime volume of trains (Vn)	1.44	
Track configuration	3 - Embedded track on grade	
Receiver distance from centreline of tracks	24.4	metres
		Adjtrack: 3 dB
		Cdistance: -3.1 dB
Daytime LAeq(1h) at Receiver		57.7 dBA
Nighttime LAeq(1h) at Receiver		50.8 dBA

Parameter	Value	Unit
Reference Scenario	6 - Rail transit and streetcars at 50 mph - At-grade, ballast, welded rail	
SELref		82 dBA
No. Cars per Train (Ncars)	5	
Speed (S)	50	km/h
		31 mph
Current Volume of Trains (Day, 7am to 11pm)	87	
Current Volume of Trains (Night, 11pm to 7am)	11	
Current Year	2025	
Future Year	2035	
Growth Rate	2.5%	
Future Volume of Trains (Day)	111	
Future Volume of Trains (Night)	14	
Average hourly daytime volume of trains (Vd)	6.96	
Average hourly nighttime volume of trains (Vn)	1.76	
Track configuration	3 - Embedded track on grade	
Receiver distance from centreline of tracks	20.8	metres
		Adjtrack: 3 dB
		Cdistance: -2.0 dB
Daytime LAeq(1h) at Receiver		58.7 dBA
Nighttime LAeq(1h) at Receiver		52.7 dBA

Filename: 171KING.te Time Period: Day/Night 16/8 hours
Description: NORTHEAST TOWER B PLANE OF WINDOW RECEIVER

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

Car traffic volume : 5414/602 veh/TimePeriod
Medium truck volume : 115/13 veh/TimePeriod
Heavy truck volume : 230/26 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: KING ST (day/night)

Angle1 Angle2 : -90.00 deg 84.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 18.91 / 18.91 m
Receiver height : 34.65 / 34.65 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: WILLIAM ST (day/night)

Car traffic volume : 6635/737 veh/TimePeriod
Medium truck volume : 68/8 veh/TimePeriod
Heavy truck volume : 137/15 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: WILLIAM ST (day/night)

Angle1 Angle2 : -90.00 deg 0.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 121.18 / 121.18 m
Receiver height : 34.65 / 34.65 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 3: ALLEN ST (day/night)

Car traffic volume : 1642/364 veh/TimePeriod -> Nighttime x2 for >40 veh/h
Medium truck volume : 51/12 veh/TimePeriod -> Nighttime x2 for >40 veh/h
Heavy truck volume : 17/4 veh/TimePeriod -> Nighttime x2 for >40 veh/h
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: ALLEN ST (day/night)

Angle1 Angle2 : -21.00 deg 0.00 deg
Wood depth : 0 (No woods.)

No of house rows : 0 / 0
 Surface : 2 (Reflective ground surface)
 Receiver source distance : 117.48 / 117.48 m
 Receiver height : 34.65 / 34.65 m
 Topography : 1 (Flat/gentle slope; no barrier)
 Reference angle : 0.00

Result summary (day)

	! source !	Road !	Total
	! height !	Leq !	Leq
	! (m) !	(dBA) !	(dBA)
1.KING ST	! 1.41 !	62.23 !	62.23
2.WILLIAM ST	! 1.19 !	50.07 !	50.07
3.ALLEN ST	! 1.00 !	37.17 !	37.17
Total			62.50 dBA

Result summary (night)

	! source !	Road !	Total
	! height !	Leq !	Leq
	! (m) !	(dBA) !	(dBA)
1.KING ST	! 1.42 !	55.76 !	55.76
2.WILLIAM ST	! 1.19 !	43.52 !	43.52
3.ALLEN ST	! 1.01 !	33.78 !	30.78 -> -3 dB for volume adjust.
Total			56.02 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 62.50
 (NIGHT): 56.02

Appendix D

Road and Rail Traffic Data

Region of Waterloo AADT Forecast for Noise Studies

1. Development/Location	167-171 King St S, Waterloo			
2. Current AADT (2025)	King St S	William St W	Caroline St S	Allen St W
	6,000	7,600	3,100	1,800
3. Forecast AADT (2035)	King St S	William St W	Caroline St S	Allen St W
	6,400	7,600	3,100	1,900
4. Commercial Vehicle Rates	King St S	William St W	Caroline St S	Allen St W
	% Medium Trucks	2%	1%	2%
	% Heavy Trucks	4%	2%	0%
5. Posted Speed Limit	King St S	William St W	Caroline St S	Allen St W
	50 km/h	50 km/h	50 km/h	50 km/h
6. Day/Night Splits	Regional Standard 90/10 Day/Night Split			
7. Expiry	Dec 31 2027			

8. Notes

This forecast is intended for the purpose of carrying out a noise study for 167-171 King St W, Waterloo, only. The above AADTs represent the traffic volumes on King St S, Allen St W, Caroline St S, and William St W surrounding the property. As William St W is under the jurisdiction of City of Waterloo, City of Waterloo should verify the forecast for this road segment. The Region of Waterloo should be contacted for an updated forecast if there are plans to use this forecast beyond the above validity period.

Currently ION LRT runs approximately 6 trains/hour/direction on weekdays between 6 am to midnight, and 4 trains/hour/direction on weekdays between 5 am - 6 am, as well as on weekends from 5 am - midnight. Frequency will be increasing to 7.5 trains/hour/direction during peak periods in the future.

GRTM-001

Albert Station

From	On Schedule	Early	Late	Scheduled
From: a.m.	From: a.m.	From: a.m.	From: a.m.	From: a.m.
		301 - GRTM Light rail		11:07 a.m.
		301 - GRTM Light rail		11:47 a.m.
		301 - GRTM Light rail		11:57 a.m.
		301 - GRTM Light rail		12:07 p.m.
		301 - GRTM Light rail		12:17 p.m.
		301 - GRTM Light rail		12:27 p.m.
		301 - GRTM Light rail		12:37 p.m.
		301 - GRTM Light rail		12:47 p.m.
		301 - GRTM Light rail		12:57 p.m.
		301 - GRTM Light rail		1:07 p.m.
		301 - GRTM Light rail		1:17 p.m.
		301 - GRTM Light rail		1:27 p.m.
		301 - GRTM Light rail		1:47 p.m.
		301 - GRTM Light rail		1:57 p.m.
		301 - GRTM Light rail		2:07 p.m.
		301 - GRTM Light rail		2:17 p.m.
		301 - GRTM Light rail		2:27 p.m.
		301 - GRTM Light rail		2:37 p.m.
		301 - GRTM Light rail		2:47 p.m.
		301 - GRTM Light rail		2:57 p.m.
		301 - GRTM Light rail		3:07 p.m.
		301 - GRTM Light rail		3:17 p.m.
		301 - GRTM Light rail		3:27 p.m.
		301 - GRTM Light rail		3:37 p.m.
		301 - GRTM Light rail		3:47 p.m.
		301 - GRTM Light rail		3:57 p.m.
		301 - GRTM Light rail		4:07 p.m.
		301 - GRTM Light rail		4:17 p.m.
		301 - GRTM Light rail		4:27 p.m.
		301 - GRTM Light rail		4:37 p.m.
		301 - GRTM Light rail		4:47 p.m.
		301 - GRTM Light rail		4:57 p.m.
		301 - GRTM Light rail		5:07 p.m.
View schedule for 301 - GRTM Light rail				

GRTM-001				
Albert Station				
From	On Schedule	Early	Late	Scheduled
From: a.m.	From: a.m.	From: a.m.	From: a.m.	From: a.m.
		301 - GRTM Light rail		4:57 p.m.
		301 - GRTM Light rail		5:07 p.m.
		301 - GRTM Light rail		5:17 p.m.
		301 - GRTM Light rail		5:27 p.m.
		301 - GRTM Light rail		5:37 p.m.
		301 - GRTM Light rail		5:47 p.m.
		301 - GRTM Light rail		5:57 p.m.
		301 - GRTM Light rail		6:07 p.m.
		301 - GRTM Light rail		6:17 p.m.
		301 - GRTM Light rail		6:27 p.m.
		301 - GRTM Light rail		6:37 p.m.
		301 - GRTM Light rail		6:47 p.m.
		301 - GRTM Light rail		6:57 p.m.
		301 - GRTM Light rail		7:07 p.m.
		301 - GRTM Light rail		7:17 p.m.
		301 - GRTM Light rail		7:27 p.m.
		301 - GRTM Light rail		7:37 p.m.
		301 - GRTM Light rail		7:47 p.m.
		301 - GRTM Light rail		7:57 p.m.
		301 - GRTM Light rail		8:07 p.m.
		301 - GRTM Light rail		8:17 p.m.
		301 - GRTM Light rail		8:27 p.m.
		301 - GRTM Light rail		8:37 p.m.
		301 - GRTM Light rail		8:47 p.m.
		301 - GRTM Light rail		8:57 p.m.
		301 - GRTM Light rail		9:07 p.m.
		301 - GRTM Light rail		9:17 p.m.
		301 - GRTM Light rail		9:27 p.m.
		301 - GRTM Light rail		9:37 p.m.
		301 - GRTM Light rail		9:47 p.m.
		301 - GRTM Light rail		9:57 p.m.
		301 - GRTM Light rail		10:07 p.m.
		301 - GRTM Light rail		10:17 p.m.
		301 - GRTM Light rail		10:27 p.m.
		301 - GRTM Light rail		10:37 p.m.
		301 - GRTM Light rail		10:47 p.m.
		301 - GRTM Light rail		10:57 p.m.
		301 - GRTM Light rail		11:07 p.m.
		301 - GRTM Light rail		11:17 p.m.
		301 - GRTM Light rail		11:27 p.m.
		301 - GRTM Light rail		11:37 p.m.
		301 - GRTM Light rail		11:47 p.m.
		301 - GRTM Light rail		11:57 p.m.
		301 - GRTM Light rail		12:02 a.m.

Appendix E

Industry Noise Source Data

Table E.1
Noise Source Sound Level Summary
VanMar Developments King Carol LP.
167-171 King Street South, Waterloo, Ontario

Cadna A ID	Noise Source Description		1/1 Octave Band Data									Unadjusted Total Sound Power Level	Tonal Penalty Assessment		Height Absolute	Operating Reference/Comments Time Day/Eve/Night	
			32	63	125	250	500	1000	2000	4000	8000						
S-01	Chartwell Terrace on the Square - HVAC	PWL (dB)	71.0	74.0	75.0	75.0	74.0	72.0	68.0	64.0	58.0	81.8					
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1						
		PWL (dBA)	31.6	47.8	58.9	66.4	70.8	72.0	69.2	65.0	56.9	76.5	No	0	33.2	60/60/30	GHD Reference Spectra
S-02	Chartwell Terrace on the Square - HVAC	PWL (dB)	71.0	74.0	75.0	75.0	74.0	72.0	68.0	64.0	58.0	81.8					
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1						
		PWL (dBA)	31.6	47.8	58.9	66.4	70.8	72.0	69.2	65.0	56.9	76.5	No	0	33.2	60/60/30	GHD Reference Spectra
S-03	Chartwell Terrace on the Square - HVAC	PWL (dB)	71.0	74.0	75.0	75.0	74.0	72.0	68.0	64.0	58.0	81.8					
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1						
		PWL (dBA)	31.6	47.8	58.9	66.4	70.8	72.0	69.2	65.0	56.9	76.5	No	0	33.2	60/60/30	GHD Reference Spectra
S-04	Chartwell Terrace on the Square - HVAC	PWL (dB)	71.0	74.0	75.0	75.0	74.0	72.0	68.0	64.0	58.0	81.8					
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1						
		PWL (dBA)	31.6	47.8	58.9	66.4	70.8	72.0	69.2	65.0	56.9	76.5	No	0	33.2	60/60/30	GHD Reference Spectra
S-05	Chartwell Terrace on the Square - HVAC	PWL (dB)	71.0	74.0	75.0	75.0	74.0	72.0	68.0	64.0	58.0	81.8					
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1						
		PWL (dBA)	31.6	47.8	58.9	66.4	70.8	72.0	69.2	65.0	56.9	76.5	No	0	33.2	60/60/30	GHD Reference Spectra
S-06	Chartwell Terrace on the Square - HVAC	PWL (dB)	71.0	74.0	75.0	75.0	74.0	72.0	68.0	64.0	58.0	81.8					
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1						
		PWL (dBA)	31.6	47.8	58.9	66.4	70.8	72.0	69.2	65.0	56.9	76.5	No	0	33.2	60/60/30	GHD Reference Spectra
S-07	Chartwell Terrace on the Square - HVAC	PWL (dB)	71.0	74.0	75.0	75.0	74.0	72.0	68.0	64.0	58.0	81.8					
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1						
		PWL (dBA)	31.6	47.8	58.9	66.4	70.8	72.0	69.2	65.0	56.9	76.5	No	0	33.2	60/60/30	GHD Reference Spectra
S-08	Circa 1877 - MUA Condenser Fan	PWL (dB)	96.3	90.2	86.8	78.5	85.9	84.5	79.8	72.5	63.0	98.2					
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1						
		PWL (dBA)	56.9	64.0	70.7	69.9	82.7	84.5	81.0	73.5	61.9	88.1	No	0	78.2	60/60/30	GHD Site Measurement
S-09	Circa 1877 - Cooling Tower Outlet	PWL (dB)	68.4	68.1	68.9	69.9	70.3	72.1	72.3	71.7	67.7	79.8					
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1						
		PWL (dBA)	29.0	41.9	52.8	61.3	67.1	72.1	73.5	72.7	66.6	78.4	No	0	84.3	60/60/30	GHD Site Measurement
S-10	Circa 1877 - Cooling Tower Outlet	PWL (dB)	68.4	68.1	68.9	69.9	70.3	72.1	72.3	71.7	67.7	79.8					
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1						
		PWL (dBA)	29.0	41.9	52.8	61.3	67.1	72.1	73.5	72.7	66.6	78.4	No	0	84.3	60/60/30	GHD Site Measurement
S-11	Circa 1877 - Louvre in Enclosure	PWL (dB)	91.3	84.0	80.8	72.6	72.3	72.7	69.8	62.6	53.5	92.5					
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1						
		PWL (dBA)	51.9	57.8	64.7	64.0	69.1	72.7	71.0	63.6	52.4	76.8	No	0	79.5	60/60/30	GHD Site Measurement
S-12	Circa 1877 - Cooling Tower Inlet	PWL (dB)	81.6	80.4	78.9	74.9	75.0	73.4	73.3	70.8	67.7	86.6					
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1						
		PWL (dBA)	42.2	54.2	62.8	66.3	71.8	73.4	74.5	71.8	66.6	79.6	No	0	78.5	60/60/30	GHD Site Measurement
S-13	Circa 1877 - North Fan	PWL (dB)	80.0	82.1	82.2	75.3	79.7	69.4	60.6	56.0	49.5	87.5					
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1						
		PWL (dBA)	40.6	55.9	66.1	66.7	76.5	69.4	61.8	57.0	48.4	78.1	No	0	84.5	60/60/30	GHD Site Measurement
S-14	Circa 1877 - Cooling Tower Inlet	PWL (dB)	81.6	80.4	78.9	74.9	75.0	73.4	73.3	70.8	67.7	86.6					
		A-weighted correction	-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1						
		PWL (dBA)	42.2	54.2	62.8	66.3	71.8	73.4	74.5	71.8	66.6	79.6	No	0	78.5	60/60/30	GHD Site Measurement
E-01	Genset	PWL (dB)	104.6	101.0	102.4	101.3	99.3	94.0	88.0	81.0	73.9	109.2					

Appendix F

Sample CadnaA Calculation

Receiver

Name: Worst-Case East Facade of Building B

ID: POR-01

X: 538801.19 m

Y: 4812074.00 m

Z: 108.45 m

Point Source, ISO 9613, Name: "Circa 1877 - MUA Condenser Fan", ID: "!0C!S-08"

Nr.	X (m)	Y (m)	Z (m)	Refl.	DEN	Freq. (Hz)	Lw dB(A)	l/a dB	Optime dB	K0 (dB)	Di (dB)	Adiv (dB)	Aatm (dB)	Agr (dB)	Afol (dB)	Ahous (dB)	Abar (dB)	Cmet (dB)	RL (dB)	Lr dB(A)
1	538819.21	4812049.05	78.20	0	D	A	88.1	0.0	0.0	0.0	0.0	43.7	0.2	-0.3	0.0	0.0	0.1	0.0	0.0	44.4
1	538819.21	4812049.05	78.20	0	N	A	88.1	0.0	-3.0	0.0	0.0	43.7	0.2	-0.3	0.0	0.0	0.1	0.0	0.0	41.4
1	538819.21	4812049.05	78.20	0	E	A	88.1	0.0	0.0	0.0	0.0	43.7	0.2	-0.3	0.0	0.0	0.1	0.0	0.0	44.4
2	538819.21	4812049.05	78.20	1	D	A	88.1	0.0	0.0	0.0	0.0	51.0	0.5	-1.2	0.0	0.0	25.0	0.0	38.4	-25.6
2	538819.21	4812049.05	78.20	1	N	A	88.1	0.0	-3.0	0.0	0.0	51.0	0.5	-1.2	0.0	0.0	25.0	0.0	38.4	-28.6
2	538819.21	4812049.05	78.20	1	E	A	88.1	0.0	0.0	0.0	0.0	51.0	0.5	-1.2	0.0	0.0	25.0	0.0	38.4	-25.6
3	538819.21	4812049.05	78.20	1	D	A	88.1	0.0	0.0	0.0	0.0	44.3	0.2	-0.4	0.0	0.0	0.0	0.0	1.0	42.9
3	538819.21	4812049.05	78.20	1	N	A	88.1	0.0	-3.0	0.0	0.0	44.3	0.2	-0.4	0.0	0.0	0.0	0.0	1.0	39.9
3	538819.21	4812049.05	78.20	1	E	A	88.1	0.0	0.0	0.0	0.0	44.3	0.2	-0.4	0.0	0.0	0.0	0.0	1.0	42.9

Point Source, ISO 9613, Name: "Circa 1877 - North Fan", ID: "!0C!S-13"

Nr.	X (m)	Y (m)	Z (m)	Refl.	DEN	Freq. (Hz)	Lw dB(A)	l/a dB	Optime dB	K0 (dB)	Di (dB)	Adiv (dB)	Aatm (dB)	Agr (dB)	Afol (dB)	Ahous (dB)	Abar (dB)	Cmet (dB)	RL (dB)	Lr dB(A)
4	538827.24	4812059.13	84.50	0	D	A	78.1	0.0	0.0	0.0	0.0	42.7	0.1	-0.3	0.0	0.0	0.0	0.0	0.0	35.6
4	538827.24	4812059.13	84.50	0	N	A	78.1	0.0	-3.0	0.0	0.0	42.7	0.1	-0.3	0.0	0.0	0.0	0.0	0.0	32.6
4	538827.24	4812059.13	84.50	0	E	A	78.1	0.0	0.0	0.0	0.0	42.7	0.1	-0.3	0.0	0.0	0.0	0.0	0.0	35.6

Point Source, ISO 9613, Name: "Circa 1877 - Cooling Tower Inlet", ID: "!0C!S-12"

Nr.	X (m)	Y (m)	Z (m)	Refl.	DEN	Freq. (Hz)	Lw dB(A)	l/a dB	Optime dB	K0 (dB)	Di (dB)	Adiv (dB)	Aatm (dB)	Agr (dB)	Afol (dB)	Ahous (dB)	Abar (dB)	Cmet (dB)	RL (dB)	Lr dB(A)
5	538795.90	4812029.69	78.50	0	D	A	79.6	0.0	0.0	0.0	0.0	45.6	0.7	-0.5	0.0	0.0	0.0	0.0	0.0	33.8
5	538795.90	4812029.69	78.50	0	N	A	79.6	0.0	-3.0	0.0	0.0	45.6	0.7	-0.5	0.0	0.0	0.0	0.0	0.0	30.8
5	538795.90	4812029.69	78.50	0	E	A	79.6	0.0	0.0	0.0	0.0	45.6	0.7	-0.5	0.0	0.0	0.0	0.0	0.0	33.8

Point Source, ISO 9613, Name: "Circa 1877 - Cooling Tower Inlet", ID: "!0C!S-14"

Nr.	X (m)	Y (m)	Z (m)	Refl.	DEN	Freq. (Hz)	Lw dB(A)	l/a dB	Optime dB	K0 (dB)	Di (dB)	Adiv (dB)	Aatm (dB)	Agr (dB)	Afol (dB)	Ahous (dB)	Abar (dB)	Cmet (dB)	RL (dB)	Lr dB(A)
6	538802.63	4812024.15	78.50	0	D	A	79.6	0.0	0.0	0.0	0.0	46.3	0.7	-0.6	0.0	0.0	17.2	0.0	0.0	15.9
6	538802.63	4812024.15	78.50	0	N	A	79.6	0.0	-3.0	0.0	0.0	46.3	0.7	-0.6	0.0	0.0	17.2	0.0	0.0	12.9
6	538802.63	4812024.15	78.50	0	E	A	79.6	0.0	0.0	0.0	0.0	46.3	0.7	-0.6	0.0	0.0	17.2	0.0	0.0	15.9

Point Source, ISO 9613, Name: "Circa 1877 - Cooling Tower Outlet", ID: "!0C!S-09"

Nr.	X (m)	Y (m)	Z (m)	Refl.	DEN	Freq. (Hz)	Lw dB(A)	l/a dB	Optime dB	K0 (dB)	Di (dB)	Adiv (dB)	Aatm (dB)	Agr (dB)	Afol (dB)	Ahous (dB)	Abar (dB)	Cmet (dB)	RL (dB)	Lr dB(A)
7	538798.39	4812028.78	84.30	0	D	A	78.4	0.0	0.0	0.0	0.0	45.2	0.9	-0.4	0.0	0.0	0.0	0.0	0.0	32.7
7	538798.39	4812028.78	84.30	0	N	A	78.4	0.0	-3.0	0.0	0.0	45.2	0.9	-0.4	0.0	0.0	0.0	0.0	0.0	29.7
7	538798.39	4812028.78	84.30	0	E	A	78.4	0.0	0.0	0.0	0.0	45.2	0.9	-0.4	0.0	0.0	0.0	0.0	0.0	32.7

Point Source, ISO 9613, Name: "Circa 1877 - Cooling Tower Outlet", ID: "!0C!S-10"

Nr.	X (m)	Y (m)	Z (m)	Refl.	DEN	Freq. (Hz)	Lw dB(A)	l/a dB	Optime dB	K0 (dB)	Di (dB)	Adiv (dB)	Aatm (dB)	Agr (dB)	Afol (dB)	Ahous (dB)	Abar (dB)	Cmet (dB)	RL (dB)	Lr dB(A)
8	538801.73	4812026.11	84.30	0	D	A	78.4	0.0	0.0	0.0	0.0	45.6	0.9	-0.5	0.0	0.0	0.0	0.0	0.0	32.3
8	538801.73	4812026.11	84.30	0	N	A	78.4	0.0	-3.0	0.0	0.0	45.6	0.9	-0.5	0.0	0.0	0.0	0.0	0.0	29.3
8	538801.73	4812026.11	84.30	0	E	A	78.4	0.0	0.0	0.0	0.0	45.6	0.9	-0.5	0.0	0.0	0.0	0.0	0.0	32.3

Point Source, ISO 9613, Name: "Circa 1877 - Louvre in Enclosure", ID: "!0C!S-11"

Nr.	X (m)	Y (m)	Z (m)	Refl.	DEN	Freq. (Hz)	Lw dB(A)	l/a dB	Optime dB	K0 (dB)	Di (dB)	Adiv (dB)	Aatm (dB)	Agr (dB)	Afol (dB)	Ahous (dB)	Abar (dB)	Cmet (dB)	RL (dB)	Lr dB(A)
9	538814.46	4812041.05	79.50	0	D	A	76.8	0.0	0.0	0.0	0.0	44.2	0.3	-0.4	0.0	0.0	0.0	0.0	0.0	32.7
9	538814.46	4812041.05	79.50	0	N	A	76.8	0.0	-3.0	0.0	0.0	44.2	0.3	-0.4	0.0	0.0	0.0	0.0	0.0	29.7
9	538814.46	4812041.05	79.50	0	E	A	76.8	0.0	0.0	0.0	0.0	44.2	0.3	-0.4	0.0	0.0	0.0	0.0	0.0	32.7
10	538814.46	4812041.05	79.50	1	D	A	76.8	0.0	0.0	0.0	0.0	44.5	0.3	-0.4	0.0	0.0	0.0	0.0	1.0	31.4
10	538814.46	4812041.05	79.50	1	N	A	76.8	0.0	-3.0	0.0	0.0	44.5	0.3	-0.4	0.0	0.0	0.0	0.0	1.0	28.4

Appendix G

Consultant's Declaration

CANADA

PROVINCE OF ONTARIO

) In the Matter of the
) Environmental Protection
) Act and the Planning Act
)
)
) And in the Matter of
) 167-171 King Street South
) in the City of Waterloo
) in the Regional Municipality
) of Waterloo

I, Ben Wiseman, of the City of Kitchener, in the Regional Municipality of Waterloo, SOLEMNLY
DECLARE THAT:

1. I am an Acoustic Specialist with a Professional Engineering License, license number 100216175, issued through the Ontario Professional Engineers Act by Professional Engineers of Ontario (PEO) employed by GHD Limited (GHD) which holds a Certificate of Authorization and have personal knowledge of the matters set out below.
2. I was retained or employed as the principal consultant to undertake the assessment of noise impacts and recommendation of noise mitigation measures for the property described as 167-171 King Street South, Waterloo, Ontario.
3. I have the expertise required to perform these services. Any assessment activities or recommendations requiring the application of engineering principles have been undertaken or supervised by an engineer qualified to perform such services.
4. The information used in the letter report entitled "Noise Impact Study" dated July 3, 2025, is the best available information as of the date of the study.
5. The noise level calculations, the interpretation of noise attenuation requirements, and the recommended measures are in accordance with Ontario Ministry of Environment Guidelines, Region of Waterloo policies, and any applicable policy or guidelines of the Area Municipality, and any other applicable policy or guideline.
6. The physical noise attenuation measures proposed in this study are feasible to implement and will provide the level of attenuation indicated in the study.
7. I acknowledge that this study may be subject to peer review at my cost.
8. I acknowledge that public authorities and future owners, occupants and others may rely on this statement.

AND I make this solemn Declaration conscientiously believing it to be true, and knowing that it is of the same force and effect as if made under oath.

DECLARED before me at the City
of Waterloo, in the Regional
Municipality of Waterloo
This 3rd day of July, 2025



)
)
)
) 
Ben Wiseman

Appendix H

Owner's Statement

Name: VanMar Developments King Carol LP

Address: 145 Goddard Crescent
Cambridge, ON

Re: Noise Impact Study for the Proposed Residential Development at 167-171 King Street South in Waterloo, Ontario

OWNER'S STATEMENT

I am the owner of the property, or the owner's agent, and that I understand and agree with the noise assessment and potential attenuation measures detailed in the study entitled "Noise Impact Study" dated July 3rd, 2025, for the proposed residential development located at 167-171 King Street South in Waterloo, Ontario.

If the application is changed in a way that may affect the noise level calculations, I will have a revised noise study submitted to the Region of Waterloo.

Paul Leveck

Name



Signature

July 30, 2025

Date



ghd.com

→ The Power of Commitment