Updated Environmental Noise & Vibration Study

1 Rosetta Street, Georgetown

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0	October 4, 2024	Keni Mallinen	Scott Penton	Scott Penton

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Table of Contents

Tables in Text

Appended Figures

Appendices

1.0 Introduction

SLR Consulting (Canada) Ltd. (“SLR”), was retained by 1 Rosetta Street Inc. to conduct an Updated Environmental Noise and Vibration Study for their proposed residential development, to be located at 1 Rosetta Street in Georgetown, Ontario (“the Project site”). This assessment has been completed in support of the revised Zoning By-Law Amendment (“ZBA”) application to be filed with Town of Halton Hills.

This report is an Update to the Environmental Noise and Vibration Study completed by SLR, dated May 26, 2023. This Updated report includes additional information to address Peer Review Comments provided by Jade Acoustics Inc., the peer reviewer for Canadian National Railway (“CN”), dated April 3, 2024.

A Supplementary Assessment of Rail Noise Reflections to the Surrounding Environment letter report (dated October 4, 2024) has also been prepared under a separate cover to address Agency review comments.

1.1 Focus of Report

In keeping with Halton Region, Town of Halton Hills and Ministry of Environment, Conservation and Parks (MECP) requirements, this report examines the potential for:

- Impacts of the environment on the proposed development;
- Impacts of the proposed development on the environment; and
- Impacts of the proposed development on itself.

Mechanical systems associated with the development (e.g., cooling and ventilation equipment) have not been sufficiently designed at this stage and should be assessed at a future date. A general discussion has been included in this report to address the impacts of the proposed development on the environment and on itself.

1.2 Description of Proposed Development

The Project site is located at 1 Rosetta Street in Georgetown, Ontario. The development lands are currently occupied by a multi-tenant industrial building. It is located directly north of the Canadian National (CN) Halton Subdivision and Metrolinx rail corridor.

The proposed development includes three condominium buildings:

- Building 01: 12-storey residential;
- Building 02: 12-storey residential (attached to Building 01);
- Building 03: 8-storey residential; and,
- 2 levels of underground parking.

Buildings 01 and 02 will be connected via a single corridor and suites on both sides (with exterior green wall) through the centre of the buildings. Figures presented throughout this report for descriptive purposes show a dotted line approximating the location where Building 01 and Building 02 are separated.

Common outdoor amenity spaces within the development will include elevated terraces on the second level of Buildings 01 and 02, facing south, and a rooftop outdoor terrace atop Building 03.

The terrace on the second level of Buildings 01 and 02 will be surrounded by a sound barrier wall. The site plan and architectural drawings (including building sections) of the proposed development are provided for reference in **Appendix A**.

1.3 Nature of the Surroundings

The Project site is surrounded by existing residential homes in all directions. A moving and storage services facility (A-Plus Canada Inc. Self Storage) is located to the east of the site at 7 River Drive. The Metrolinx/CN rail corridor and Georgetown Station, including the Metrolinx Georgetown Layover Yard, is located to the south of the Project site. A brewery and other single family residential dwellings are located on the south side of the rail corridor.

The rail corridor currently consists of three tracks that are used by CN and GO/Metrolinx, plus the Layover Yard with tracks available where trains may idle.

SLR understands a new Metrolinx Heritage Layover Yard is proposed at a location approximately 4 km east of the Project site. Based on information provided by Metrolinx, the Heritage Road Layover Yard is expected to replace the existing Georgetown Layover Yard, which is approaching the end of its serviceable life. This construction is tentatively scheduled to be completed in 2026/2027.

A context plan is provided as **Figure 1**.

Part 1: Impacts of the Environment on the Development

In assessing potential noise impacts of the environment on the proposed development, the focus of this report is to assess the potential for:

- Transportation noise impacts from the Metrolinx (GO), CN Freight and CN Passenger trains along the railway line south of the site.
- Stationary source noise impacts from the surrounding sources on the development.

2.0 Transportation Noise Assessment

2.1 Transportation Noise Sources

The transportation noise source that has the potential to impact the proposed development is railway noise (Freight, VIA and GO) along the Halton Subdivision/Metrolinx rail corridor.

Roadway traffic volumes from Rosetta Street, Caroline Street, St. Michaels Street and River Drive around the development are expected to be sufficiently low such that noise impacts are insignificant relative to rail impacts; therefore, road traffic noise has not been considered further in the analysis.

Daytime and nighttime sound levels due to rail traffic at the proposed development have been predicted, and this information has been used to identify façade, ventilation and warning clause requirements.

2.2 Surface Transportation Noise Criteria

Noise-Sensitive Development

Ministry of the Environment, Conservation and Parks (MECP) Publication NPC-300 provides sound level criteria for noise-sensitive developments. The applicable portions of NPC-300 are Part C – Land Use Planning and the associated definitions outlined in Part A – Background. **Tables 1** to **4** summarize the applicable surface transportation (road and rail) criteria.

Location-Specific Criteria

Table 1 summarizes criteria in terms of energy equivalent sound exposure levels (L_{eq}) for specific noise-sensitive locations. Both outdoor and indoor locations are identified, with the focus of outdoor areas being amenity spaces. Indoor criteria vary with sensitivity of the space. As a result, Sleeping Quarters have more stringent criteria than Living/Dining Room spaces.

Table 1: NPC-300 Sound Level Criteria for Road and Rail Noise

Type of Space	Time Period	Energy Equivalent Sound Exposure Level L_{eq} [5] (dBA)		Assessment Location
		Road	Rail [1]	
Outdoor Amenity Area	Daytime (0700-2300h)	55	55	Outdoors [2]
Living/Dining Room [3]	Daytime (0700-2300h)	45	40	Indoors [4]
	Nighttime (2300-0700h)	45	40	Indoors [4]
Sleeping Quarters	Daytime (0700-2300h)	45	40	Indoors [4]
	Nighttime (2300-0700h)	40	35	Indoors [4]

Notes: [1] Whistle noise is excluded for OLA noise assessments and included for Living/Dining Room and Sleeping Quarter assessments, where applicable.

[2] Road and Rail noise impacts are to be combined for assessment of OLA impacts.

[3] Residence area Dens, Hospitals, Nursing Homes, Schools, Daycares are also included. During the nighttime period, Schools and Daycares are excluded.

[4] An assessment of indoor noise levels is required only if the criteria in **Table 4** are exceeded.

[5] L_{eq} – the energy equivalent sound level, integrated over the time period shown.

Outdoor Living Areas

Table 2 summarizes the noise mitigation requirements for outdoor amenity areas (“Outdoor Living Areas” or “OLAs”).

For the assessment of OLA sound levels, total surface transportation noise is determined by combining road and rail traffic sound levels. Whistle noise from trains is not included in the determination of outdoor sound levels.

Table 2: NPC-300 OLA Sound Level Criteria for Road and Rail Noise

Time Period	OLA Energy Equivalent Sound Exposure Level L_{eq} (dBA)	Mitigation/Warning Clause Requirements
Daytime (0700-2300h)	≤ 55	• None
	56 to 60 inc.	• Noise barrier OR Type A warning clause
	> 60	• Noise barrier to reduce noise to 55 dBA OR • Noise barrier to reduce noise to 60 dBA and Type B warning clause

Ventilation and Warning Clauses

Table 3 summarizes requirements for ventilation where windows would potentially have to remain closed as a means of noise control. Despite implementation of ventilation measures where required, if sound levels exceed the guideline limits in Table 1, warning clauses advising future occupants of the potential excesses are also recommended. Warning clauses also apply to OLAs.

Table 3: NPC-300 Ventilation and Warning Clause Recommendations

Assessment Location	Time Period	Energy Equivalent Sound Exposure Level – L_{eq} (dBA)		Ventilation and Warning Clause Requirements [2]
		Road	Rail [1]	
Outdoor Living Area	Daytime (0700-2300h)	56 to 60 incl.		Type A Warning Clause
Plane of Window	Daytime (0700-2300h)	≤ 55		None
		56 to 65 incl.		Forced Air Heating with provision to add air conditioning + Type C warning clause
		> 65		Central Air Conditioning + Type D warning clause
	Nighttime (2300-0700h)	51 to 60 incl.		Forced Air Heating with provision to add air conditioning + Type C Warning Clause
		> 60		Central Air Conditioning + Type D Warning Clause

Notes: [1] Whistle noise is excluded from assessment.
[2] Road and Rail noise is combined for determining Ventilation and Warning Clause requirements

Building Component Requirements

Table 4 provides sound level thresholds which, if exceeded, trigger a requirement for the building shell components (i.e., exterior walls, windows) to be designed accordingly to meet the applicable indoor sound criteria.

Table 4: NPC-300 Building Component Assessment Requirements

Assessment Location	Time Period	Energy Equivalent Sound Exposure Level – L_{eq} (dBA)		Component Requirements
		Road	Rail [1]	
Plane of Window	Daytime (0700-2300h)	> 65	> 60	Designed/ Selected to Meet Indoor Requirements [2]
	Nighttime (2300-0700h)	> 60	> 55	

Notes: [1] Whistle noise is included in assessment.
[2] Building component requirements are assessed separately for Road and Rail, and then combined for a resultant sound isolation parameter.

In addition to the building component criteria outlined in **Table 4**, NPC-300 also includes a façade construction requirement for rail noise only, outlined in **Table 5**. The façade construction requirements are necessary only if the proposed development is located in the first row of dwellings adjacent to the rail corridor, and within a 100 m distance.

Table 5: NPC-300 Rail Noise Façade Component Requirements

Assessment Location	Distance to Railway	24-hour Energy Equivalent Sound Level – Rail L_{eq} (24hr) (dBA) [1],[2]	Component Requirements
Plane of Window	Within 100 m[3]	< 60	No Additional Requirement
		> 60	Brick Veneer or Masonry Equivalent
	Beyond 100 m	< 60	No Additional Requirement
		> 60	No Additional Requirement

Notes: [1] Assessed for proposed developments located within the first row of dwellings adjacent to rail corridor.
[2] Whistle noise is included in the assessment, if sounded.

2.3 Traffic Data and Future Projections

Metrolinx/GO train volumes were obtained directly from Metrolinx in the form of future forecasted volumes. A copy of the most recent traffic data correspondence is included in **Appendix B**.

CN rail data for this track segment from year 2020 was grown to the future 2037 year assuming the typical growth rate of 2.5% per annum. CN traffic data are provided in **Appendix B** for reference.

Table 6 summarizes the rail traffic data used in the analysis.

Table 6: Summary of Rail Traffic Data Used in Transportation Noise Assessment

Railway Source	Train Type	Max. Locomotives per Train	Max. Cars per Train	Forecasted Train Volumes		Train Speed (km/hr)
				Daytime	Night-time	
CN Trains Halton Subdivision	CN Passenger (diesel)[1]	2	10	0	7[3]	80
	CN Freight (diesel) [1]	4	140	10[3]	14[3]	80
Metrolinx GO Trains Halton Subdivision	Metrolinx/GO (diesel) [2]	1	12	56	12	80
	Metrolinx/GO (diesel) [2]	2	12	8	0	80

Notes: [1] Rail traffic data provided by CN for year 2020 was projected to year 2037 at 2.5% annual growth rate.
[2] Metrolinx data represents forecasted future volumes
[3] Volumes are rounded up to the nearest whole number.

2.4 Predicted Sound Levels

Rail traffic sound levels at the proposed development were predicted using the U.S. Department of Transportation Federal Transit Administration ("FTA") and Federal Railway Administration ("FRA") rail noise modelling algorithms included in Cadna/A software. The FTA/FRA algorithms are the replacement models for the former MECP "STEAM" model and are written into the current draft version of MECP Publication NPC-306, which will replace the current NPC-206 guideline on transportation noise prediction. The FTA/FRA algorithms have been used in numerous Environmental Assessments ("EAs") for Metrolinx and CN railway projects, as well as in numerous land use planning projects across the province.

Sound levels were predicted along the facades of the proposed development using the "building evaluation" feature of Cadna/A. This feature allows for sound levels to be predicted across the entire façade of a structure. Ground absorption was modelled considering a value of G = 0.0 (reflective).

2.4.1 Noise Control Measures Included with Design

The terrace on the second level of Buildings 01 and 02 will be surrounded by a 2.95 m high sound barrier wall, included with the building design. The barrier was included in the analysis of all predicted sound levels. The extent of the barrier wall is shown in the results figures and in section drawings provided in **Appendix A**. The barrier must be constructed of material with a minimum surface density of 20 kg/m^2, and without any cracks or gaps (except for small, localized gaps under the barrier if required for drainage purposes). A range of materials can be used to construct the barrier, including plexiglass, provided the surface density requirements are met.

2.4.2 Façade Sound Levels – Daytime/Night-time Periods

Predicted worse-case façade sound levels are presented in **Table 7**. The transportation façade sound levels are shown in **Figure 2** and **Figure 3** for daytime and night-time periods, respectively.

The façade railway sound levels are predicted to be above 60 dBA (daytime) and/or 55 dBA (nighttime) along portions of facades for Building 02 and Building 03. Therefore, an assessment of building components is required. Refer to **Section 2.5**.

Table 7: Summary of Predicted Rail Traffic Façade Sound Levels

Building	Façade[1]	Predicted Rail Traffic Sound Level[2]	
		L_{eq}(16-hr) Daytime (dBA)	L_{eq}(8-hr) Nighttime (dBA)
Building 01	North	52	55
	East	65	68
	South	68	71
	West[2]	---	---
Building 02	North	60	62
	East	53	56
	South	68	71
	West	66	70
Building 03	North	57	60
	East	59	62
	South	58	62
	West	57	60

Notes: [1] Façade locations are shown in **Figure 2** and **Figure 3**. The sound levels presented are the highest on the entire façade.
[2] No west façade (Building 01) has been considered where Building 01 connects to Building 02.

2.4.3 Façade Sound Levels – 24-hour Period

An assessment of 24-hour sound levels (L_{eq}(24-hr)) was completed as the setback distance between the closest façade to the rail track is less than 100 m. The predicted façade sound levels are presented in **Table 8** showing highest levels for each façade, with complete results shown in **Figure 4**.

Table 8: Summary of Predicted Rail Traffic Sound Levels – 24-hour Period

Building	Façade[1]	Predicted Rail Traffic Sound Level[2] L_{eq} (24-hr) (dBA)
Building 01	North	53
	East	66
	South	69
	West[2]	---
Building 02	North	61
	East	54
	South	69
	West	68
Building 03	North	58
	East	60
	South	60
	West	58

Notes: [1] Façade locations are shown in **Figure 4**. The sound levels presented are the highest on the entire façade.
[2] No west façade (Building 01) has been considered where Building 01 connects to Building 02.

The proposed development Buildings 01 and 02 are planned to be constructed primarily with either brick veneer or pre-cast masonry material for the exterior walls, with small portions of south-facing, west-facing and east-facing window-wall containing spandrel panel. At south-facing locations with window-wall containing spandrel panel on the outer exterior of the building, the inner walls of proposed enclosed noise buffers (ENBs, refer to **Section 4.4**) will be constructed of masonry (pre-cast or poured) concrete material, thereby satisfying the NPC-300 building component requirement outlined in **Table 5**.

2.4.4 OLA Sound Levels

OLAs within the development will include a south-facing elevated terrace on the second level of Buildings 01 and 02, facing south, and a rooftop outdoor terrace atop Building 03. These are both greater than 4.0 m in depth and therefore have been considered in the assessment.

As the development includes a common amenity space for all occupants, the private terraces are not considered to be the only outdoor amenity space available. Therefore, an assessment of private terraces was excluded based on the definitions outlined in NPC-300.

The predicted OLA transportation sound levels are shown in **Figure 5** and summarized below in **Table 9**.

Table 9: Summary of Predicted Rail Traffic Sound Levels – Outdoor Living Areas

Assessment Location	Location Description	Predicted Rail Traffic Sound Level[1] L_{eq}(16-hr) Daytime (dBA)
OLA 01	Building 01/02 2nd Floor Elevated Terrace	54
OLA 02	Building 03 Rooftop Elevated Terrace	58
Notes:	[1] Predicted sound levels considered the screening from the 2.95 m high crash wall shown in **Figure 5** that is included as part of the building design.	

The predicted transportation sound level at OLA 01 is 54 dBA; therefore, additional mitigation is not required to address transportation-related rail traffic (provided a warning clause is included). For OLA 02, the sound level exceeds 55 dBA but is below 60 dBA; therefore, warning clauses are required. Refer to **Section 2.5.2**.

2.5 Noise Control Measures

2.5.1 Façade Assessment

2.5.1.1 Building Components Assessment

Analysis Method

The façade rail traffic sound levels are predicted to be above 60 dBA (daytime) and/or 55 dBA (nighttime) along portions of facades for Buildings 01, 02 and 03. Therefore, an assessment of glazing requirements is necessary for meeting the indoor sound level requirements outlined in **Table 1**.

Indoor sound levels and required facade Sound Transmission Classes (STCs) were estimated using the procedures outlined in National Research Council Building Practice Note BPN-56.

Calculated window STC ratings are the combined acoustical parameter determined from the individual locomotive, and wheel noise impacts. The highest daytime and nighttime period impacts along the facade were considered in this assessment, resulting in the highest STC requirements calculated for each façade location.

Detailed floor plans were not available at the time of the assessment. For the analysis, the following assumptions for were used considering exterior wall and glazing portions into ENBs, noise sensitive residential spaces, and noise sensitive spaces behind ENBs:

- For living/dining rooms (non-ENBs), 70% of the exterior wall is vision glass/patio doors;
- For bedrooms (non-ENBs), 50% of the exterior wall is vision glass;
- Living rooms were assumed to be 3 m x 6 m in size with ‘intermediate’ absorption;
- Bedrooms were assumed to be 3 m x 3 m in size and considered ‘very absorptive’;
- The interior portions of ENBs were considered ‘hard’ (reflective);

- For portions of the Building 01 east façade and Building 02 west facade (the first row of exposed residential units facing the railway) that do not include ENBs, elevation sections showing spandrel panel design will be backed with a concrete wall/masonry assembly (STC 54), meeting the 'brick veneer or masonry equivalent' construction noted in **Table 5**.
- All other exterior wall components within the proposed development, including the east façade of Building 02, north façade of Building 01, and all of Building 03, will be constructed with exterior wall meeting a minimum rating of STC 50. This will include a mix of brick veneer, concrete panel, and upgraded spandrel panel assembly.

As ENBs are recommended as part of the proposed development for Building 01 and Building 02, required sound isolation performance of the outer and inner glazing/exterior wall components of the ENBs were calculated. Glazing percentages of ENB exteriors were calculated based on elevation drawings provided for reference in **Appendix A**. Two scenarios were considered:

- **Scenario 1:** The outer ENB exterior is a combination of brick veneer/pre-cast masonry panel (STC 54) and vision glass, and the inner ENB (interior wall) is a combination of STC 45 construction and vision glass.
- **Scenario 2:** The outer ENB exterior is a combination of spandrel panel (STC 45) and vision glass, and the inner ENB (interior wall) is a combination of concrete (STC 54) and vision glass.

To determine the exterior and interior ENB glazing requirements, it was assumed that the outdoor portion of the ENB façade will achieve an overall rail traffic sound level of 50 dBA within the ENB. Then, the component requirements to further reduce the 50 dBA sound level to the indoor nighttime objective of 35 dBA were calculated. Calculations are provided for reference in **Appendix C**.

Building Component Requirements

Facade requirements are provided in **Table 10** for units with one exposed façade, where the Building 01/Building 02 ENB exterior wall is brick veneer or masonry equivalent construction (STC 54).

For units with one exposed façade, where the Building 01/Building 02 ENB interior wall assembly is of concrete construction (STC 54), facade requirements are provided in **Table 11**.

Table 12 includes building component requirements for corner units. There will be no corner bedrooms or living rooms with two exposed glazing components associated with Building 01, apart from the northeast corner.

Table 10: Summary of Façade Glazing Requirements for Proposed Development – Single Exposed Façade – Scenario 1 – ENBs of Building 01/02 South Façade with STC 54 Exterior Wall Construction

Building	Applicable Façade [1]	Non-Glazing Components	Glazing STC Requirements [2]	
			Living/Dining Room	Bedroom
Building 01	North	STC 50	OBC	OBC
	East (non-ENB)	STC 54[4]	STC 32	STC 37
	East (with ENB)	Inner Wall: STC 45	Inner Glazing: OBC	Inner Glazing: OBC
		Outer Wall: STC 54[3]	Outer Glazing: STC 30	Outer Glazing: STC 30
	South (with ENB)	Inner Wall: STC 45	Inner Glazing: OBC	Inner Glazing: OBC
		Outer Wall: STC 54[3]	Outer Glazing: STC 30	Outer Glazing: STC 30
	West	---	---	---
Building 02	North	STC 50	OBC	STC 32
	East	STC 50	OBC	OBC
	South (with ENB)	Inner Wall: STC 45	Inner Glazing: OBC	Inner Glazing: OBC
		Outer Wall: STC 54[3]	Outer Glazing: STC 30	Outer Glazing: STC 30
	West (non-ENB)	STC 54[4]	STC 33	STC 37
	West (with ENB)	Inner Wall: STC 45	Inner Glazing: OBC	Inner Glazing: OBC
		Outer Wall: STC 54[3]	Outer Glazing: STC 30	Outer Glazing: STC 30
Building 03	North	STC 50	OBC	OBC
	East	STC 50	OBC	STC 32
	South	STC 50	OBC	STC 31
	West	STC 50	OBC	STC 30

Notes:
[1] Refer to **Figure 3** and **Figure 4** for façade location identification. 'with ENB' = facades where ENBs are planned. 'Non-ENB' = facades where there will not be ENBs.
[2] OBC = windows meeting the minimum non-acoustic requirements of the Ontario Building Code (STC 29).
[3] The STC 54 assembly is to be brick veneer or concrete panel.
[4] Portions of exterior wall showing spandrel panel design require concrete/masonry wall assembly behind.

Table 11: Summary of Façade Glazing Requirements for Proposed Development – Single Exposed Façade – Scenario 2 – ENBs on Exterior of Building 01/02 South Façade with STC 45 Construction

Building	Applicable Façade [1]	Non-Glazing Components [2]	Glazing STC Requirements [2]	
			Living/Dining Room	Bedroom
Building 01	North	STC 50	OBC	OBC
	East (non-ENB)	STC 54[4]	STC 32	STC 37
	East (with ENB)	Inner Wall: STC 54[3]	Inner Glazing: OBC	Inner Glazing: OBC
		Outer Wall: STC 45	Outer Glazing: STC 31	Outer Glazing: STC 31
	South (with ENB)	Inner Wall: STC 54[3]	Inner Glazing: OBC	Inner Glazing: OBC
		Outer Wall: STC 45	Outer Glazing: STC 31	Outer Glazing: STC 31
	West	---	---	---
Building 02	North	STC 50	OBC	STC 32
	East	STC 50	OBC	OBC
	South (with ENB)	Inner Wall: STC 54[3]	Inner Glazing: OBC	Inner Glazing: OBC
		Outer Wall: STC 45	Outer Glazing: STC 31	Outer Glazing: STC 31
	West (non-ENB)	STC 54[4]	STC 33	STC 37
	West (with ENB)	Inner Wall: STC 54[3]	Inner Glazing: OBC	Inner Glazing: OBC
		Outer Wall: STC 45	Outer Glazing: STC 31	Outer Glazing: STC 31
Building 03	North	STC 50	OBC	OBC
	East	STC 50	OBC	STC 32
	South	STC 50	OBC	STC 31
	West	STC 50	OBC	STC 30

Notes: [1] Refer to **Figure 3** and **Figure 4** for façade location identification. 'with ENB' = facades where ENBs are planned. 'Non-ENB' = facades where there will not be ENBs.

[2] OBC = windows meeting the minimum non-acoustic requirements of the Ontario Building Code (STC 29).

[3] The STC 54 ENB interior wall assembly is to be a concrete/masonry wall assembly.

[4] Portions of exterior wall showing spandrel panel design require concrete/masonry wall assembly behind.

Table 12: Summary of Façade Glazing Requirements for Proposed Development – Corner Units

Building	Applicable Location [1]	Non-Glazing Components	Glazing STC Requirements [2]	
			Living/Dining Room	Bedroom
Building 01	NE Corner	STC 54	STC 32	STC 37
Building 02	NE Corner	STC 54	OBC	STC 33
	NW Corner	STC 54[3] / STC 50	STC 34	STC 38
Building 03	NE Corner	STC 50	OBC	STC 34
	SE Corner	STC 50	OBC	STC 35
	SW Corner	STC 50	OBC	STC 34
	NE Corner	STC 50	OBC	STC 33

Notes: [1] Refer to **Figure 3** and **Figure 4** for façade location identification. 'with ENB' = facades where ENBs are planned. 'Non-ENB' = facades where there will not be ENBs.

[2] OBC = windows meeting the minimum non-acoustic requirements of the Ontario Building Code (STC 29).

[3] West facade of exterior wall with spandrel panel design requires concrete/masonry wall assembly behind.

Where upgraded glazing is required, the combined glazing and frame assembly must be constructed to ensure the overall sound isolation performance of the entire window unit meets the specified STC rating. It is recommended that test data from the window manufacturer be reviewed to confirm the required acoustical performance is achieved.

The building façade requirements should be reviewed by an acoustical consultant when detailed suite layouts and elevations are available.

2.5.1.2 Ventilation and Warning Clause Requirements

The guidelines that trigger recommendations for warning clauses are summarized in **Table 2**. Where recommended, the warning clauses should be included in agreements registered on Title for the residential units and included in all agreements of purchase and sale or lease, and all rental agreements. Warning clause requirements are summarized in **Appendix D**.

Based on the predicted façade sound levels, central air conditioning and an MECP Type D warning clause are recommended for all residential units in Building 01, Building 02 and Building 03. It should be noted that due to the recommended Class 4 designation for the development, all units are expected to be provided with central air conditioning regardless of the transportation analysis.

Due to the proximity of the proposed development to the railway lines, standard CN and Metrolinx proximity warning clauses are also required for all residential units.

Refer to **Appendix D** for all warning clause details.

2.5.2 Outdoor Living Area Assessment

As the predicted outdoor sound level at OLA 01 meets 55 dBA with the crash wall barrier, an MECP Type B warning clause is recommended for all residential units in Buildings 01 and 02.

Furthermore, as the outdoor sound level at OLA 02 is 58 dBA without mitigation, an MECP Type A warning clause is recommended for all residential units in Building 03.

3.0 Transportation Vibration Assessment

3.1 Transportation Vibration Guidelines

There is no specific MECP guideline with respect to railway vibration for land use approvals. Both CN and Metrolinx/GO Transit have published their own criteria, and both require that vibration impact assessments be conducted to ensure that adverse vibration impacts do not occur. The document entitled 'Guidelines for New Development in Proximity to Railway Operations' prepared by the Federation of Canadian Municipalities (FCM) and the Railway Association of Canada (RAC) is also applicable for rail-generated vibration, and therefore used as a reference tool of best practices for rail-adjacent developments. Both CN and Metrolinx/GO endorse the FCM/RAC guidelines.

Both CN and Metrolinx/GO require the following with respect to rail vibration:

- Ground-borne vibration transmission to be evaluated in a report through site testing to determine if dwellings within 75 metres of the railway rights-of-way will be impacted by vibration conditions in excess of 0.14 mm/sec Root Mean Square (RMS) between 4 Hz and 200 Hz.
- The monitoring system should be capable of measuring frequencies between 4 Hz and 200 Hz, ± 3 dB, with an RMS averaging time constant of 1 second.
- If in excess, vibration isolation measures will be required to ensure living areas do not exceed 0.14 mm/s RMS.

3.2 Transportation Vibration Sources

The Halton Subdivision is the rail source of vibration located north of the proposed development, immediately adjacent to the Project site. Ground-borne vibration due to rail traffic along this railway is the focus of this assessment.

3.3 Vibration Measurement Program

Measurements of ground-induced vibration due to rail traffic along the Halton Subdivision were made at the Project site. Measurements were conducted on April 12, 2023, and were performed at two locations: one at the existing building footprint (Location L2), and one closer to the rail corridor (Location L1) – to capture variability in ground borne vibration propagation characteristics.

The vibration measurement locations are shown in **Figure 6**.

Rail traffic was determined to pass by the Project site primarily on Track 4 (GO passenger trains) and Track 5 (CN freight trains). The layover tracks (Tracks 1 through 3 inclusive) are intermittently used as well; the trains do not pass through, and instead come to a stop.

At least five (5) rail pass by events were captured of both GO trains and CN Freight trains along Track 4 and 5, respectively. Setback distances from the measurement locations are shown in **Figure 6**. Three train movements along layover tracks were also measured.

Vibration velocity amplitudes were collected with Syscom MR3000C units sampling at a rate of 1024 Hz.

3.4 Vibration Measurement Data Processing

Collected vibration data were reviewed and post-processed using MATLAB to compute overall RMS vertical vibration levels.

The measured data were post-processed per the FCM/RAC guideline to compute the 1-second sliding window RMS amplitudes of the vibration velocity in units of mm/s.

Coupling losses/attenuation due to the proposed Building 01/02 structure was applied to the measured vibration levels. Vibration levels are attenuated as they travel from the ground and enter building structures, due to coupling losses between the ground and building foundation. In general, the larger (more massive) the structure, the greater the coupling losses, and correspondingly the lower the vibration levels in the structure. The U.S. Federal Transit Administration ("FTA") Transit Noise and Vibration Impact Assessment Manual, which is a widely used reference in rail vibration analysis, provides a method for assessing the impacts of building structures on interior vibration levels, where impacts (if any) could be experienced. The adjustments are in units of VdB.

In this assessment, the vibration levels were adjusted using the method outlined in the FTA manual to account for what vibration levels would be experienced at the closest residential vibration-sensitive point of reception. For Buildings 01/02 this is expected to be at the 2nd floor, where the nearest residential units will be located. The adjustments applied to the measured vibration levels are summarized as follows:

Foundation Coupling, Large Building on Piles	-10 VdB	FTA Manual Table 6-12
Floor-to-Floor Attenuation, 1st to 2nd Floor	-2 VdB	FTA Manual Table 6-13
Resonance amplification, centre of span	+6 VdB	FTA Manual Table 6-13
TOTAL ADJUSTMENT	**- 6 VdB**	

3.5 Vibration Assessment Results – Existing Rail Traffic

Table 13 summarizes measured and calculated vibration levels due to all rail pass by events.

Raw vibration measurements at Location L2 indicate that for GO Trains and CN Freight Trains passing by the proposed development on Tracks 4 and 5, respectively, RMS vibration levels will be below applicable criteria. With additional attenuation due to foundation coupling and floor-to-floor attenuation considered, RMS vibration levels have been calculated to be well below 0.14 mm/s.

With respect to rail movements along the Layover Yard tracks (Tracks 1 and 3), calculated RMS vibration levels were also determined to be below the 0.14 mm/s criterion.

It should be further noted that due to the presence of the existing building at the Project site, it was not possible to take outdoor measurements at locations representing residential unit setbacks. Actual residential units will be set back further than the Location L2 vibration monitor, and therefore would be expected to experience even lower levels of ground borne vibration due to rail pass by events.

Based on the results of the vibration measurement program, mitigation is not required for the proposed development.

Table 13: Summary of Rail Vibration Levels – Existing Rail Traffic Pass-By Events

Train Pass-By Event	Description	Time	RMS Vibration Level (mm/s)				Criterion (mm/s)	Assessment of Compliance (Y/N)[2]
			Raw Data		Calculated Data			
			Location L1	Location L2	Location L1	Location L2[1]		
1	CN Train Westbound – Track 5	4:28 PM	0.120	0.078	0.060	0.039	0.14	Y
2	GO Train Westbound – Track 4	4:33 PM	0.141	0.076	0.071	0.038	0.14	Y
3	GO Train Westbound – Track 4	5:20 PM	0.155	0.092	0.077	0.046	0.14	Y
4	GO Train – Layover Track 3	5:33 PM	0.119	0.088	0.060	0.044	0.14	Y
5	GO Train Westbound – Track 4	5:41 PM	0.126	0.063	0.063	0.031	0.14	Y
6	GO Train – Layover Track 1	6:08 PM	0.314	0.151	0.157	0.076	0.14	Y
7	GO Train – Layover Track 1	6:12 PM	0.370	0.183	0.186	0.092	0.14	Y
8	GO Train Westbound – Track 4	6:15 PM	0.141	0.069	0.070	0.035	0.14	Y
9	CN Train Westbound – Track 5	6:37 PM	0.164	0.087	0.082	0.044	0.14	Y
10	GO Train Westbound – Track 4	6:43 PM	0.173	0.083	0.087	0.042	0.14	Y
11	GO Train Westbound – Track 4	7:03 PM	0.115	0.060	0.057	0.030	0.14	Y
12	CN Train Westbound – Track 5	7:44 PM	0.177	0.097	0.089	0.048	0.14	Y
13	CN Train Westbound – Track 5	7:55 PM	0.168	0.096	0.084	0.048	0.14	Y

Train Pass-By Event	Description	Time	RMS Vibration Level (mm/s)				Criterion (mm/s)	Assessment of Compliance (Y/N)[2]
			Raw Data		Calculated Data			
			Location L1	Location L2	Location L1	Location L2[1]		
14	GO Train Eastbound – Track 4	9:28 PM	0.120	0.063	0.060	0.032	0.14	Y
15	CN Train Westbound – Track 5	9:47 PM	0.144	0.073	0.072	0.036	0.14	Y
16	GO Train Westbound – Track 4	10:32 PM	0.127	0.069	0.063	0.035	0.14	Y
17	CN Train Westbound – Track 5	10:36 PM	0.138	0.086	0.069	0.043	0.14	Y

Notes: [1] Values have been calculated to account for foundation coupling losses/attenuation, floor-to-floor attenuation, and resonance amplification as outlined in **Section 3.4**.

[2] Assessment of compliance refers to comparison of Calculated Data vibration level to the 0.14 mm/s criterion.

3.6 Vibration Assessment Considerations – Future Rail Traffic

SLR understands that based on correspondence from Metrolinx, it is possible that Track 2 and Track 3 in the Layover Yard could be converted to pass-through tracks in the future (once the future Heritage Road Layover Yard is constructed). This would introduce rail sources of ground vibration closer to the proposed development than trains measured along Tracks 4 and 5 as part of the Vibration Measurement Program on April 12, 2023.

As pass-through traffic is not currently occurring along the Layover Yard tracks, calculated propagation of ground borne vibration between measurements Locations L1 and L2 was used to estimate future RMS vibration levels should GO Trains and CN Freight Trains travel on Tracks 2 and 3. It was assumed that attenuation of ground borne vibration within the ground would be linear between measurement locations.

The setback distances of Tracks 2 and 3 from the measurement locations were considered as follows:

- Measurement Location L1: Track 2 setback 9.8 m, Track 3 setback 16.0 m
- Measurement Location L2: Track 2 setback 29.3 m, Track 3 setback 35.5 m

Estimated vibration levels at Location L2 (nearest building footprint) for trains travelling along Track 2 and Track 3 are presented in **Table 14**.

Table 14 presents ‘raw data’ (i.e., raw measurements propagated to new distances assuming rail traffic occurred along Tracks 2 and 3), and ‘calculated data’ (i.e., further considers attenuation as noted in **Section 3.4**).

Calculated RMS vibration levels at Location L2 are below the 0.14 mm/s criterion for every GO Passenger Train and CN Freight Train based on estimated propagation. Furthermore, current rail movements along Tracks 1 and 3 (previously shown in **Table 13**) yielded calculated RMS vibration levels below 0.14 mm/s.

Based on this analysis, RMS vibration levels above 0.14 mm/s are not anticipated should rail pass-through traffic along Track 2 and Track 3. Vibration mitigation is therefore not anticipated to be required.

Table 14: Summary of Rail Vibration Levels – Future Rail Traffic Pass-By Events

Train Pass-By Event	Description	Time	RMS Vibration Level (mm/s)				Criterion (mm/s)	Assessment of Compliance (Y/N)[2]
			Raw Data		Calculated Data			
			Location L1	Location L2	Location L1	Location L2[1]		
1	CN Train Westbound – Track 5	4:28 PM	0.134	0.067	0.120	0.060	0.14	Y
2	GO Train Westbound – Track 4	4:33 PM	0.128	0.064	0.108	0.054	0.14	Y
3	GO Train Westbound – Track 4	5:20 PM	0.142	0.071	0.122	0.061	0.14	Y
4	GO Train – Layover Track 3	5:33 PM	0.114	0.057	0.094	0.047	0.14	Y
5	GO Train Westbound – Track 4	5:41 PM	0.127	0.063	0.104	0.052	0.14	Y
6	GO Train – Layover Track 1	6:08 PM	0.189	0.095	0.165	0.082	0.14	Y
7	GO Train – Layover Track 1	6:12 PM	0.156	0.078	0.127	0.064	0.14	Y
8	GO Train Westbound – Track 4	6:15 PM	0.104	0.052	0.086	0.043	0.14	Y
9	CN Train Westbound – Track 5	6:37 PM	0.203	0.102	0.177	0.089	0.14	Y
10	GO Train Westbound – Track 4	6:43 PM	0.191	0.096	0.168	0.084	0.14	Y

Train Pass-By Event	Description	Time	RMS Vibration Level (mm/s)				Criterion (mm/s)	Assessment of Compliance (Y/N)[2]
			Raw Data		Calculated Data			
			Location L1	Location L2	Location L1	Location L2[1]		
11	GO Train Westbound – Track 4	7:03 PM	0.109	0.055	0.091	0.045	0.14	Y
12	CN Train Westbound – Track 5	7:44 PM	0.167	0.084	0.144	0.072	0.14	Y
13	CN Train Westbound – Track 5	7:55 PM	0.115	0.058	0.097	0.049	0.14	Y
14	GO Train Eastbound – Track 4	9:28 PM	0.155	0.078	0.138	0.069	0.14	Y
15	CN Train Westbound – Track 5	9:47 PM	0.134	0.067	0.120	0.060	0.14	Y
16	GO Train Westbound – Track 4	10:32 PM	0.128	0.064	0.108	0.054	0.14	Y
17	CN Train Westbound – Track 5	10:36 PM	0.142	0.071	0.122	0.061	0.14	Y

Notes: [1] Values have been calculated to account for foundation coupling losses/attenuation, floor-to-floor attenuation, and resonance amplification as outlined in **Section 3.4**.

[2] Assessment of compliance refers to comparison of Calculated Data vibration level to the 0.14 mm/s criterion.

4.0 Stationary Source Noise Assessment

A review has been conducted for the potential impacts on the proposed development from nearby stationary noise sources.

SLR staff completed a site visit on October 14th, 2020 to survey the surrounding area for potential stationary noise sources. An aerial imagery review was also conducted of the development lands and surrounding area. Impulsive noise sources were not observed by SLR staff during the site visit.

During the site visit, the Metrolinx (GO) Georgetown Layover Yard to was identified as stationary source to the south with potential to impact the proposed development. SLR understands the new Metrolinx Heritage Layover Yard is proposed at a location approximately 4 km east of the development. Based on information provided by Metrolinx, the Heritage Road Layover Yard is expected to replace the existing Georgetown Layover Yard, which is approaching the end of its serviceable life. The completion timeframe is understood to be 2026/2027 based on correspondence from Metrolinx.

Once the Heritage Road Layover Yard is built and fully operational, the Georgetown Layover Yard is not expected to be a significant noise source in proximity to the proposed development.

As the scheduling of constructing the Heritage Road Layover Yard is tentative and the Georgetown Layover Yard is currently operational, an assessment of its stationary noise impacts was completed due to its proximity to the proposed development.

4.1 Stationary Source Noise Guidelines

4.1.1 MECP Publication NPC-300 – Stationary Sources

The applicable MECP noise guidelines for new sensitive land uses adjacent to existing industrial commercial uses are provided in MECP Publication NPC-300. NPC-300 revokes and replaces the previous noise assessment guideline, Publication LU-131 and Publication NPC-205, which was previously used for assessing noise impacts as part of Certificates of Approval / Environmental Compliance Approvals granted by the MECP for industries.

The new guideline sets out noise limits for two main types of noise sources:

- Non-impulsive, “continuous” noise sources such as ventilation fans, mechanical equipment, and vehicles while moving within the property boundary of an industry. Continuous noise is measured using 1-hour average sound exposures (Leq (1-hr) values), in dBA; and
- Impulsive noise, which is a “banging” type noise characterized by rapid rise time and decay. Impulsive noise is measured using a logarithmic mean (average) level (LLM) of the impulses in a one-hour period, in dBAI.

Furthermore, the guideline requires an assessment at, and provides separate guideline limits for:

- Outdoor points of reception (e.g., back yards, communal outdoor amenity areas); and
- Façade points of reception such as the plane of windows on the outdoor façade which connect onto noise sensitive spaces, such as living rooms, dens, eat-in kitchens, dining rooms and bedrooms.

The applicable noise limits at a point of reception are the higher of:

- The existing ambient sound level due to road traffic, or
- The exclusion limits set out in the guideline.

Table 14 sets out the exclusion limits from the guideline for continuous noise.

4.1.2 MECP Publication NPC-300 – Layover Yards

Section C4.5.4 of NPC-300 defines the sound level limit for noise from a layover site such as the Georgetown GO Layover Yard, expressed in terms of the One-Hour Equivalent Sound Level (Leq(1-hr), in dBA). The limit is the higher of either 55 dBA or the background sound level, during any hour of the day.

The layover yard criteria are also shown in **Table 15** for reference.

Table 15: NPC-300 Minimum Exclusionary Guideline Limits for Continuous Sources

Time of Day	Class 1 Area		Class 4 Area		Layover Yards
	Plane of Window	Outdoor Point of Reception	Plane of Window	Outdoor Point of Reception	
Daytime Period (0700h – 1900h)	50	50	60	55	55
Evening Period (1900h – 2300h)	50	50	60	55	55
Nighttime Period (2300h – 0700h)	45	n/a[1]	55	n/a[1]	55
Notes: [1] Outdoor Point of Reception limits are not applicable during the nighttime period.					

4.1.3 Application of the NPC-300 Guidelines

The noise guidelines apply only to residential land uses and to noise-sensitive commercial and institutional uses, as defined in NPC-300 (e.g., schools, daycares, hotels). For the Project, the guidelines only apply to the residential portions of the development, including:

- Individual residences;
- Communal indoor amenity areas; and
- Communal outdoor amenity areas.

All the above have been considered as noise-sensitive points of reception in the analysis.

4.1.4 Proposed Area Classification

Under Ministry of the Environment, Conservation & Parks (MECP) Publication NPC-300 noise guidelines, noise sensitive receptors are defined using area classifications. The receptor areas are classified as either:

- Class 1 – Urban areas;
- Class 2 – Suburban / semi-rural areas;
- Class 3 – Rural areas; and
- Class 4 – Infill areas.

In addition, layover yards, as noted previously, are considered separately and are assessed against relaxed guideline limits.

Depending on the receptor area classification, different guideline limits apply. Classes 1, 2 and 3 were included in the predecessor guidelines to NPC-300, namely MECP Publications NPC-205, NPC-232, and LU-131. The Class 4 designation is a new designation, intended to allow for infill and redevelopment, whilst still protecting residences from undue noise.

The area is urban in nature and dominated by man-made sounds, including road traffic noise and an “urban hum”, including idling train noise during the overnight period. The acoustic environment is considered to be a Class 1 area. As the project site meets the definition and requirements for a Class 4 area, it would be recommended and appropriate to issue a Class 4 designation for the development lands.

In NPC-300, a “Class 4” area is defined as:

An area or specific site that would otherwise be defined as Class 1 or 2 and which:

- is an area intended for development with new noise sensitive land use(s) that are not yet built;
- is in proximity to existing, lawfully established stationary source(s); and
- has formal confirmation from the land use planning authority with the Class 4 area classification which is determined during the land use planning process.

Section C4.4.2 of Publication NPC-300 further discusses the use of Class 4 areas:

> “Class 4 area classification is based on the principle of formal confirmation of the classification by the land use planning authority. Such confirmation would be issued at the discretion of the land use planning authority and under the procedures developed by the land use planning authority, in the exercise of its responsibility and authority under the Planning Act.
>
> The following considerations apply to new noise sensitive land uses proposed in a Class 4 area:
>
> - an appropriate noise impact assessment should be conducted for the land use planning authority as early as possible in the land use planning process that verifies that the applicable sound level limits will be met;
> - noise control measures may be required to ensure the stationary source complies with the applicable sound level limits at the new noise sensitive land use;
> - noise control measures may include receptor-based noise control measures and/or source-based noise control measures;
> - source based noise control measures may require an MECP approval;
> - receptor based noise control measures may require agreements for noise mitigation, as described in Part A of this guideline;
> - prospective purchasers should be informed that this dwelling is in a Class 4 area through appropriate means and informed of the agreements for noise mitigation. Registration on title of the agreements for noise mitigation is recommended. Additionally, registration on title of an appropriate warning clause to notify purchasers that the applicable Class 4 area sound level limits for this dwelling are protective of indoor areas and assume of closed windows, such as an MECP Type F warning clause in Section C8.3; and
> - any final agreements for noise mitigation as described in Part A of this guideline and all other relevant documentation are to be submitted to the MECP by the stationary source owner(s) when applying for an MECP approval. These agreements will be assessed during the review of the application for MECP approvals.”

The Project meets the definitions and requirements for a Class 4 area listed in Publication NPC-300:

- The Project site is close proximity to an area that contains existing and proposed mixed-use developments and is intended for new high-intensity developments’
- The Project site is in proximity to existing lawfully established noise generating sources;

- The Project site does not contain existing noise-sensitive land-uses; and
- An appropriate, detailed noise impact assessment will be conducted as part of the zoning by-law amendment application (i.e., this study and report).

It is therefore appropriate for the Town of Halton Hills to declare the development property as a Class 4 area, under their role as the land use planning authority, in the exercise of its responsibility and authority under the Planning Act. For reference, the City of Toronto and other municipalities have issued a Class 4 designation for other similar developments, including but not limited to:

- The Mimico-Judson Secondary Plan area (Judson Street, Newcastle Street, Buckingham Street), in Etobicoke
- The Lower Yonge Precinct, in Toronto;
- The Stanley Greene District (80 Carl Hall Road), in Toronto;
- The Toronto Port Lands, in Toronto;
- 390 to 440 Dufferin Street, in Toronto;
- 815-845 Eglinton Ave E, in Toronto;
- 23 And 25 Glen Watford Drive , in Toronto;
- Highway 7, east of Keele Street, in Vaughan;
- Milton Meadows Precinct, in Milton;
- West Harbour District, in Hamilton; and
- Masonry Court, east of Waterdown Road, in Burlington.

It is important to note that the Class 4 designation only applies to the development lands. Existing noise-sensitive receptors in the area will remain as Class 1 areas and subject to the requirements in NPC-300. Therefore, the designation will not allow for industries to increase their noise impacts at existing residences.

The proposed development meets the general requirements of obtaining a Class 4 area designation under NPC-300: that is to say, the development is in an area intended for future residences (new noise sensitive land uses) that are not yet built; and it is in proximity to existing, lawfully established stationary sources.

For this assessment, both the Layover Yard and Class 4 limits have been investigated.

4.2 Stationary Noise Modelling

Idling locomotives operating at the Georgetown GO Layover Yard were assessed in this study based on observed locations of 2 locomotives by SLR staff. The 2 idling locomotives were modelled as area sources across the Yard, based on historical sound level data and idling times (15 minutes), in which the layover yard guideline limits are met at existing homes. Both trains were included in the daytime, evening and nighttime 1-hour periods based on a predictable worst-case assessment of noise impacts.

Sound levels from stationary sources were modelled using Cadna/A, a software implementation of the internationally recognized ISO-9613-2 environmental noise propagation algorithms. Cadna/A / ISO-9613 is the preferred noise model of the MECP. The ISO-9613 equations account for:

- Source to receiver geometry;
- Distance attenuation;
- Atmospheric absorption;
- Reflections off of the ground and ground absorption;
- Reflections off of vertical walls; and
- Screening effects of buildings, terrain, and purpose-built noise barriers (noise walls, berms, etc.).

The following additional parameters were used in the modelling, which are consistent with providing a conservative (worst-case assessment of noise levels):

- Temperature: 10°C;
- Relative Humidity: 70%;
- Ground Absorption G: G = 0.0 (reflective) as default global parameter;
- Reflection: An order of reflection of 2 was used (accounts for noise reflecting from walls);
- Wall Absorption Coefficients: A CadnaA default coefficient for Structured Facades was applied in the modelling for buildings, and for the 2nd floor amenity terrace barrier, a Smooth Façade was applied; and
- Terrain: Relatively flat near the Project site.

SLR historical sound level data was applied in the stationary noise modelling. A summary of the sound levels used in the analysis and source operating conditions is included in **Appendix E**. All stationary sources modelled are shown in **Figure 7**.

The “building evaluation” feature of Cadna/A was used to predict sound levels on the residential portions of the towers and podium. This feature allows for noise levels to be predicted across the entire façade of a structure. Outdoor sound levels were assessed at 1.5 m above the terrace level, at usable locations within the terrace.

4.3 Predicted Façade Sound Levels

A summary of the predicted unmitigated sound levels from Georgetown Layover Yard on each façade are shown in **Figure 8** and summarized in **Table 16**.

The predicted façade sound levels along a portion of the Building 02 west façade, the Building 02 south façade, the south façade of Building 01, and a portion of the east façade of Building 01 exceed the applicable layover yard guideline limits during all hours. Furthermore, the Class 4 limits are predicted to be exceeded during nighttime hours at these same locations. Therefore, an assessment of mitigation measures is required.

Table 16: Predicted Stationary Source Façade Sound Levels – Unmitigated

Building	Façade [1]	Max Predicted Sound Level L_{eq}(1hr) (dBA) (D/E/N)	Layover Yard Guideline Limit (dBA) (D/E/N)	Meets Layover Yard Guideline Limit? (Y/N) (D/E/N)	Class 4 Guideline Limit (dBA) (D/E/N)	Meets Class 4 Guideline Limit? (Y/N) (D/E/N)
Building 01	North	40 / 40 / 40	55 / 55 / 55	Y / Y / Y	60 / 60 / 55	Y / Y / Y
	East	58 / 58 / 58		N / N / N		Y / Y / N
	South	63 / 63 / 63		N / N / N		N / N / N
	West [2]	- / - / -		- / - / -		- / - / -
Building 02	North	39 / 39 / 39	55 / 55 / 55	Y / Y / Y	60 / 60 / 55	Y / Y / Y
	East	35 / 35 / 35		Y / Y / Y		Y / Y / Y
	South	64 / 64 / 64		N / N / N		N / N / N
	West	58 / 58 / 58		Y / Y / Y		Y / Y / N
Building 03	North	27 / 27 / 27	55 / 55 / 55	Y / Y / Y	60 / 60 / 55	Y / Y / Y
	East	42 / 42 / 42		Y / Y / Y		Y / Y / Y
	South	42 / 42 / 42		Y / Y / Y		Y / Y / Y
	West	32 / 32 / 32		Y / Y / Y		Y / Y / Y

Notes: [1] Façade locations are shown in **Figure 8** and **Figure 9**. The sound levels presented are the highest on the entire façade.
[2] No west façade of Building 01 has been considered as Building 01 connects to Building 02.

4.3.1.1 Predicted Outdoor Point of Reception Sound Levels

The predicted OPOR stationary sound levels from the Georgetown Layover Yard are shown in **Figure 8** and summarized in **Table 17**.

Table 17: Predicted Stationary Source OPOR Sound Levels – Unmitigated

Assessment Location	Description	Max Predicted Sound Level L_{eq}(1hr) (dBA) [1] (D/E)	Class 4 and Layover Yard Limits (dBA) (D/E)	Meets Class 4 Guideline Limit? (Y/N) (D/E)
OPOR 01A	Building 01/02 2nd Floor Elevated Terrace	55 / 55	55 / 55	Y / Y
OPOR 01B		52 / 52	55 / 55	Y / Y
OPOR 01C		55 / 55	55 / 55	Y / Y
OPOR 01A	Building 03 Rooftop Elevated Terrace	32 / 32	55 / 55	Y / Y

Notes: [1] Assessed including the screening from the 2.95 m high sound barrier/crash wall shown in Development Drawings (refer to **Appendix A** and **Figure 8**).

The layover criteria of 55 dBA are met at all locations, provided the 2.95 m high sound barrier is constructed as previously discussed and required for transportation rail noise (refer to **Section 2.5.2** for details).

4.4 Mitigation Requirements

4.4.1 Preliminary Mitigation Review

As shown above, NPC-300 Layover Yard and Class 4 guideline limit excesses were predicted to range from 1 to 11 dB along the proposed development's Building 01 south and east facades, and a portion of the Building 02 south and west façades. The following is a general discussion of possible mitigation options considered for the development.

4.4.1.1 Source-Based Noise Mitigation

A discussion of the possible noise controls measures for achieving the required reduction of GO Train locomotive noise is provided below:

- **Installation of an acoustical barrier** – Given the height requirements needed to screen elevated receptors (e.g., 12th-floor units) from idling locomotives, the extent and height of such a barrier would be impractical. Preliminary noise modelling was not able achieve the required reduction along all façades of the development with either a traditional barrier or a cantilevered barrier.
- **Physical mitigation measures to the locomotive** – Installing permanent mitigation on the locomotives themselves would be impractical due to need to treat the entire fleet of GO Trains in service along the rail subdivision.
- **Physical mitigation measures for the locomotive in the form of a temporary hood, applied as needed** – This option would be considered impractical due to the daily use and movement of the trains. In addition, this would be excessively costly for the required reduction in noise, and administratively difficult given the space constraints of the layover yard and the number of locomotive locations possible on-site.
- **Construction of an extension/enclosure over the layover yard** – Construction of a canopy/enclosure over the layover yard would likely provide sufficient reductions in noise. However, significant effort and cost would be required to include a structure over the entire layover yard with sufficient density to effectively reduce noise. Additionally, high volume ventilation fans would be required to address diesel fumes within the building during engine warm up, which would also need to be mitigated. This option is considered excessively costly and complex for the required reduction in noise.

4.4.1.2 Receptor-Based Noise Mitigation

The following is summary of the possible development noise controls considered to addresses excesses from idling locomotives.

Site Configuration

- **Change Building 01/02 from Residential to a Commercial/Office building –** The inclusion of a non-noise sensitive building will provide additional screening from the industries to the south. This is not considered a feasible option, as Commercial/Office space would not be attractive from a business/economic perspective for this location in Georgetown.

- **Increase set back distances from the Layover Yard** – Given the size of the development site, any increase in distance would reduce the total number of units and the development would not be economically justifiable/feasible.

Blank/Non-Noise-Sensitive Facades

- A blank façade or corridor along the south and east sides of Building 01 and the west side of Building 02 would require a single-loaded design for the building. This would reduce the total number of units and the development would not be economically justifiable/feasible.

Enclosed Noise Buffers

- The NPC-300 guideline allows for the use of additional mitigation in the form of "Enclosed Noise Buffers" (ENBs) on high-rise, multi-unit buildings, in which a Class 4 area designation is required for the development.

ENBs overlap sensitive windows and essentially act as a "secondary skin facade", providing an initial reduction in noise prior to impacting the window on the sensitive space, thus ensuring that the noise guidelines are met at the exterior plane of windows next to noise sensitive spaces. The exterior plane of the window next to the noise sensitive space is defined as a sensitive point of reception (POR) in NPC-300. Figures summarizing the ENB concepts are included for reference in **Appendix D**.

4.4.2 Class 4 Area Designation

Class 4 area designation is considered appropriate for the proposed development and should be sought from the Town of Halton Hills to allow for the application of ENBs. This is based on:

- The development lands being located in a Class 1 urban area;
- The lands are intended for development of new residential lands; and
- The surrounding stationary sources are lawfully established, where MECP permitting is not required for the layover yard.

As mentioned above, typical mitigation measures for addressing noise from idling locomotives are considered excessively costly, infeasible and/or impractical. The exception is ENBs, in which a Class 4 Area Designation is required for the development lands.

With the approval of a Class 4 designation, the application of receptor-based ENB mitigation would be possible as a noise control option for the development and is therefore recommended.

4.4.3 Application of Enclosed Noise Buffers (ENBs)

With the application of the Class 4 guideline limits, the guideline limits are exceeded along the south and east facades of Building 01, and the west façade of Building 02 (refer to **Table 13**) and shown in **Figure 8**. For these facades, application of ENB is recommended.

The following is a summary of the requirements for the application of ENBB as a noise mitigation measures:

1 A "Class 4" area designation must be obtained from the land use planning authority.

2 Noise-sensitive windows of all residential units must be located behind an ENB, as defined under Publication NPC-300 (see Appendix D for concept details). The characteristics of an enclosed noise buffer are listed below:

- Not less than one metre and not more than two metres in depth;
- Fully enclosed with floor to ceiling glazing or a combination of solid parapet plus glazing above
- Glazing can potentially be operable to the maximum permitted by the Ontario Building Code;
- Separated from interior space with a weatherproof boundary of exterior grade wall, exterior grade window, exterior grade door, or any combination, in compliance with exterior envelope requirements of the Ontario Building Code;
- Of sufficient horizontal extent to protect windows of noise sensitive spaces; and
- The architectural design is not amenable to converting the enclosed space to being noise-sensitive.

The ENBs must extend to cover windows and patio doors connected to noise sensitive spaces such as living rooms, kitchens, bedrooms, and dens. Non-noise sensitive spaces such as corridors, bathrooms, or laundry rooms do not need to be enclosed.

3 Noise Warning Clauses – In addition to the NPC-300 Type E warning clause, a warning clause is required for notification the proposed development is located within an MECP NPC-300 Class 4 Area. An MECP NPC-300 Type F warning clause is required for all units within the building. The Type F warning clause is included in Appendix D.

4 Under the Class 4 designation, when receptor-based noise mitigation measures are used, such as enclosed noise buffer balconies, then a legally-binding “Agreement for Noise Mitigation” must be entered into, between the land use planning authority, the developer and the affected industries (e.g., Metrolinx). The purpose of such an agreement is to ensure that any receptor-based noise mitigation measures are implemented and maintained.

With the inclusion of ENBs meeting the requirements noted above, the applicable guideline limits are considered to be met at the proposed development on all facades from Georgetown Layover Yard idling train noise. The facades recommended for ENBs are shown in **Figure 9** and **Figure D1**, **Appendix D**.

Figure 9 and **Table 18** show the evaluation of stationary source noise impacts indicating compliance with applicable Class 4 limits at all other potentially noise-sensitive locations within the proposed development.

Table 18: Predicted Stationary Source Façade Sound Levels – Mitigated (with ENBs)

Building	Façade [1]	Max Predicted Sound Level L_{eq}(1hr) (dBA) (D/E/N)	Layover Yard Guideline Limit (dBA) (D/E/N)	Meets Layover Yard Guideline Limit? (Y/N) (D/E/N)	Class 4 Guideline Limit (dBA) (D/E/N)	Meets Class 4 Guideline Limit? (Y/N) (D/E/N)
Building 01	North	40 / 40 / 40	55 / 55 / 55	Y / Y / Y	60 / 60 / 55	Y / Y / Y
	East	49 / 49 / 49		Y / Y / Y		Y / Y / Y
	South	- / - / - [3]		- / - / - [3]		- / - / - [3]
	West [2]	- / - / -		- / - / -		- / - / -

Building	Façade [1]	Max Predicted Sound Level L_{eq}(1hr) (dBA) (D/E/N)	Layover Yard Guideline Limit (dBA) (D/E/N)	Meets Layover Yard Guideline Limit? (Y/N) (D/E/N)	Class 4 Guideline Limit (dBA) (D/E/N)	Meets Class 4 Guideline Limit? (Y/N) (D/E/N)
Building 02	North	39 / 39 / 39	55 / 55 / 55	Y / Y / Y	60 / 60 / 55	Y / Y / Y
	East	35 / 35 / 35		Y / Y / Y		Y / Y / Y
	South [3]	- / - / - [3]		- / - / - [3]		- / - / - [3]
	West	52 / 52 / 52[3]		Y / Y / Y		Y / Y / Y
Building 03	North	27 / 27 / 27	55 / 55 / 55	Y / Y / Y	60 / 60 / 55	Y / Y / Y
	East	42 / 42 / 42		Y / Y / Y		Y / Y / Y
	South	42 / 42 / 42		Y / Y / Y		Y / Y / Y
	West	32 / 32 / 32		Y / Y / Y		Y / Y / Y

Notes: [1] Façade locations are shown in **Figure 8** and **Figure 9**. The sound levels presented are the highest on the entire façade.

[2] No west façade of Building 01 has been considered as Building 01 connects to Building 02.

[3] A portion of the east façade and entire south façade (Building 01) are considered non-noise sensitive at the exterior plane of window, with planned application of ENBs. Similarly, a portion of the west and south facades of Building 02 are considered non-noise sensitive at the exterior plane of window, with the planned application of ENBs.

4.5 Ventilation and Warning Clause Requirements

As the Georgetown Layover Yard has the potential to be audible at times, a warning clause should be included in the Agreement of Purchase and Sale or Lease and in the relevant Development Agreements and condominium documents. An MECP NPC-300 Type E warning clause is recommended for all suites within the development. Refer to **Appendix D** for warning clause details.

In addition, central air conditioning and an MECP Type F warning clause is required as a component of the Class 4 Area designation. See **Appendix D**.

Part 2: Impacts of the Development on Itself

5.0 Stationary Source Noise from the Development on Itself

The building mechanical systems (e.g., make-up air units, cooling units, and parking garage vents) have not been designed in detail at this stage. Although no adverse impacts are expected, such equipment has the potential to result in noise impacts on the noise sensitive spaces within the development itself.

The potential noise impacts of sources from the development on itself should be assessed as part of the final building design. The criteria are expected to be met at all on-site receptors with the appropriate selection of mechanical equipment, by locating equipment to minimize noise impacts within the development, and by incorporating control measures (e.g., silencers, barriers) into the design.

It is recommended that the mechanical systems be reviewed by a qualified acoustical consultant prior to final selection of equipment.

Part 3: Impacts of the Development on the Surrounding Area

6.0 Stationary Source Noise from the Development on the Surroundings

In terms of the acoustic environment of the area, it is expected that the proposed development will have a negligible effect on the neighbouring properties.

The traffic related to the proposed development will be low and is expected to be negligible with respect to noise impacts.

Other possible development noise sources with possible adverse impacts on the surrounding neighbourhood are mechanical equipment associated with the buildings, such as make up air units, cooling units, and parking garage vents. Noise from mechanical equipment should meet MECP Publication NPC 300 requirements at the worst-case off-site points of reception.

Off-site impacts are not anticipated given that the systems will be designed to meet applicable noise guidelines are met at on-site receptors.

Regardless, potential impacts will be assessed as part of the final building design to ensure compliance. The criteria can be met at all surrounding and on-site receptors though the use of routine mitigation measures, including the appropriate selection of mechanical equipment, by locating equipment with sufficient setback from noise sensitive locations, and by incorporating control measures (e.g., silencers) into the design.

It is recommended that the mechanical systems be reviewed by a qualified acoustical consultant prior to final selection of equipment.

7.0 Conclusions and Recommendations

The potential for noise impacts on and from the proposed development have been assessed. Impacts of the environment on the development, the development on itself, and the development on the surrounding area have been considered. Based on the results of this assessment, the following conclusions have been reached:

Transportation Noise

- An assessment of transportation noise impacts has been completed.
- Based on transportation façade sound levels upgraded glazing is required within the development, as outlined in outlined in **Section 2.5** and **Appendix D**.
- Ventilation requirements include a combination of Mandatory AC and Provision for Future Installation of AC, as outlined in **Section 2.5** and **Appendix D**. Warning Clauses requirements include those for CN and Metrolinx, for all units.
- Warning clauses should be included in agreements registered on Title for the residential units and included in agreements of purchase and sale/rental agreements, and include a combination of MECP Type A, Type B and Type D warning clauses. In addition, the CN and Metrolinx warning clauses are recommended for all units. A summary of the warning clauses recommendations is included in **Appendix D**.

Transportation Vibration

- Transportation (rail) vibration has been assessed, as outlined in **Section 3.0** of this report.
- Rail vibration levels were measured at the existing site in the approximate area of the building footprint location and at a location closer to the rail right-of-way. The maximum vibration levels were found to meet the CN/Metrolinx criteria. No mitigation is required.
- Expected vibration levels from potential future rail traffic along closer tracks is not expected to be of concern, based on assessment of vibration propagation from existing rail traffic.

Stationary Source Noise

- A site visit was completed by SLR personnel to review the surrounding area. Stationary noise with the potential to impact the development includes the Georgetown Layover Yard to the south.
- It is recommended that the site be designated as Class 4 by the land-use planning authority, due to the predicted impacts of the Georgetown Layover Yard on the proposed residential development.
- In addition to Class 4 designation, enclosed noise buffers (ENBs) are required along a portion of the south façade of Building 01, a portion of the east façade of Building 01, the south façade of Building 02 and a portion of the west façade of Building 02, as outlined in **Section 4.5**.
- Warning clauses should be included in agreements registered on Title for the residential units and included in agreements of purchase and sale/rental agreements. MECP Type E and Type F warning clauses are required for all units. A summary of the warning clauses recommendations is included in **Appendix D**.

- Central air conditioning is required for all units within the development as a component of the Class 4 designation, as summarized in **Appendix D**.
- The proposed Heritage Road Layover Yard is scheduled for construction with completion expected in 2026/2027. SLR understands the Georgetown Layover Yard is reaching the end of its serviceable life, and it will be replaced with the proposed Heritage Road Layover Yard. Once the Heritage Road Layover Yard is fully operational, the Georgetown Layover Yard is not expected to be a stationary source with the potential to impact the Project, and the above noted noise controls (ENBs, Type F warning clause, and central air conditioning) may no longer be required.

Overall Assessment

- Noise and vibration from the environment on the proposed development can be adequately controlled through the feasible mitigation measures, current development design features, ventilation requirements and warning clauses detailed in **Part 1** of this report.
- Impacts of the proposed development on the surrounding area are anticipated to be adequately controlled by following the design guidance outlined in **Part 2** of this report.
- Impacts of the proposed development on itself are anticipated to be adequately controlled by following the design guidance outlined in **Part 3** of this report.
- As the glazing analysis was completed based on generic room and window dimensions, the analysis should be revised once detailed floor and façade plans are available.
- As the mechanical systems for the proposed development have not been designed at the time of this assessment, the acoustical requirements above should be confirmed by a qualified acoustical consultant as part of the final building design.
- As the Heritage Road Layover Yard is currently proposed, a re-assessment of noise control measures (transportation and stationary noise) and an updated assessment report should be completed if the Heritage Road Layover is confirmed to proceed, and the anticipated schedule for completion and decommissioning of the Georgetown Layover Yard is available. Noise control requirements may change if the stationary source is no longer present, and may be subject to further review by the planning authority or other review agencies.

8.0 Closure

Should you have any queries, please contact the undersigned.

Regards,

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R. L. Scott Penton, P.Eng.
Principal Acoustics Engineer
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9.0 References

International Organization for Standardization, ISO 9613-2: Acoustics – Attenuation of Sound During Propagation Outdoors Part 2: General Method of Calculation, Geneva, Switzerland, 1996.

Ontario Ministry of the Environment, Conservation and Parks, 1989, Ontario Road Noise Analysis Method for Environment and Transportation (ORNAMENT).

Ontario Ministry of the Environment, Conservation and Parks, Publication NPC-300: Environmental Noise Guideline, Stationary and Transportation Sources – Approval and Planning, 2013.

Ontario Ministry of the Environment, Conservation and Park, STAMSON v5.04: Road, Rail and Rapid Transit Noise Prediction, 1996.

Ontario Ministry of the Environment and Energy, Publication NPC-216: Residential Air Conditioning Devices, 1993.

The Federation of Canadian Municipalities and the Railway Association of Canada, Guidelines for New Development in Proximity to Railway Operations, May 2013.

U.S. Department of Transportation, Federal Transit Administration (FTA, 2018), Transit Noise and Vibration Impact Assessment Manual, September 2018.

Figures

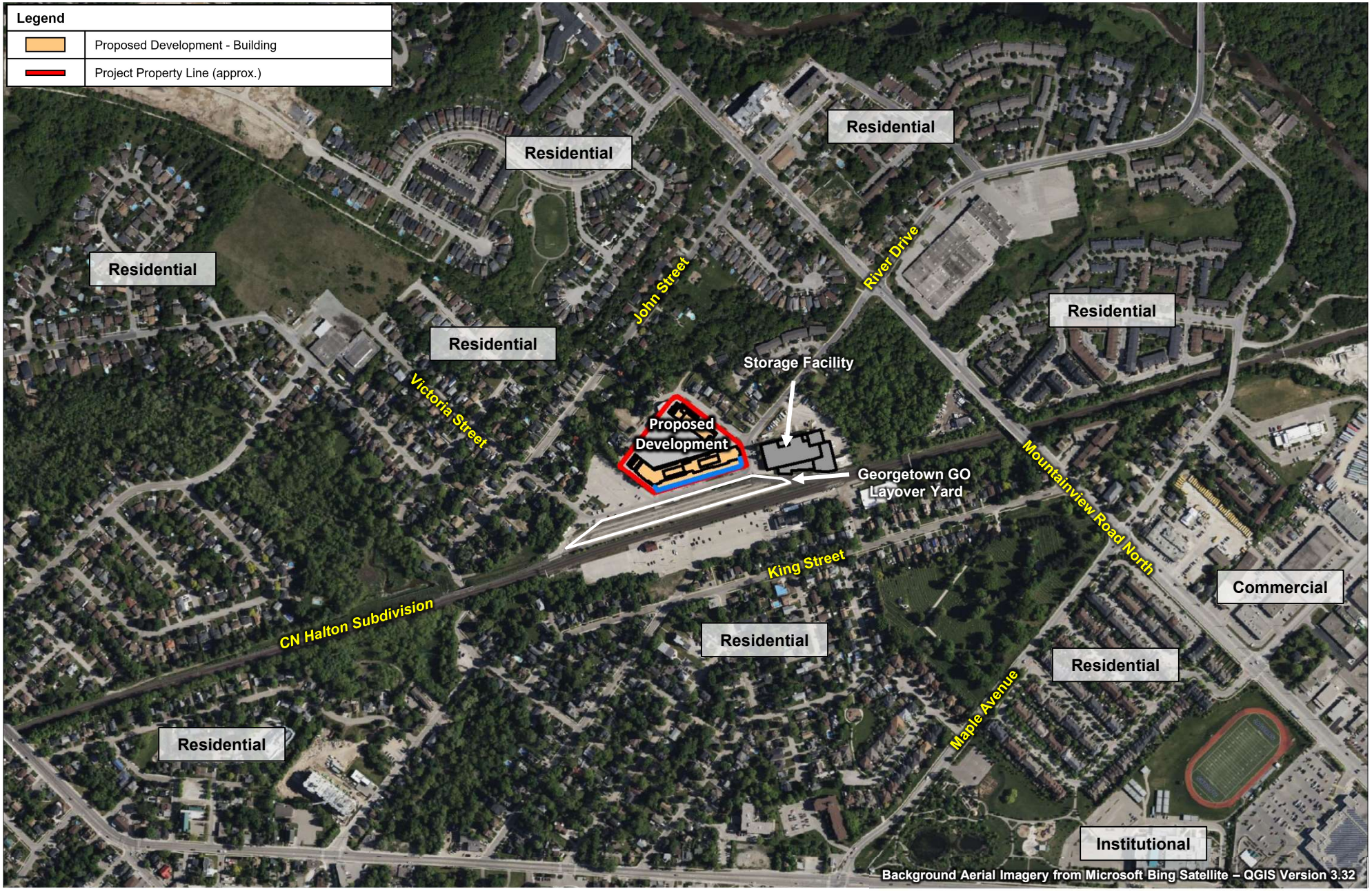
Updated Environmental Noise & Vibration Study

1 Rosetta Street, Georgetown

1 Rosetta Street Inc.

SLR Project No.: 241.V20210.00002

October 4, 2024



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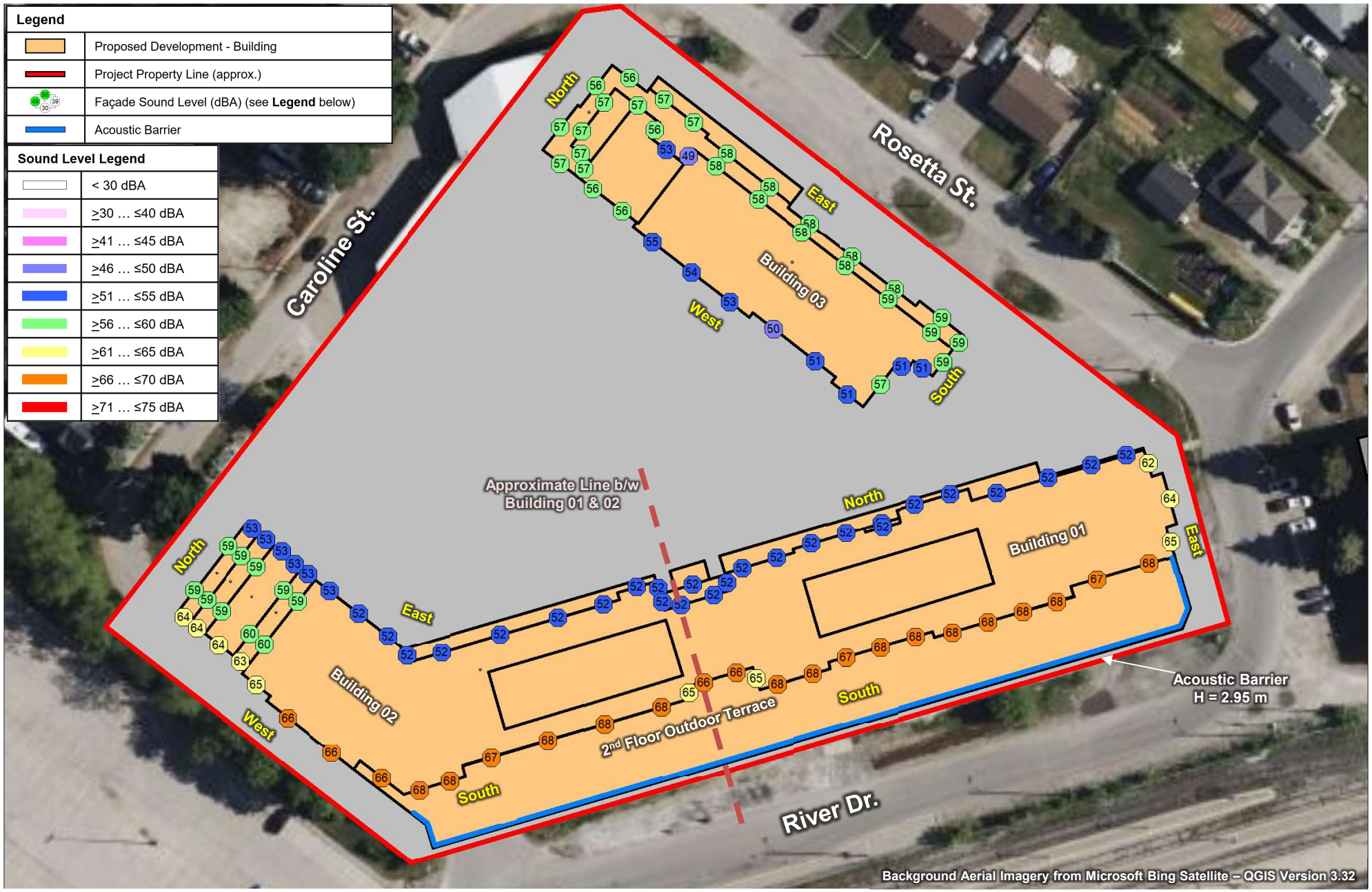

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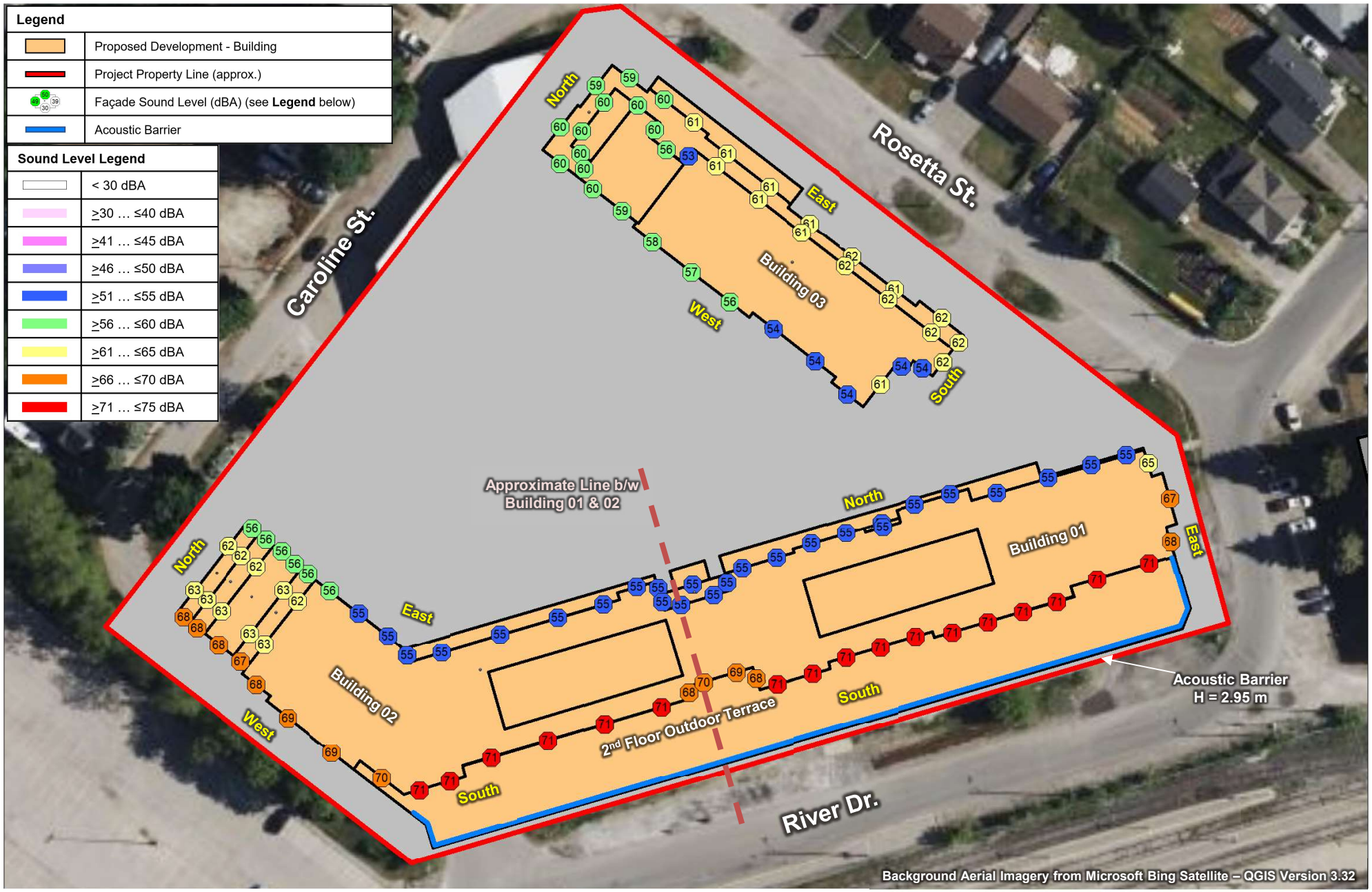
PREDICTED FAÇADE SOUND LEVELS – RAIL TRAFFIC – DAYTIME		Project No. 241.V20210.00002		



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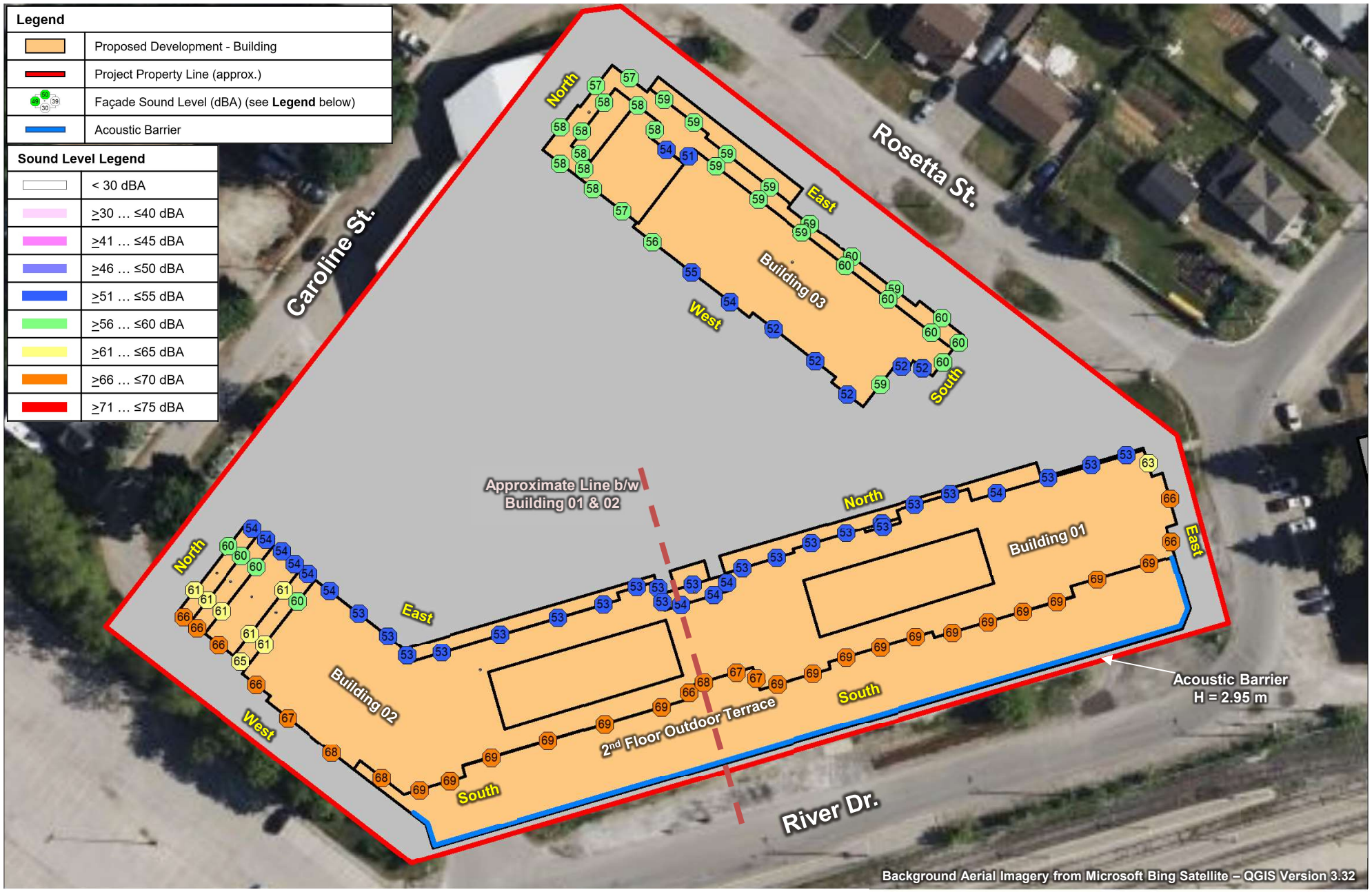
PREDICTED FAÇADE SOUND LEVELS – RAIL TRAFFIC – NIGHTTIME		Project No. 241.V20210.00002		



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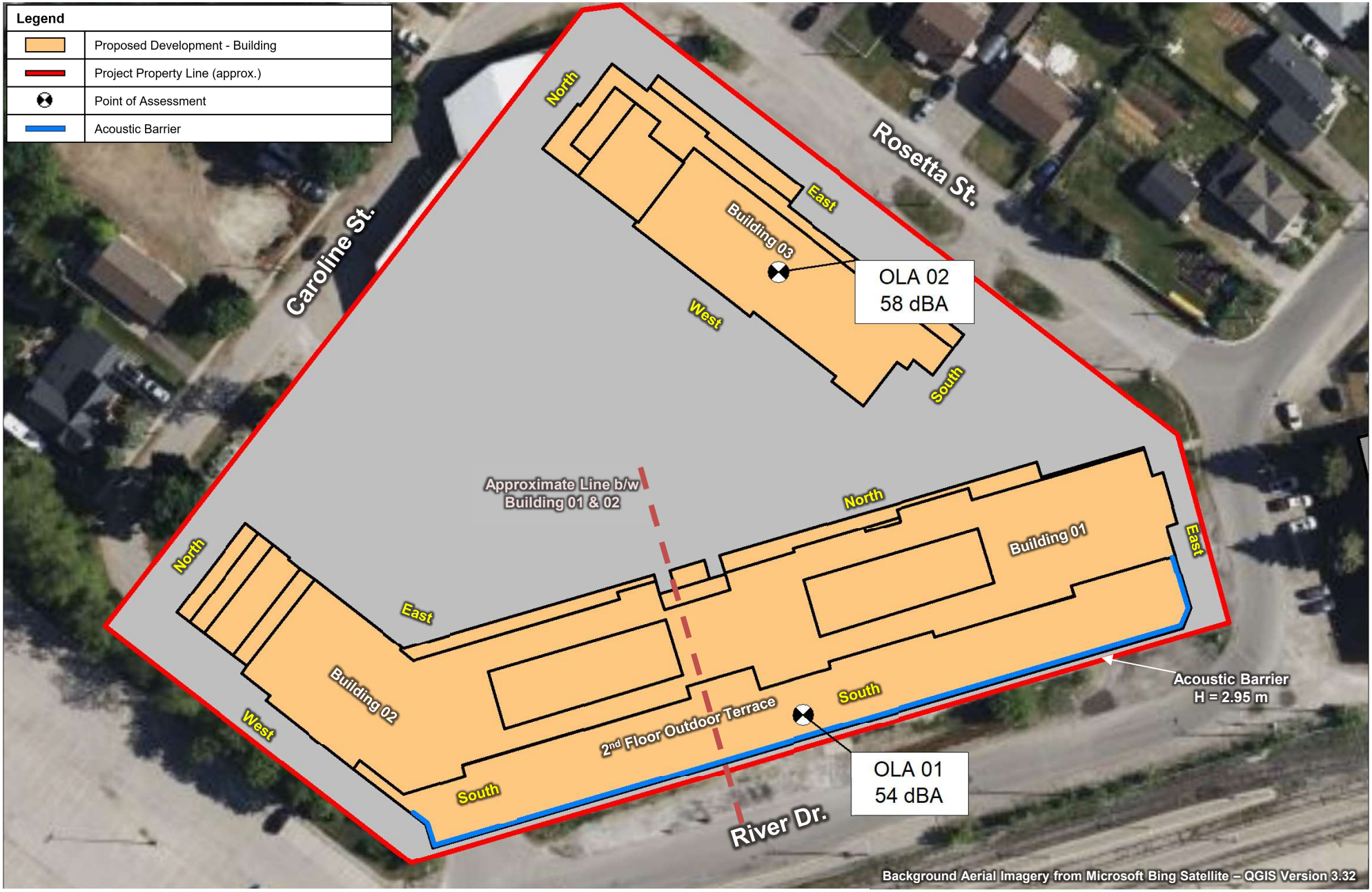
PREDICTED FAÇADE SOUND LEVELS – RAIL TRAFFIC – 24-HOUR PERIOD		Project No. 241.V20210.00002	

SLR



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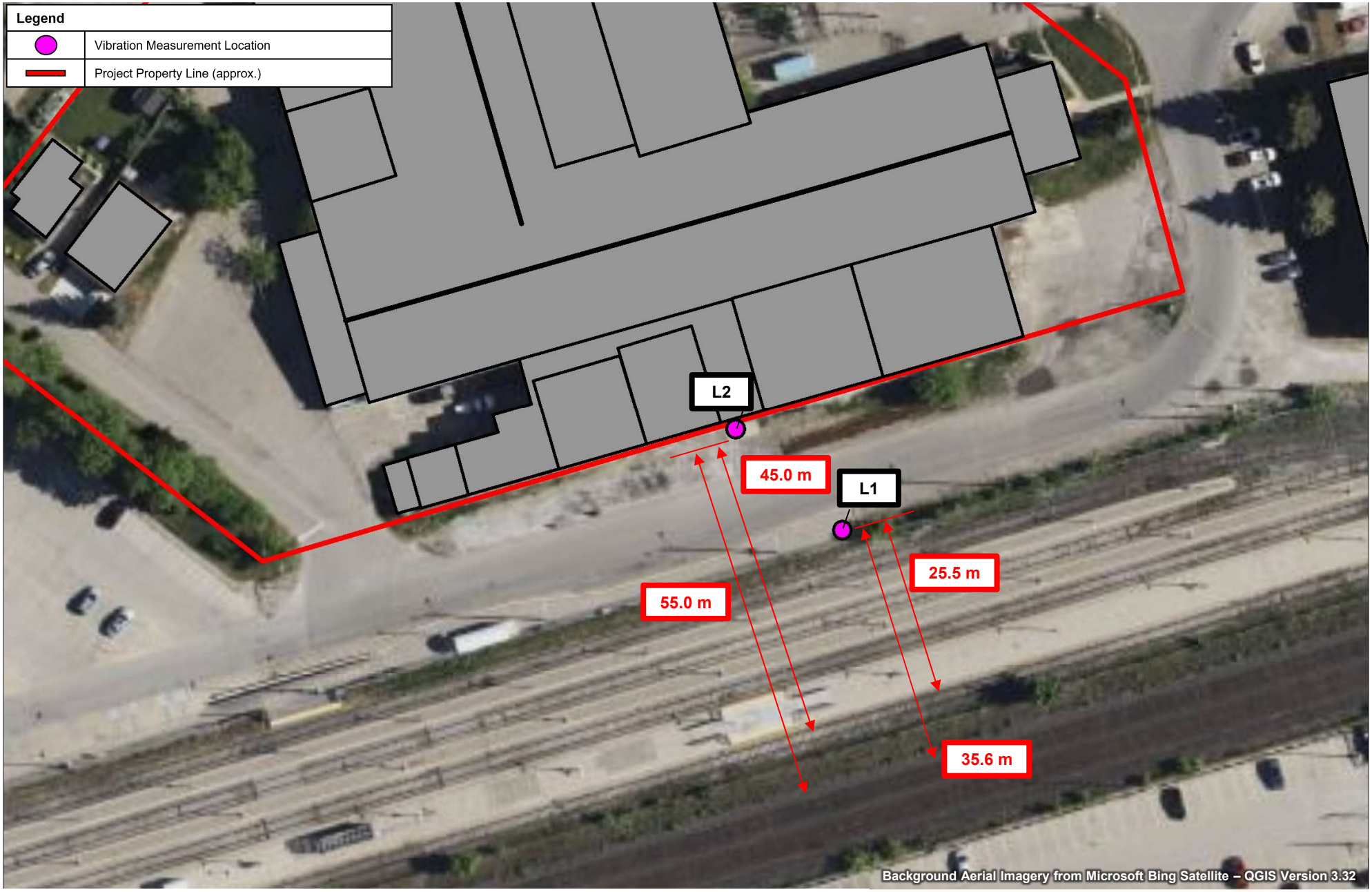
PREDICTED OUTDOOR LIVING AREA SOUND LEVELS – RAIL TRAFFIC – DAYTIME		Project No. 241.V20210.00002	

SLR



1 ROSETTA STREET INC.

1 ROSETTA STREET, GEORGETOWN

VIBRATION MEASUREMENT LOCATIONS AND SETBACK DISTANCES

True North

Scale: 1:800

METRES

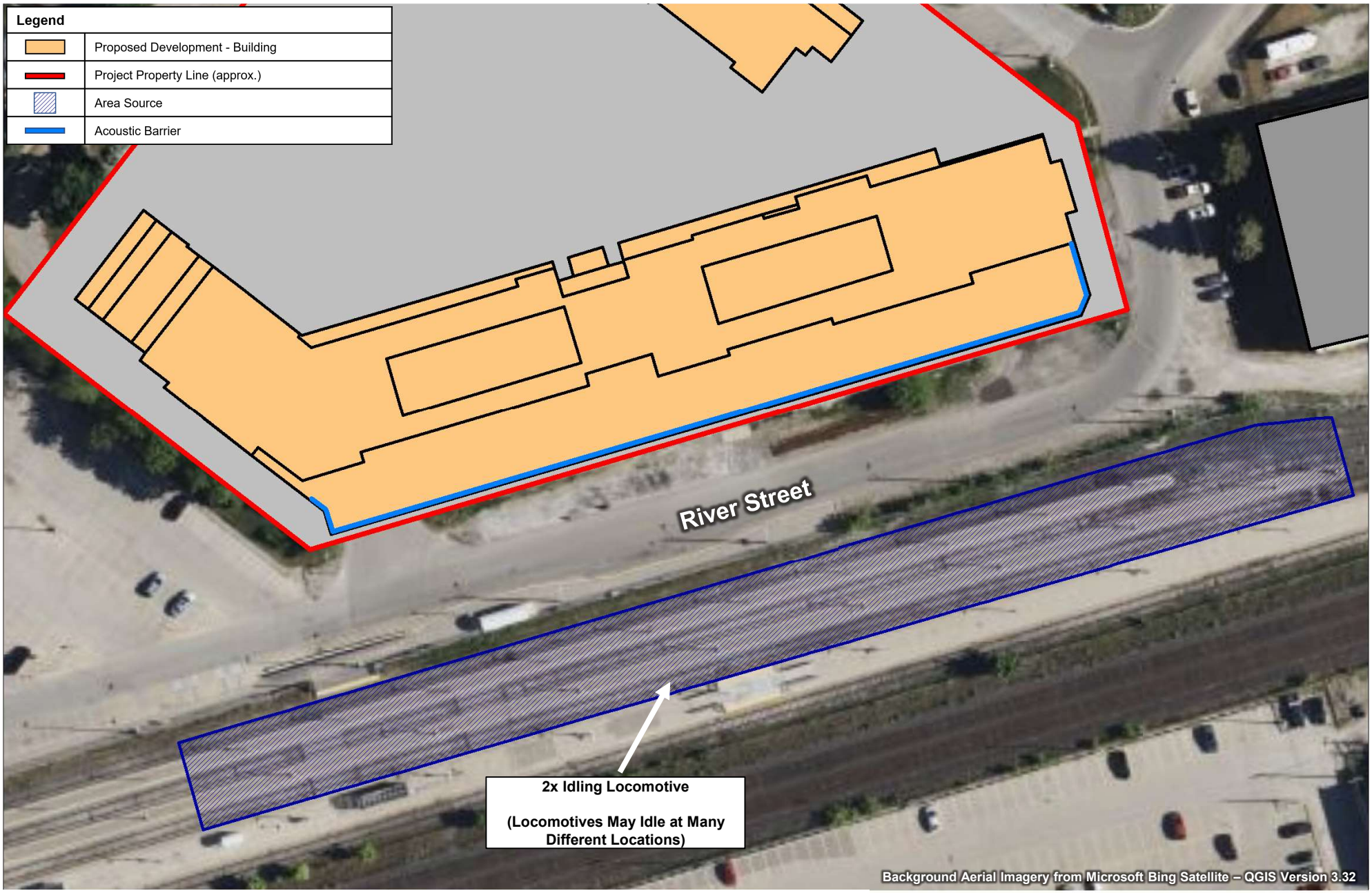
Date: Oct. 4, 2024

Rev. 0

Project No. 241.V20210.00002

Figure No. **6**

SLR



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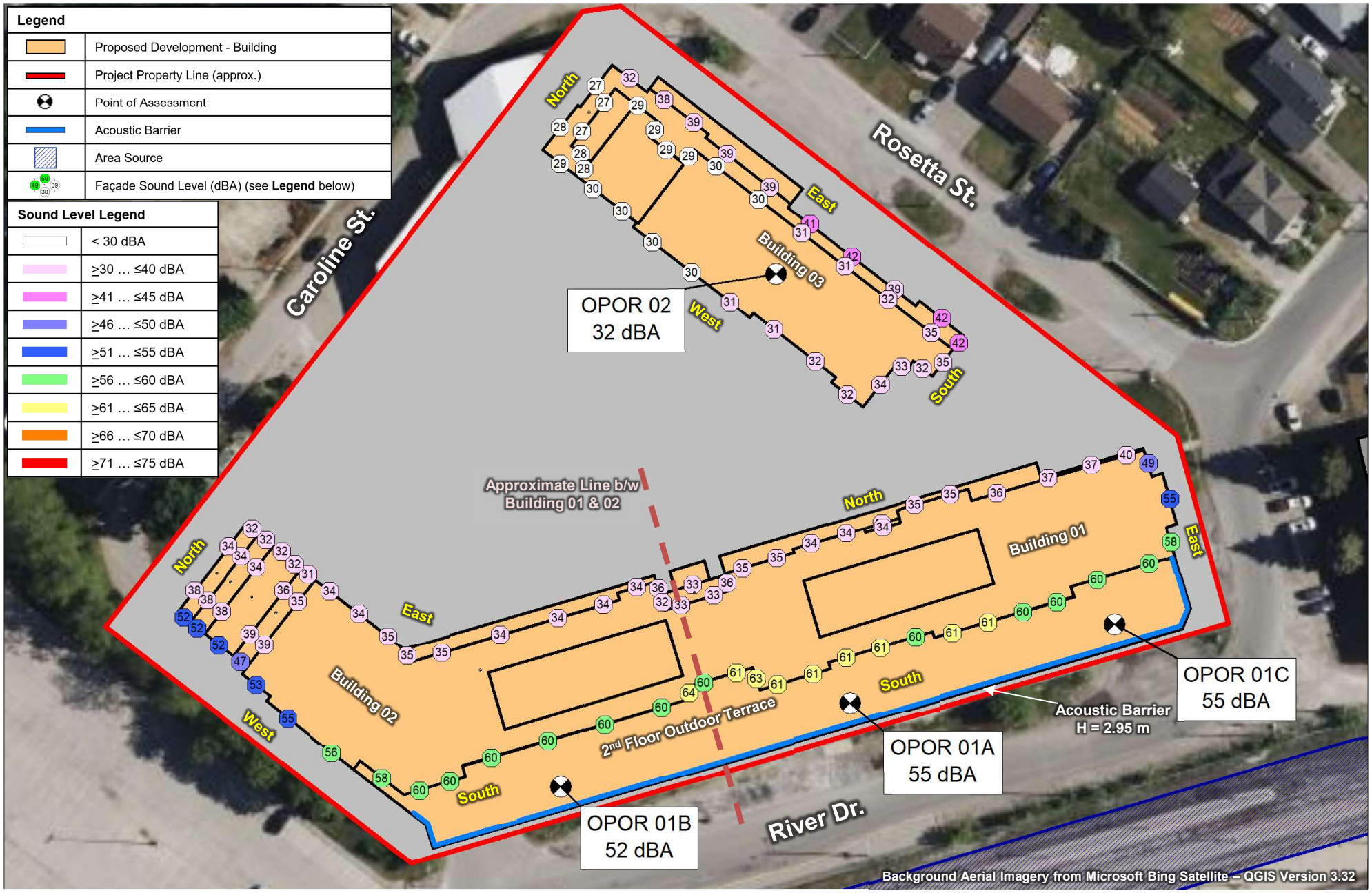
MODELLED STATIONARY SOURCE LOCATIONS		Project No. 241.V20210.00002		



1 ROSETTA STREET INC.

1 ROSETTA STREET, GEORGETOWN

PREDICTED STATIONARY SOURCE SOUND LEVELS – DAYTIME/EVENING/NIGHT-TIME PERIODS – UNMITIGATED

True North

Scale: 1:900

METRES

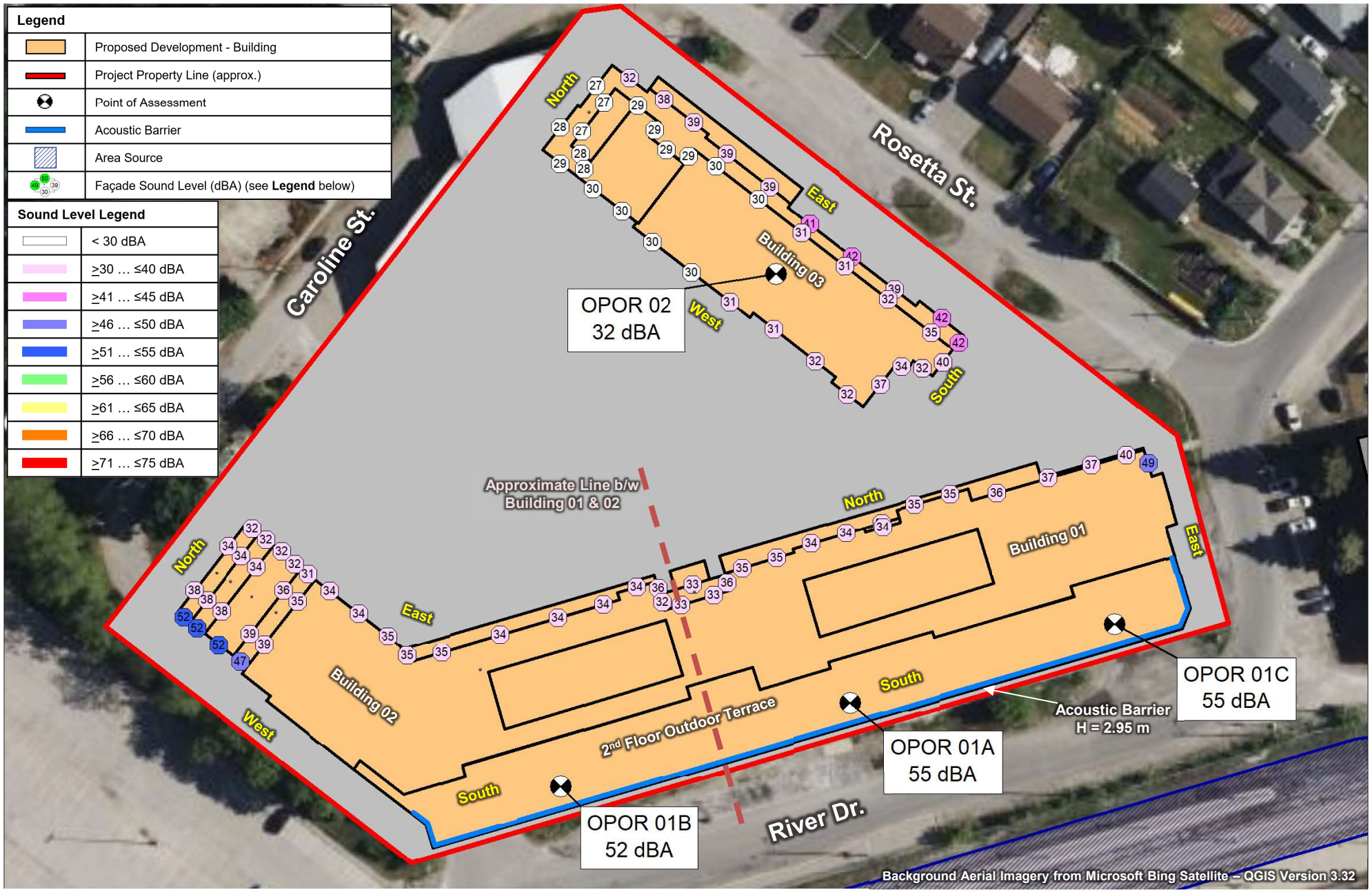
Date: Oct. 4, 2024

Rev. 0

Project No. 241.V20210.00002

Figure No. **8**

SLR



1 ROSETTA STREET INC.

1 ROSETTA STREET, GEORGETOWN

PREDICTED STATIONARY SOURCE SOUND LEVELS – DAYTIME/EVENING/NIGHT-TIME PERIODS – MITIGATED

True North

Scale: 1:900

METRES

Date: Oct. 4, 2024

Rev. 0

Project No. 241.V20210.00002

Figure No. **9**

SLR

Appendix A Development Drawings

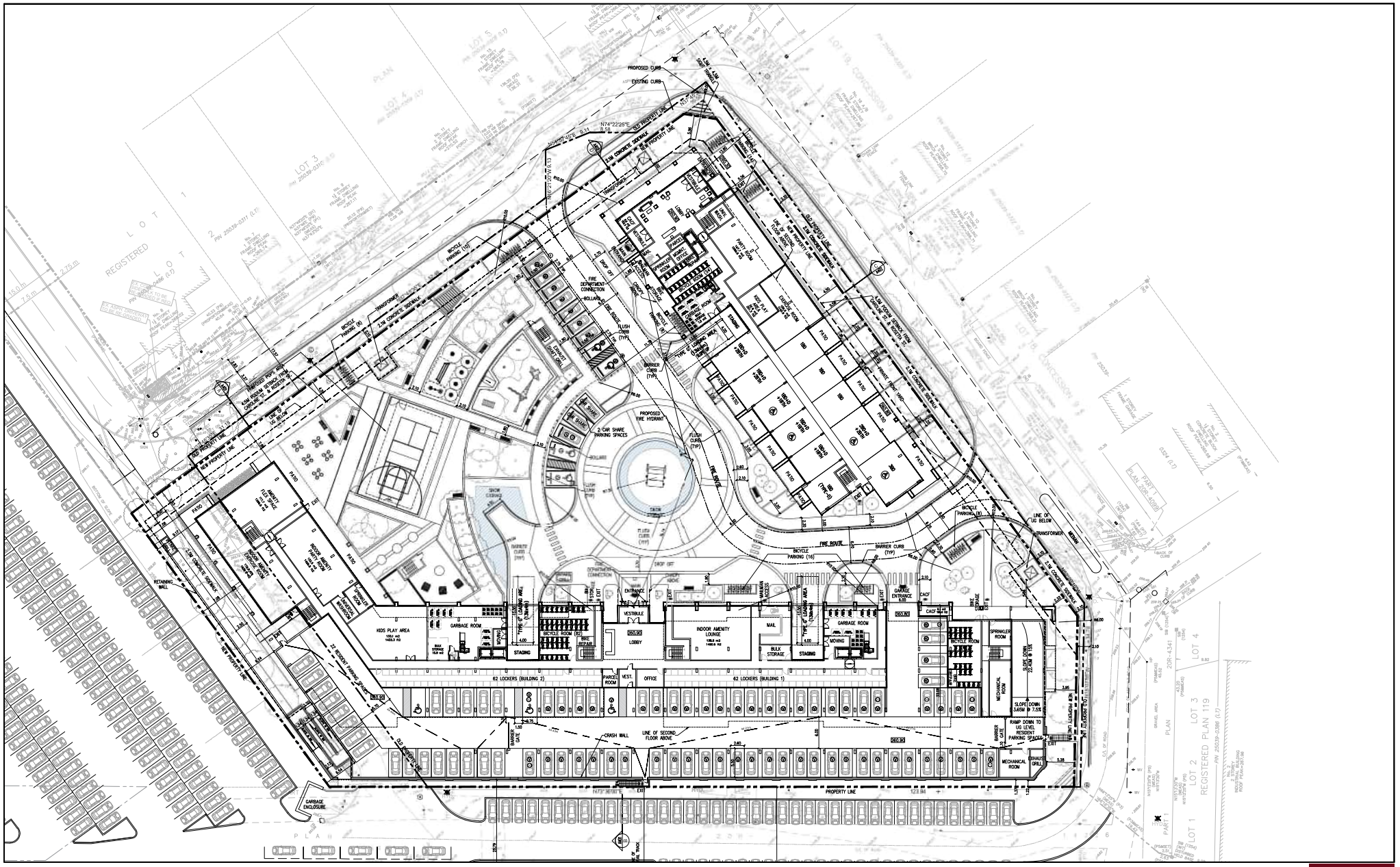
Updated Environmental Noise & Vibration Study

1 Rosetta Street, Georgetown

1 Rosetta Street Inc.

SLR Project No.: 241.V20210.00002

October 4, 2024



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3	2024-08-30	YA	ISSUED FOR SPA & REZONING
4	2024-09-05	YA	ISSUED FOR SPA & REZONING

NORTH

1 ROSETTA STREET
GEORGETOWN, ON

DRAWING TITLE
GROUND FLOOR PLAN

Scale: 1/300
Date: SEP.05, 2024
Project No. 17127

Drawn by: YA
Checked by: RE
Drawing No. A203

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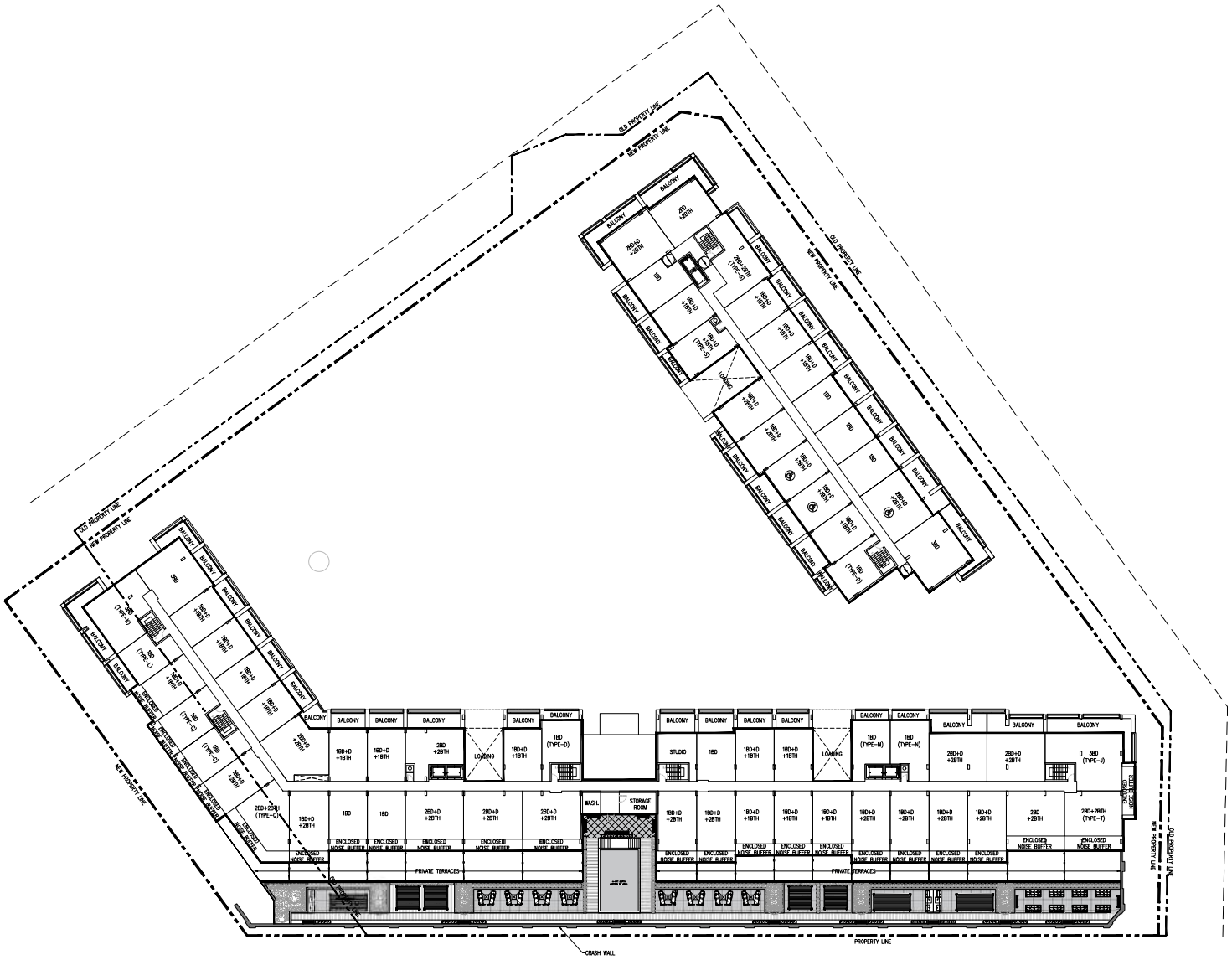

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4	2024-11-15	ISSUED FOR ZBA & SPA
5	2024-12-20	ISSUED FOR ZBA & SPA
6	2025-01-17	ISSUED FOR ZBA & SPA
7	2025-02-14	ISSUED FOR ZBA & SPA

NORTH

1 ROSETTA STREET
GEORGETOWN, ON

DRAWING TITLE
2ND FLOOR PLAN

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Project No. 17127

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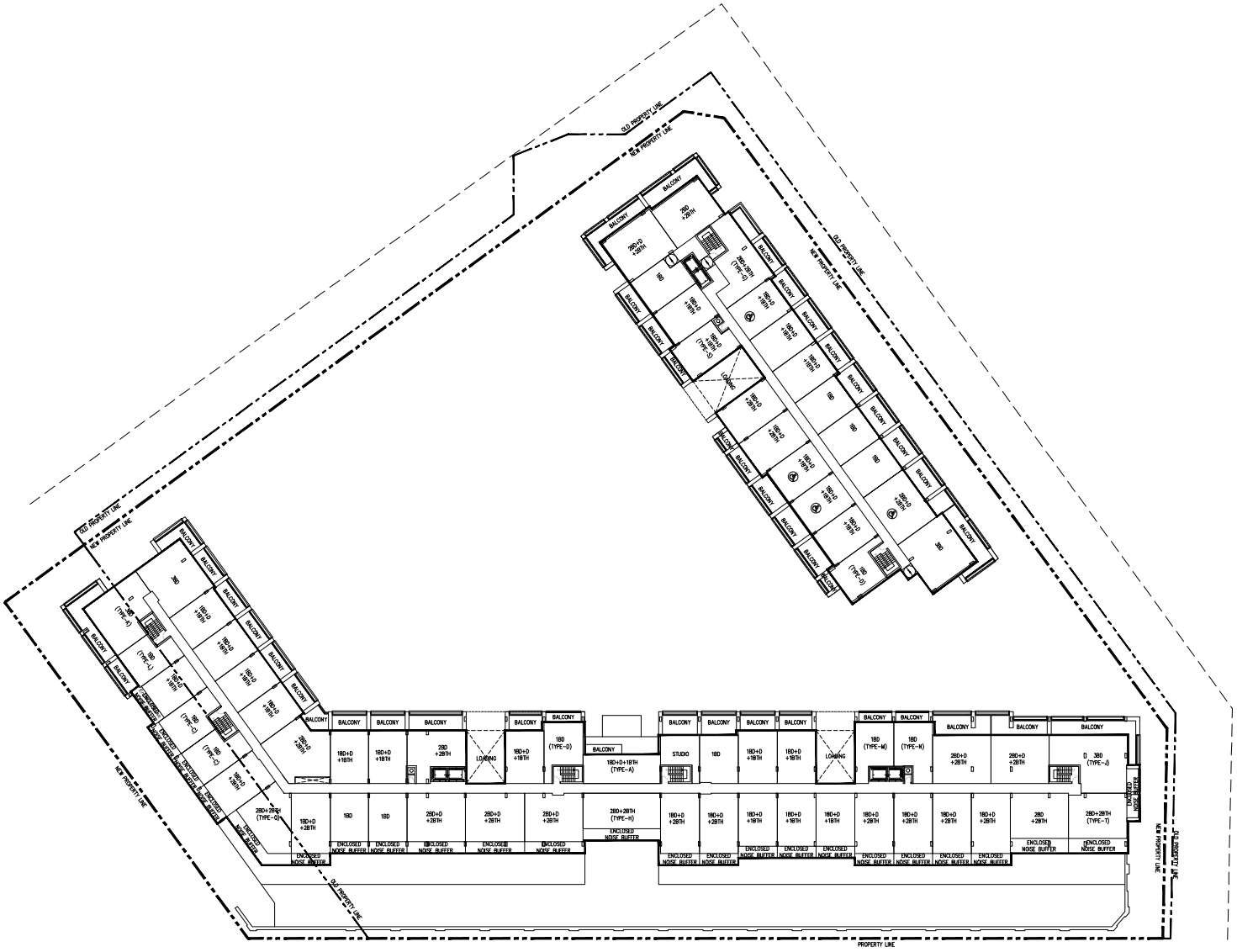

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NORTH

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GEORGETOWN, ON

DRAWING TITLE
3RD FLOOR PLAN

Scale: 1/300
Date: SEP.05, 2024
Project No. 17127

Drawn by: YA
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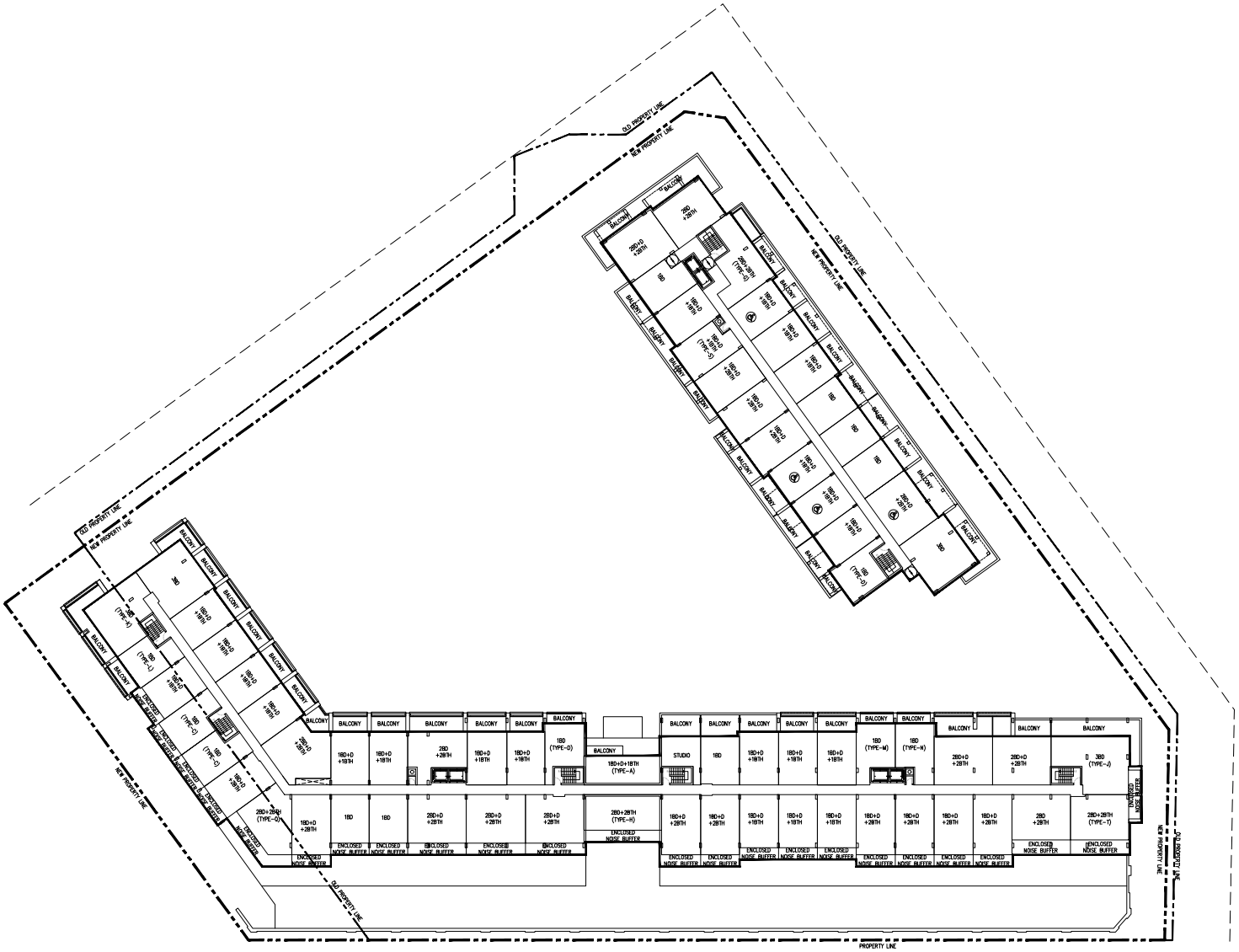

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NORTH

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GEORGETOWN, ON

DRAWING TITLE
4TH FLOOR PLAN

Scale: 1/300
Date: SEP.05, 2024
Project No. 17127

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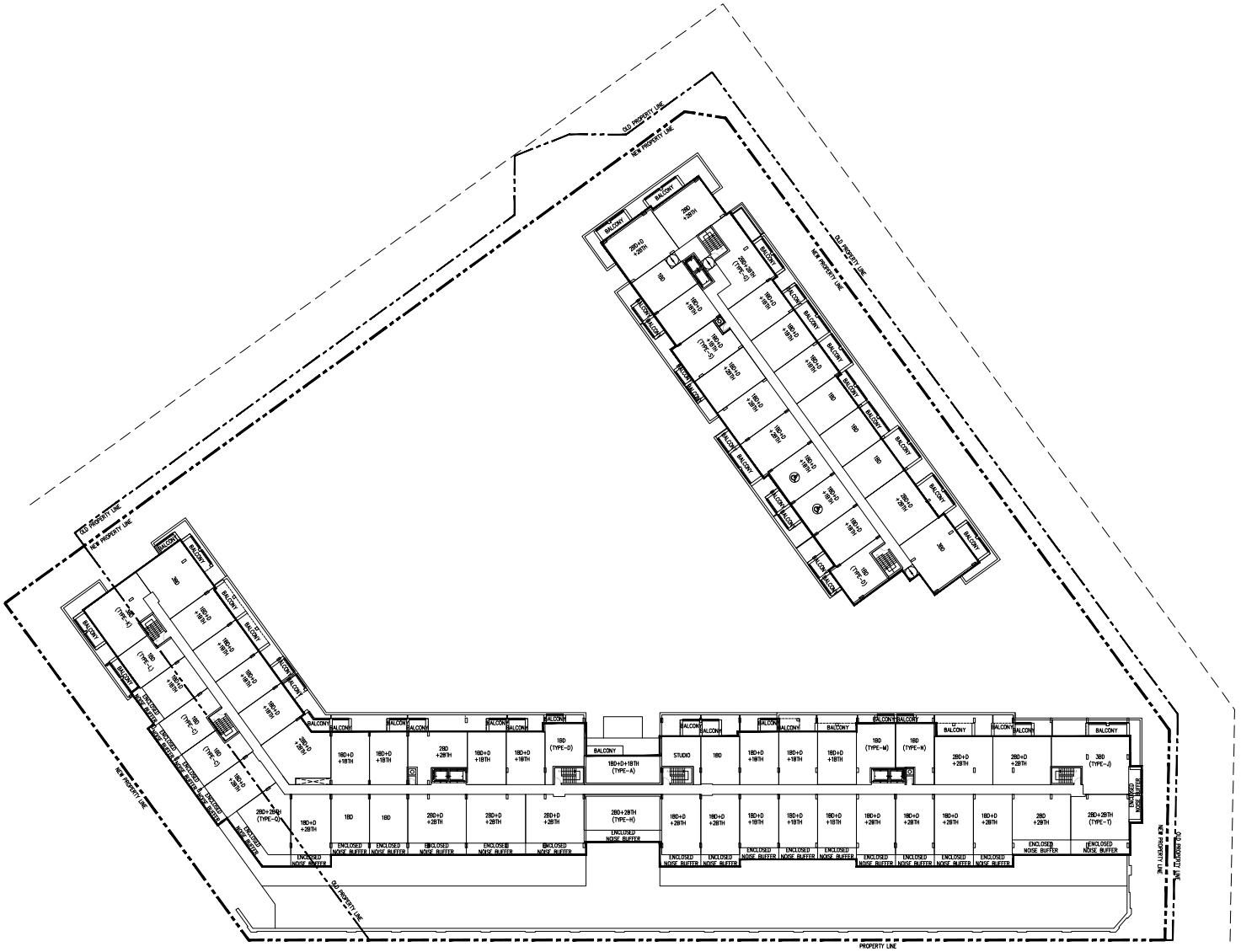

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NORTH

1 ROSETTA STREET
GEORGETOWN, ON

DRAWING TITLE
5TH FLOOR PLAN

Scale: 1/300
Date: SEP.05, 2024
Project No. 17127

Drawn by: YA
Checked by: RE
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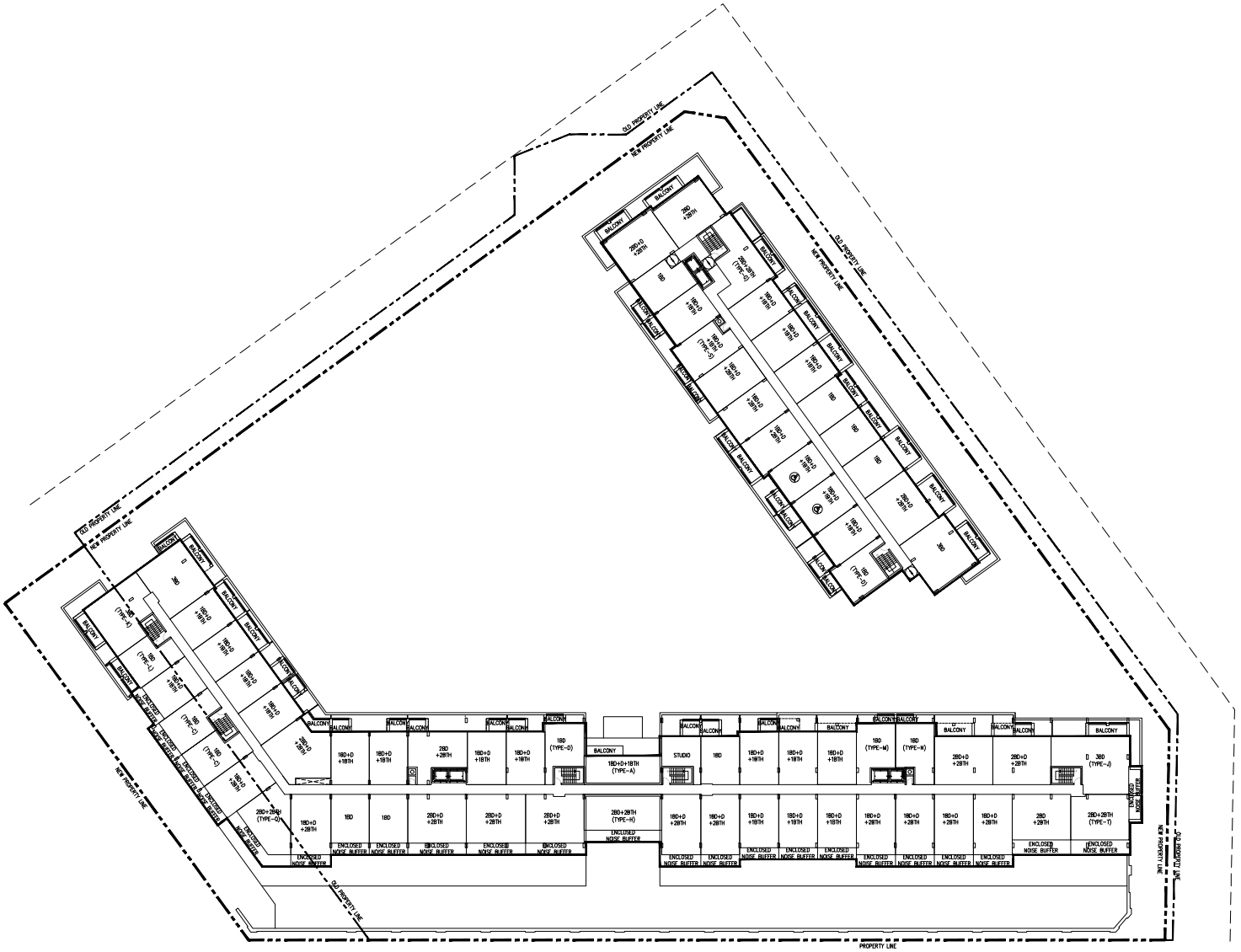

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6	ISSUED FOR SPA & REZ	2025-12-19

NORTH

1 ROSETTA STREET
GEORGETOWN, ON

DRAWING TITLE
6TH&7TH FLOOR PLAN

Scale: 1/300
Date: SEP.05, 2024
Project No. 17127

Drawn by: YA
Checked by: RE
Drawing No. A209

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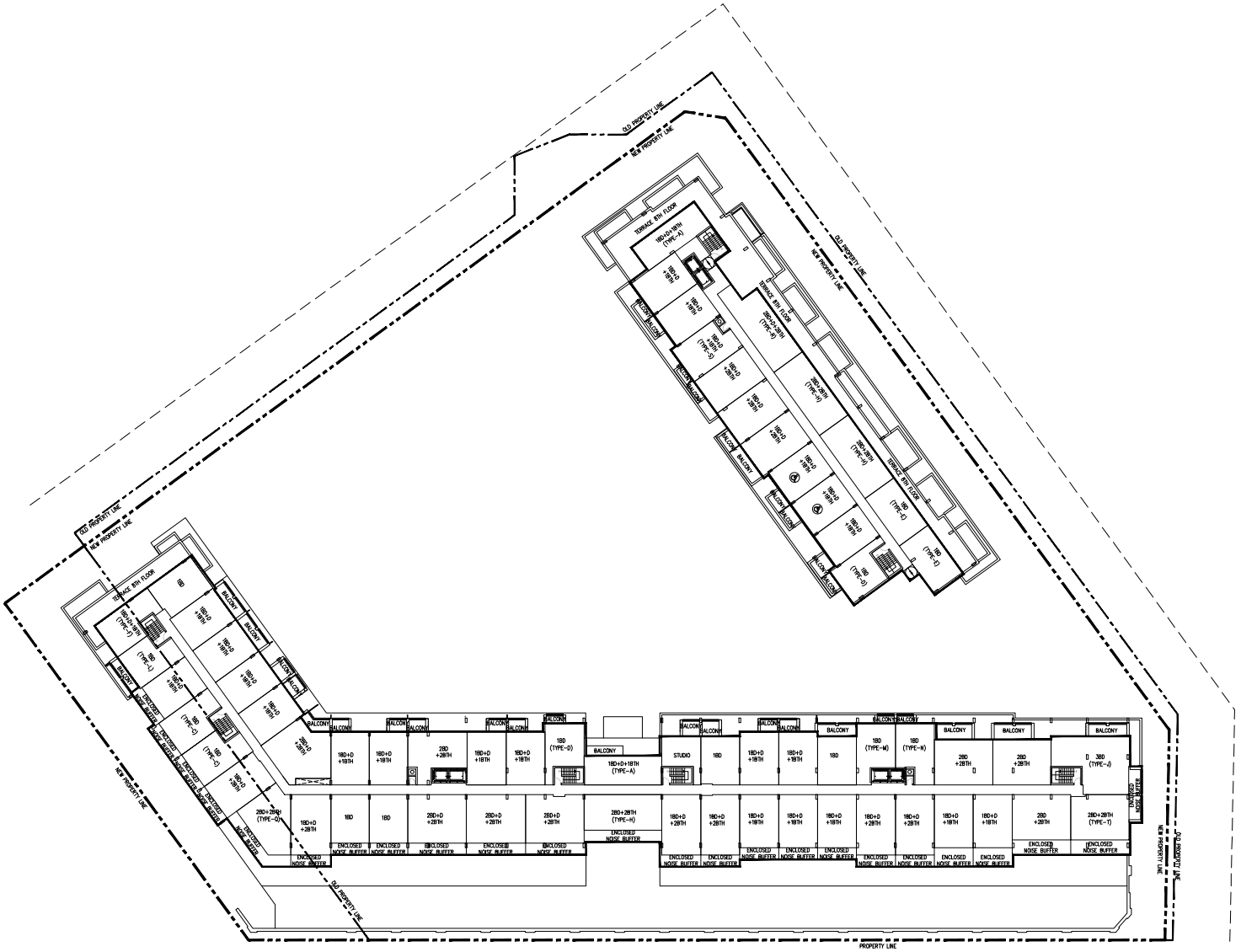

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3	2024-09-05	ISSUED FOR ZBA & SPA
4	2024-10-31	ISSUED FOR ZBA & SPA
5	2024-12-20	ISSUED FOR ZBA & SPA
6	2025-01-31	ISSUED FOR ZBA & SPA
7	2025-03-31	ISSUED FOR ZBA & SPA
8	2025-05-30	ISSUED FOR ZBA & SPA

NORTH

1 ROSETTA STREET
GEORGETOWN, ON

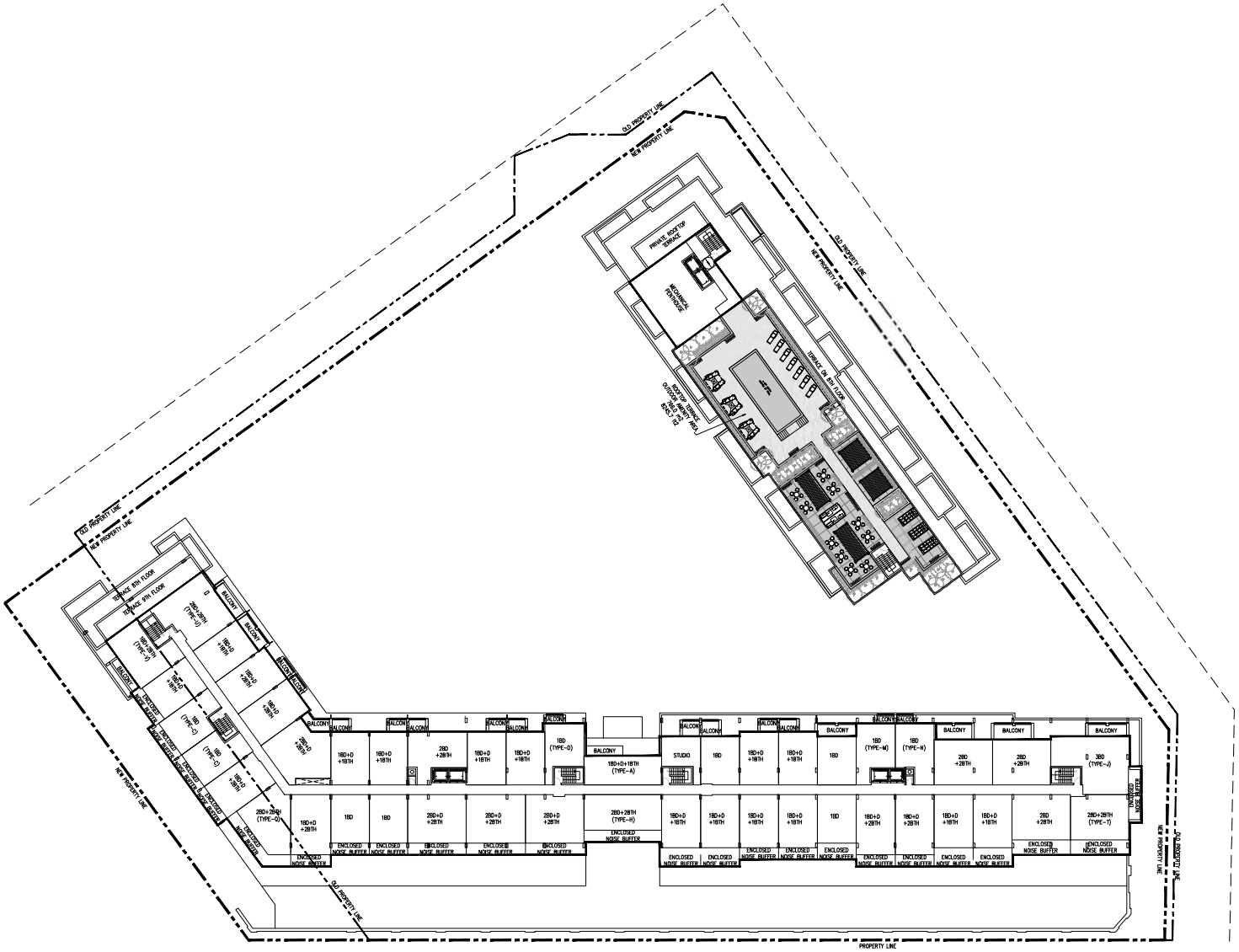
DRAWING TITLE
8TH FLOOR PLAN

Scale: 1/300
Date: SEP.05, 2024
Project No. 17127

Drawn by: YA
Checked by: RE
Drawing No. A210

813 - 478B YONGE ST. TORONTO
M5N 1G3 ICONARCHITECTS.CA
T 416-224-4800 F 416-224-4804

ICON ARCHITECTS



NO.	DATE	DESCRIPTION
1	2024-05-31	ISSUED FOR ZBA & RENTAL
2	2024-07-31	ISSUED FOR ZBA & RENTAL
3	2024-08-30	ISSUED FOR ZBA & RENTAL
4	2024-09-05	ISSUED FOR ZBA & RENTAL

NORTH

1 ROSETTA STREET
GEORGETOWN, ON

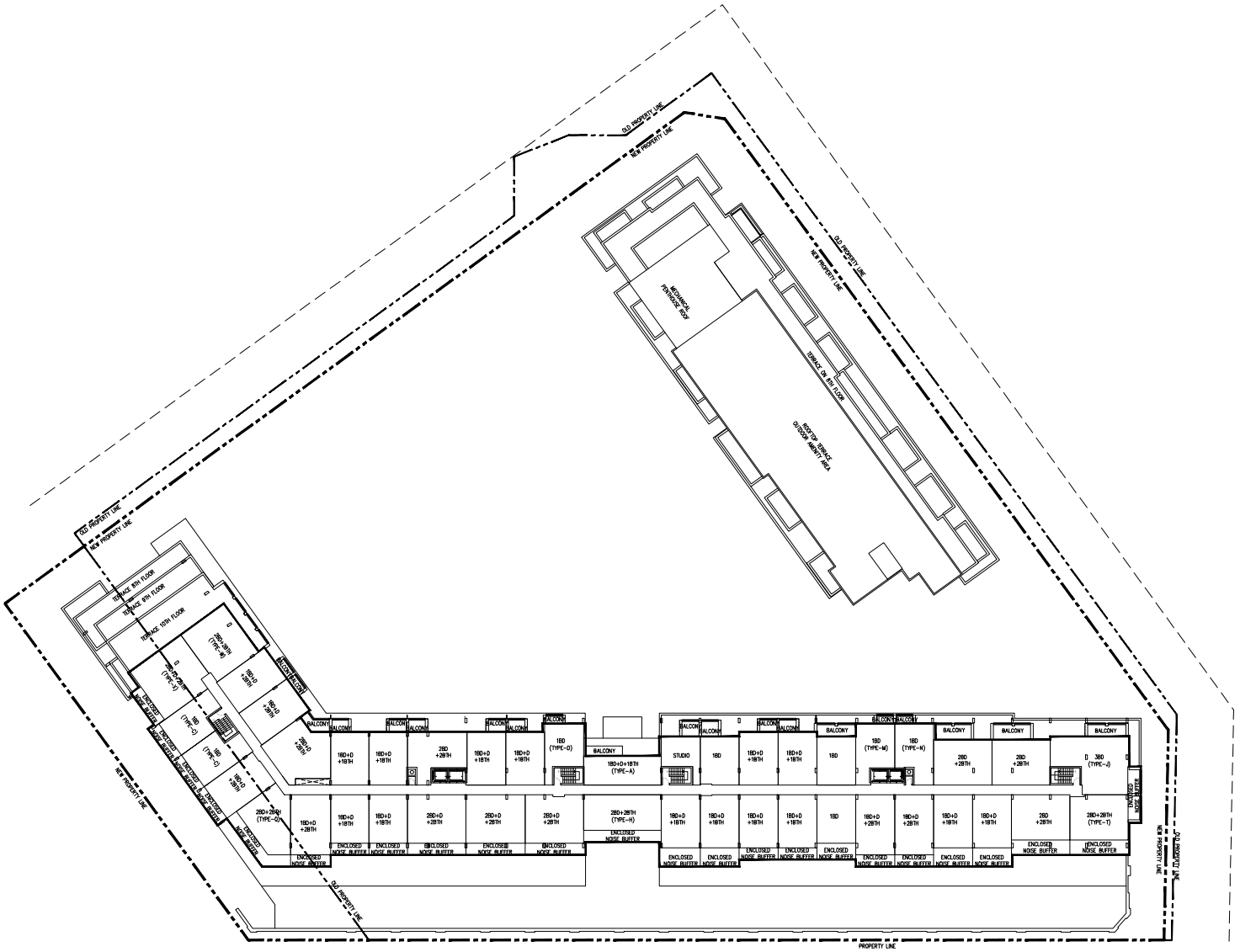
DRAWING TITLE
9TH FLOOR PLAN

Scale: 1/300
Date: SEP.05, 2024
Project No. 17127

Drawn by: YA
Checked by: RE
Drawing No. A211

813 - 478B YONGE ST. TORONTO
M5N 1G3 ICONARCHITECTS.CA
T 416-224-0505 F 416-224-0504

ICON ARCHITECTS



NO.	DESCRIPTION	DATE
1	ISSUED FOR SPA & REZ	2024-09-05
2	ISSUED FOR SPA & REZ	2024-12-20
3	ISSUED FOR SPA & REZ	2025-03-31
4	ISSUED FOR SPA & REZ	2025-06-30
5	ISSUED FOR SPA & REZ	2025-09-30
6	ISSUED FOR SPA & REZ	2025-12-19

NORTH

1 ROSETTA STREET
GEORGETOWN, ON

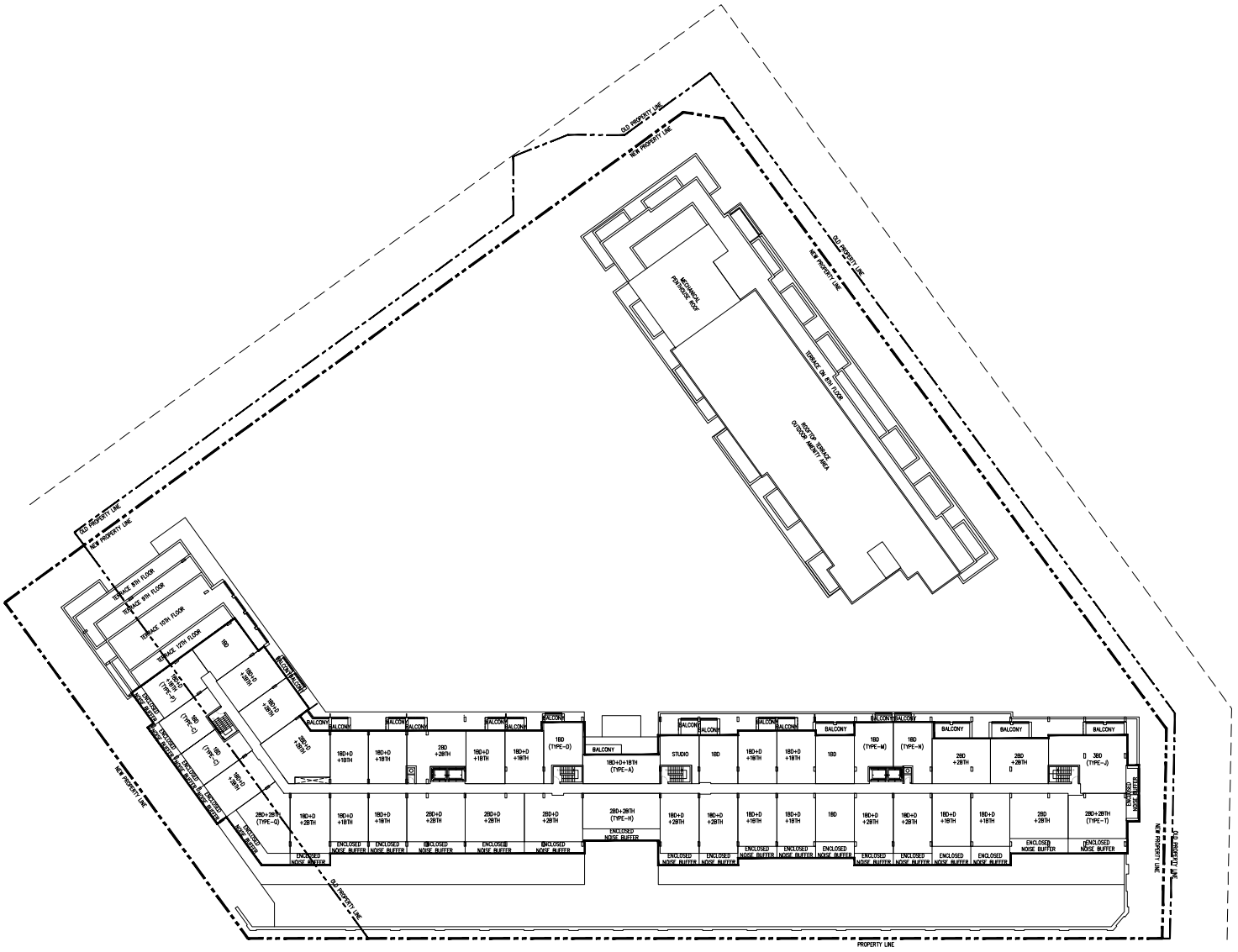
DRAWING TITLE
10TH&11TH FLOOR PLAN

Scale: 1/300
Date: SEP.05, 2024
Project No. 17127

Drawn by: YA
Checked by: RE
Drawing No. A212

813 - 478B YONGE ST. TORONTO
M5N 1G3 ICONARCHITECTS.CA
T 416-224-4505 F 416-224-5504

ICON ARCHITECTS



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NO.	DESCRIPTION	DATE
1	ISSUED FOR SPA & ZBA	2024-09-05
2	ISSUED FOR COMMENT	2024-12-20
3	ISSUED FOR SPA & ZBA	2025-03-21
4	ISSUED FOR SPA & ZBA	2025-06-27
5	ISSUED FOR SPA & ZBA	2025-09-26

NORTH

1 ROSETTA STREET
GEORGETOWN, ON

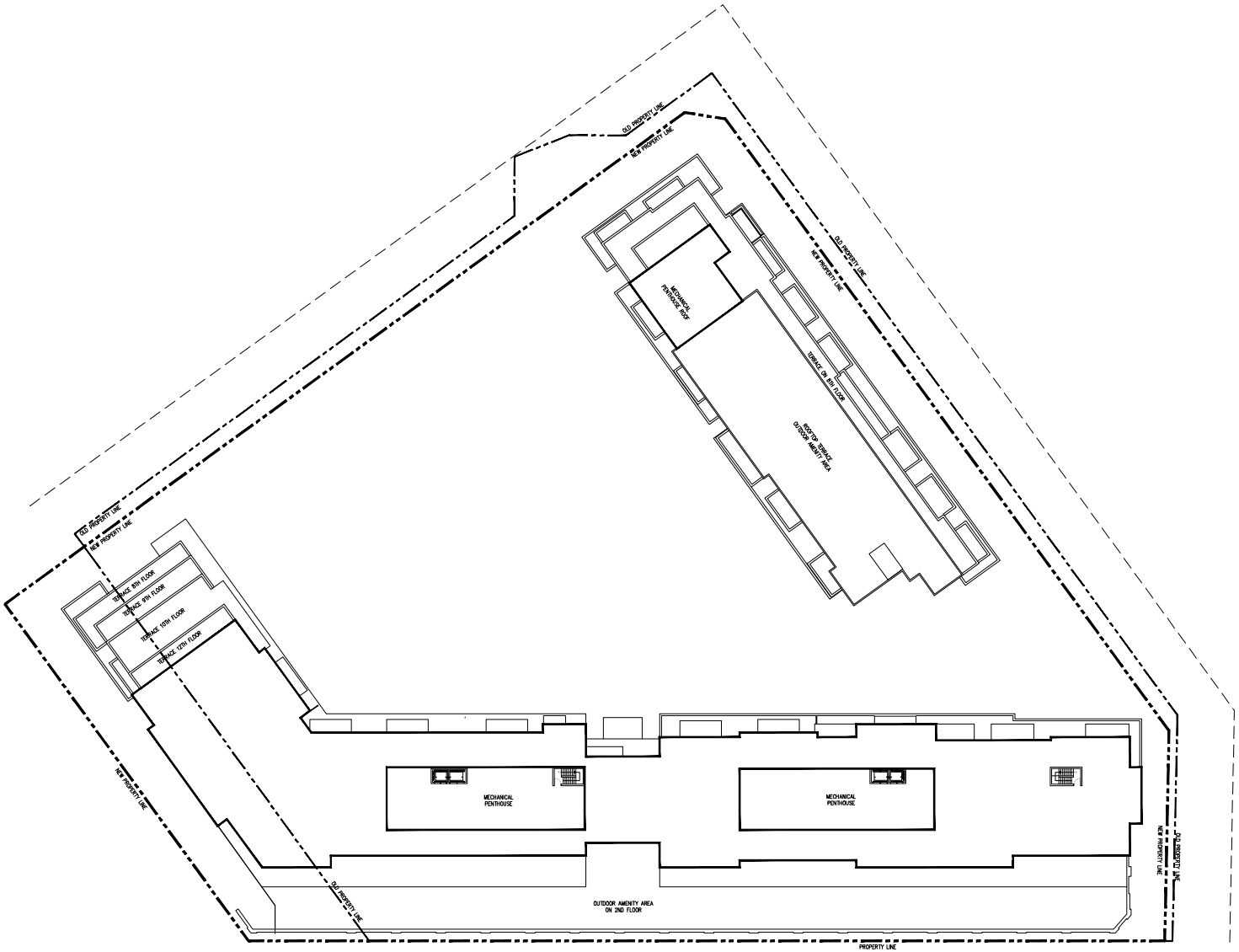
DRAWING TITLE
12TH FLOOR PLAN

Scale: 1/300
Date: SEP.05, 2024
Project No. 17127

Drawn by: YA
Checked by: RE
Drawing No. A213

813 - 478B YONGE ST. TORONTO
M4W 1X3 ICONARCHITECTS.CA
T 416-234-0305 F 416-234-0304

ICON ARCHITECTS



NO.	DESCRIPTION	DATE
1	ISSUED FOR SPA & ZBA	2024-09-05
2	ISSUED FOR SPA & ZBA	2024-10-04
3	ISSUED FOR SPA & ZBA	2024-11-01
4	ISSUED FOR SPA & ZBA	2024-11-15
5	ISSUED FOR SPA & ZBA	2024-12-06

NORTH

1 ROSETTA STREET
GEORGETOWN, ON

DRAWING TITLE
ROOF FLOOR PLAN

Scale: 1/300
Date: SEP.05, 2024
Project No. 17127

Drawn by: YA
Checked by: RE
Drawing No. A214

813 - 478B YONGE ST. TORONTO
M5N 1G3 ICONARCHITECTS.CA
T 416-224-4805 F 416-224-5304

ICON ARCHITECTS

BUILDING - 1&2 _ NORTH ELEVATION _ SCALE 1:200

BUILDING - 1&2 _ SOUTH ELEVATION _ SCALE 1:200

NO.	DESCRIPTION	DATE
1	ISSUED FOR SPA & REZONING	2024-09-05
2	ISSUED FOR COMMENTS	2024-12-20
3	ISSUED FOR SPA & REZONING	2025-03-31
4	ISSUED FOR SPA & REZONING	2025-06-30

NORTH

1 ROSETTA STREET
GEORGETOWN, ON

DRAWING TITLE
ELEVATIONS (BUILDING-1&2)

Scale: 1/200
Date: SEP.05, 2024
Project No. 17127

Drawn by: YA
Checked by: RE
Drawing No. A301

813 - 478B YONGE ST. TORONTO
M5N 1G3 ICONARCHITECTS.CA
T 416-224-0505 F 416-224-0504

ICON ARCHITECTS

BUILDING - 1 _ EAST ELEVATION _ SCALE 1:200

BUILDING - 2 _ EAST ELEVATION _ SCALE 1:200

BUILDING - 2 _ NORTH ELEVATION _ SCALE 1:200

BUILDING - 2 _ WEST ELEVATION _ SCALE 1:200

NO.	DESCRIPTION	DATE
1	ISSUED FOR SPA & REZONING	2024-09-05
2	ISSUED FOR COMMENTS	2024-12-20
3	ISSUED FOR SPA & REZONING	2025-03-21
4	ISSUED FOR SPA & REZONING	2025-06-27
5	ISSUED FOR SPA & REZONING	2025-09-26

NORTH

1 ROSETTA STREET
GEORGETOWN, ON

DRAWING TITLE
ELEVATIONS (BUILDING-1&2)

Scale: 1/200
Date: SEP.05, 2024
Project No. 17127

Drawn by: YA
Checked by: RE
Drawing No. A302

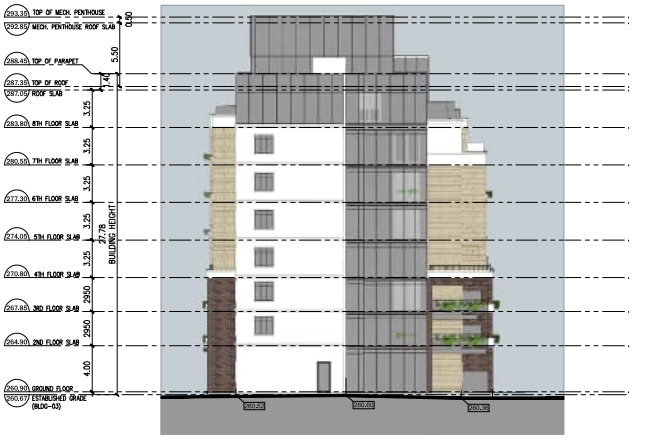
813 - 478B YONGE ST. TORONTO
M5N 1G3 ICONARCHITECTS.CA
T 416-224-4505 F 416-224-5504

ICON ARCHITECTS

BUILDING - 3 _ EAST ELEVATION _ SCALE 1:200

BUILDING - 3 _ NORTH ELEVATION _ SCALE 1:200

BUILDING - 3 _ WEST ELEVATION _ SCALE 1:200



BUILDING - 3 _ SOUTH ELEVATION _ SCALE 1:200

NO.	DESCRIPTION	DATE
1	ISSUED FOR SPA & ZBA	2024-09-05
2	ISSUED FOR COMMENTS	2024-12-20
3	ISSUED FOR SPA & ZBA	2025-03-21
4	ISSUED FOR SPA & ZBA	2025-06-27

NORTH

1 ROSETTA STREET
GEORGETOWN, ON

DRAWING TITLE
ELEVATIONS (BUILDING-3)

Scale:
1/200
Date:
SEP.05, 2024
Project No.
17127

Drawn by:
YA
Checked by:
RE
Drawing No.
A303

813 - 478B YONGE ST. TORONTO
M5N 1G3 ICONARCHITECTS.CA
T 416-224-0805 F 416-224-0304

ICON ARCHITECTS

Appendix B Traffic Data and Calculations

Updated Environmental Noise & Vibration Study

1 Rosetta Street, Georgetown

1 Rosetta Street Inc.

SLR Project No.: 241.V20210.00002

October 4, 2024

System Engineering
Engineering Services

1 Administration Road
Concord, ON, L4K 1B9
T: 905.669.3264
F: 905.760.3406

Train Count Data

TRANSMITTAL

To: *Destinataire :*	SLR 150 Research Lane Suite 105 Limited	*Project :*	HAL – 23.5 Georgetown Go Station, Georgetown ON
Att'n:	Marcus Li	*Routing:*	mli@slrconsulting.com
From: *Expéditeur :*	Michael Vallins	*Date:*	2020/12/18
Cc:	Adjacent Development CN via e-mail		

☐ Urgent ☐ For Your Use ☐ For Review ☐ For Your Information ☐ Confidential

Re: Train Traffic Data – CN Halton Subdivision near Georgetown Go Station in Georgetown, ON

Please find attached the requested Train Traffic Data; this data does not reflect GO Metrolinx Traffic. The application fee in the amount of **$500.00** +HST will be invoiced.

Should you have any questions, please do not hesitate to contact the undersigned at permits.gld@cn.ca

Sincerely,
CN Design & Construction

Michael Vallins P.Eng
Manager, Public Works-Eastern Canada
Permits.gld@cn.ca

Date: 2020/12/18 Project Number: HAL – 23.5 – Georgetown Go station, Georgetown ON

Dear Marcus:

Re: Train Traffic Data – CN Halton Subdivision near 11611 Trafalgar in Georgetown, ON

The following is provided in response to Marcus's 2020/09/08 request for information regarding rail traffic in the vicinity of Georgetown Go station in Georgetown at approximately Mile 23.5 on CN's Halton Subdivision.

Typical daily traffic volumes are recorded below. However, traffic volumes may fluctuate due to overall economic conditions, varying traffic demands, weather conditions, track maintenance programs, statutory holidays and traffic detours that when required may be heavy although temporary. For the purpose of noise and vibration reports, train volumes must be escalated by 2.5% per annum for a 10-year period.

Typical daily traffic volumes at this site location are as follows:

***Maximum train speed is given in Miles per Hour**

	0700-2300			
Type of Train	Volumes	Max.Consist	Max. Speed	Max. Power
Freight	6	140	50	4
Way Freight	0	25	50	4
Passenger	0	10	50	2

	2300-0700			
Type of Train	Volumes	Max.Consist	Max. Speed	Max. Power
Freight	9	140	50	4
Way Freight	0	25	50	4
Passenger	4	10	50	2

The volumes recorded reflect westbound and eastbound freight and passenger operations on CN's Halton Subdivision.

Except where anti-whistling bylaws are in effect, engine-warning whistles and bells are normally sounded at all at-grade crossings. There is no at-grade crossing in the immediate vicinity of the study area. Please note that engine warning whistles may be sounded in cases of emergency, as a safety and or warning precaution at station locations and pedestrian crossings and occasionally for operating requirements.

With respect to equipment restrictions, the gross weight of the heaviest permissible car is 286,000 lbs.

The double mainline track is considered to be continuously welded rail throughout the study area.

The Canadian National Railway continues to be strongly opposed to locating developments near railway facilities and rights-of-way due to potential safety and environmental conflicts. Development adjacent to the Railway Right-of-Way is not appropriate without sound impact mitigation measures to reduce the incompatibility. For confirmation of the applicable rail noise, vibration and safety standards, Adjacent Development, Canadian National Railway Properties at Proximity@cn.ca should be contacted directly.

I trust the above information will satisfy your current request.

Sincerely,

Michael Vallins P.Eng
Manager, Public Works-Eastern Canada
Permits.gld@cn.ca

Keni Mallinen

From: Sarangan Srikanth <Sarangan.Srikanth@cn.ca>
Sent: September 10, 2024 10:40 AM
To: Keni Mallinen
Subject: RE: Confirmation - Validity of Rail Volume Data for Noise Study

Hello Keni,

This data is still valid.

Thank you,

Sarangan Srikanth
Officer Public Works | Engineering-GLD- Eastern Canada
T: **905-669-3000** | C: **437-329-4963**

What's New at CN | *Quoi de neuf au CN*

From: Keni Mallinen <kmallinen@slrconsulting.com>
Sent: Tuesday, February 27, 2024 1:48 PM
To: GLD-Permits <permits.gld@cn.ca>
Subject: Confirmation - Validity of Rail Volume Data for Noise Study

Good day,

SLR Consulting previously purchased rail traffic data from CN for the Halton Subdivision, Mile 23.5, near Georgetown GO Station. That data set is attached.

Could CN please provide comment as to whether the volumes in the attached document remain applicable?

If questions or clarifications regarding this request are required, please let me know.

Best regards,
Keni

Keni Mallinen M.A.Sc., P.Eng.
Senior Acoustics Engineer

O +1 226 706 8080
M +1 226 203 7385
E kmallinen@slrconsulting.com

SLR Consulting (Canada) Ltd.

100 Stone Road West, Suite 201,GuelphONCanadaN1G 5L3

Marcus Li

From: Rail Data Requests <RailDataRequests@metrolinx.com>
Sent: January 17, 2023 12:59 PM
To: Marcus Li
Subject: RE: Confirm Rail Traffic Data Up-to-Date: 18 Mill St., Georgetown (from May 19, 2021)

Hi Marcus,
Further to your request dated January 16, 2023, the subject lands (18 Mill St., Georgetown) are located within 300 metres of the CN Halton Subdivision (which carries Kitchener GO rail service).

It's anticipated that GO rail service on this Subdivision will be comprised of diesel trains. The GO rail fleet combination on this Subdivision will consist of up to 2 locomotives and 12 passenger cars. The typical GO rail weekday train volume forecast near the subject lands, including both revenue and equipment trips is in the order of 76 trains. The planned detailed trip breakdown is listed below:

	1 Diesel Locomotive	2 Diesel Locomotives		1 Diesel Locomotive	2 Diesel Locomotives
Day (0700-2300)	56	8	Night (2300-0700)	12	0

The current track design speed near the subject lands is 50 mph (80 km/h).

There are no *anti-whistling by-laws* in affect near the subject lands.
Operational information is subject to change and may be influenced by, among other factors, service planning priorities, operational considerations, funding availability and passenger demand.

It should be noted that this information only pertains to Metrolinx rail service. It would be prudent to contact other rail operators in the area directly for rail traffic information pertaining to non-Metrolinx rail service.

I trust this information is useful. Should you have any questions or concerns, please do not hesitate to contact me.

Regards,
Tara Kamal Ahmadi

Tara Kamal Ahmadi
Junior Analyst
Third Party Projects Review, Capital Projects Group
Metrolinx | 20 Bay Street | Suite 600 | Toronto | Ontario | M5J 2W3

METROLINX

From: Marcus Li <mli@slrconsulting.com>
Sent: January 16, 2023 11:28 AM
To: Rail Data Requests <RailDataRequests@metrolinx.com>; Keni Mallinen <kmallinen@slrconsulting.com>
Subject: RE: Confirm Rail Traffic Data Up-to-Date: 18 Mill St., Georgetown (from May 19, 2021)

RAILWAY SOURCES

Description	Name	M.	ID	Lw' Day (dBA)	Lw' Night (dBA)	Train Class	Correct. Track (dB)	Vmax (km(km/h)	Height A (m)	E (m)	A_att	E_Att	Length (m)	Train Type 1 Type	No. Day	No. Night	Speed (km/h)	Throttle (1 to 8)
GO Train - Locomotive	GO		Go_loco	69.0	64.2	(local)	0		0.6		r		2639	FTA_COMM_LOC_DE	72	12	80	8
GO Train - Wheel	GO		Go_wheel	63.2	58.9	(local)	0		0.6		r		2639	FTA_COMM_CAR	768	144	80	0
Freight Train - Locomotive	Freight		freight_loco	72.3	76.8	(local)	0		0.6		r		2639	FRA_CONV_FRE_LOC	40	56	80	8
Freight Train - Wheel	Freight		freight_wheel	65.8	70.2	(local)	0		0.6		r		2639	FTA_COMM_CAR	1400	1960	80	0
Passenger Train - Locomotive	Passenger		pass_loco	-81.0	64.9	(local)	0		0.6		r		2639	FTA_COMM_LOC_DE	0	14	80	8
Passenger Train - Wheel	Passenger		pass_wheel	-81.0	55.8	(local)	0		0.6		r		2639	FTA_COMM_CAR	0	70	80	0
GO Train - 24-hour Locomotive	GO		Go_loco_24Loco	69.6	-81.0	(local)	0		0.6		r		2639	FTA_COMM_LOC_DE	84	0	80	8
GO Train - 24-hour Wheel	GO		Go_wheel_24wheel	63.9	-81.0	(local)	0		0.6		r		2639	FTA_COMM_CAR	912	0	80	0
Freight Train - 24-hour Locomotive	Freight		FR_D_24Loco	76.1	-81.0	(local)	0		0.6		r		2639	FRA_CONV_FRE_LOC	96	0	80	8
Freight Train - 24-hour Wheel	Freight		FR_D_24Wheel	69.6	-81.0	(local)	0		0.6		r		2639	FTA_COMM_CAR	3360	0	80	0
Passenger Train - 24-hour Locomotive	Passenger		P_D_24Loco	61.8	-81.0	(local)	0		0.6		r		2639	FTA_COMM_LOC_DE	14	0	80	8
Passenger Train - 24-hour Wheel	Passenger		P_D_24Wheel	52.8	-81.0	(local)	0		0.6		r		2639	FTA_COMM_CAR	70	0	80	0

Appendix C Detailed Façade Component Calculations

Updated Environmental Noise & Vibration Study

1 Rosetta Street, Georgetown

1 Rosetta Street Inc.

SLR Project No.: 241.V20210.00002

October 4, 2024

BPN 56 Calculation Procedure - Required Glazing STC Rating (Fixed Veneer) - RAIL LOCOMOTIVE

Scenario 1 - Reduction from Exterior Wall into ENB - Brick Veneer/Masonry Construction of ENB Exterior Wall

		Sound Levels				Room / Façade Inputs										Source Inputs			Veneer - Component 1						Glazing - Component 2					
Receptor ID	Receptor Description	Façade Sound Level: (dBA)	Free - field Corr: (dBA)	Req'd Indoor Sound Level: (dBA)	Req'd Noise Red: (dBA)	Glazing as % of Wall Area	Exp Wall Ht (m)	Exp Wall Length (m)	Room Depth (m)	Total Floor Area (m^2)	Veneer Wall Area (m^2)	Glazing Wall Area (m^2)	Veneer as % of Floor Area: (%)	Glazing as % of Floor Area: (%)	Room Absorption:	Incident Sound Angle: (deg)	Angle Corr Factor:	Spectrum type:	Veneer STC (STC)	Component Category:	Room Correction	Frequency Correction	Sound Energy Correction	% Total Transmitted Energy (%)	Component Category:	Room Correction	Frequency Correction	% Total Transmitted Energy (%)	Sound Energy Correction	Req'd Glazing STC (STC)
DAYTIME																														
B02_WF2_LR	Building 02- West Façade (ENB) - Living Room	66	3	50	19	41%	2.8	6.0	1.8	10.8	9.9	6.9	91	64	Hard	0 - 90	0	F. diesel railway locomotive	54	D. sealed thick window, or exterior wall, or roof/ceiling	3	10	22	5	C. sealed thin window, or openable thick window	1	6	95	0	**26**
B02_WF2_BR	Building 02 - West Façade (ENB) - Bedroom	66	3	50	19	41%	2.8	6.0	1.8	10.8	9.9	6.9	91	64	Hard	0 - 90	0	F. diesel railway locomotive	54	D. sealed thick window, or exterior wall, or roof/ceiling	3	10	22	5	C. sealed thin window, or openable thick window	1	6	95	0	**26**
B01_EF2_LR	Building 01 - East Façade (ENB) - Living Room	63	3	50	16	71%	2.8	4.3	1.8	7.7	3.5	8.6	45	111	Hard	0 - 90	0	F. diesel railway locomotive	54	D. sealed thick window, or exterior wall, or roof/ceiling	-1	10	29	5	C. sealed thin window, or openable thick window	3	6	95	0	**25**
B01_EF2_BR	Building 01 - East Façade (ENB) - Bedroom	63	3	50	16	71%	2.8	4.3	1.8	7.7	3.5	8.6	45	111	Hard	0 - 90	0	F. diesel railway locomotive	54	D. sealed thick window, or exterior wall, or roof/ceiling	-1	10	29	5	C. sealed thin window, or openable thick window	3	6	95	0	**25**
B02_SF2_LR	Building 02 - South Façade (ENB) - Living Room	67	3	50	20	32%	2.8	10.6	1.8	19.1	20.2	9.5	106	50	Hard	0 - 90	0	F. diesel railway locomotive	54	D. sealed thick window, or exterior wall, or roof/ceiling	3	10	21	5	C. sealed thin window, or openable thick window	0	6	95	0	**26**
B02_SF2_BR	Building 02 - South Façade (ENB) - Bedroom	67	3	50	20	32%	2.8	10.6	1.8	19.1	20.2	9.5	106	50	Hard	0 - 90	0	F. diesel railway locomotive	54	D. sealed thick window, or exterior wall, or roof/ceiling	3	10	21	5	C. sealed thin window, or openable thick window	0	6	95	0	**26**
B01_SF_LR	Building 01 - South Façade (ENBs) - Living Room - Layout 1	67	3	50	20	41%	2.8	6.0	1.8	10.8	9.9	6.9	91	64	Hard	0 - 90	0	F. diesel railway locomotive	54	D. sealed thick window, or exterior wall, or roof/ceiling	3	10	21	5	C. sealed thin window, or openable thick window	1	6	95	0	**27**
B01_SF_BR	Building 01 - South Façade (ENBs) - Bedroom - Layout 1	67	3	50	20	41%	2.8	6.0	1.8	10.8	9.9	6.9	91	64	Hard	0 - 90	0	F. diesel railway locomotive	54	D. sealed thick window, or exterior wall, or roof/ceiling	3	10	21	5	C. sealed thin window, or openable thick window	1	6	95	0	**27**
B01_SF_LR	Building 01 - South Façade (ENBs) - Living Room - Layout 2	67	3	50	20	36%	2.8	9.3	2.3	21.4	16.6	9.5	77	44	Hard	0 - 90	0	F. diesel railway locomotive	54	D. sealed thick window, or exterior wall, or roof/ceiling	2	10	22	5	C. sealed thin window, or openable thick window	-1	6	95	0	**25**
B01_SF_BR	Building 01 - South Façade (ENBs) - Bedroom - Layout 2	67	3	50	20	36%	2.8	9.3	2.3	21.4	16.6	9.5	77	44	Hard	0 - 90	0	F. diesel railway locomotive	54	D. sealed thick window, or exterior wall, or roof/ceiling	2	10	22	5	C. sealed thin window, or openable thick window	-1	6	95	0	**25**
NIGHT-TIME																														
B02_WF2_LR	Building 02- West Façade (ENB) - Living Room	69	3	50	22	41%	2.8	6.0	1.8	10.8	9.9	6.9	91	64	Hard	0 - 90	0	F. diesel railway locomotive	54	D. sealed thick window, or exterior wall, or roof/ceiling	3	10	19	5	C. sealed thin window, or openable thick window	1	6	95	0	**29**
B02_WF2_BR	Building 02 - West Façade (ENB) - Bedroom	69	3	50	22	41%	2.8	6.0	1.8	10.8	9.9	6.9	91	64	Hard	0 - 90	0	F. diesel railway locomotive	54	D. sealed thick window, or exterior wall, or roof/ceiling	3	10	19	5	C. sealed thin window, or openable thick window	1	6	95	0	**29**
B01_EF2_LR	Building 01 - East Façade (ENB) - Living Room	67	3	50	20	71%	2.8	4.3	1.8	7.7	3.5	8.6	45	111	Hard	0 - 90	0	F. diesel railway locomotive	54	D. sealed thick window, or exterior wall, or roof/ceiling	-1	10	25	5	C. sealed thin window, or openable thick window	3	6	95	0	**29**
B01_EF2_BR	Building 01 - East Façade (ENB) - Bedroom	67	3	50	20	71%	2.8	4.3	1.8	7.7	3.5	8.6	45	111	Hard	0 - 90	0	F. diesel railway locomotive	54	D. sealed thick window, or exterior wall, or roof/ceiling	-1	10	25	5	C. sealed thin window, or openable thick window	3	6	95	0	**29**
B02_SF2_LR	Building 02 - South Façade (ENB) - Living Room	69	3	50	22	32%	2.8	10.6	1.8	19.1	20.2	9.5	106	50	Hard	0 - 90	0	F. diesel railway locomotive	54	D. sealed thick window, or exterior wall, or roof/ceiling	3	10	19	5	C. sealed thin window, or openable thick window	0	6	95	0	**28**
B02_SF2_BR	Building 02 - South Façade (ENB) - Bedroom	69	3	50	22	32%	2.8	10.6	1.8	19.1	20.2	9.5	106	50	Hard	0 - 90	0	F. diesel railway locomotive	54	D. sealed thick window, or exterior wall, or roof/ceiling	3	10	19	5	C. sealed thin window, or openable thick window	0	6	95	0	**28**
B01_SF_LR	Building 01 - South Façade (ENBs) - Living Room - Layout 1	70	3	50	23	41%	2.8	6.0	1.8	10.8	9.9	6.9	91	64	Hard	0 - 90	0	F. diesel railway locomotive	54	D. sealed thick window, or exterior wall, or roof/ceiling	3	10	18	5	C. sealed thin window, or openable thick window	1	6	95	0	**30**
B01_SF_BR	Building 01 - South Façade (ENBs) - Bedroom - Layout 1	70	3	50	23	41%	2.8	6.0	1.8	10.8	9.9	6.9	91	64	Hard	0 - 90	0	F. diesel railway locomotive	54	D. sealed thick window, or exterior wall, or roof/ceiling	3	10	18	5	C. sealed thin window, or openable thick window	1	6	95	0	**30**
B01_SF_LR	Building 01 - South Façade (ENBs) - Living Room - Layout 2	70	3	50	23	36%	2.8	9.3	2.3	21.4	16.6	9.5	77	44	Hard	0 - 90	0	F. diesel railway locomotive	54	D. sealed thick window, or exterior wall, or roof/ceiling	2	10	19	5	C. sealed thin window, or openable thick window	-1	6	95	0	**28**
B01_SF_BR	Building 01 - South Façade (ENBs) - Bedroom - Layout 2	70	3	50	23	36%	2.8	9.3	2.3	21.4	16.6	9.5	77	44	Hard	0 - 90	0	F. diesel railway locomotive	54	D. sealed thick window, or exterior wall, or roof/ceiling	2	10	19	5	C. sealed thin window, or openable thick window	-1	6	95	0	**28**

BPN 56 Calculation Procedure - Required Glazing STC Rating (Fixed Veneer) - RAIL WHEEL

Scenario 1 - Reduction from Exterior Wall into ENB - Brick Veneer/Masonry Construction of ENB Exterior Wall

		Sound Levels				Room / Façade Inputs										Source Inputs			Veneer - Component 1							Glazing - Component 2					
Receptor ID	Receptor Description	Façade Sound Level: (dBA)	Free - field Corr: (dBA)	Req'd Indoor Sound Level: (dBA)	Req'd Noise Red: (dBA)	Glazing as % of Wall Area	Exp Wall Ht (m)	Exp Wall Length (m)	Room Depth (m)	Total Floor Area (m^2)	Veneer Wall Area (m^2)	Glazing Wall Area (m^2)	Veneer as % of Floor Area: (%)	Glazing as % of Floor Area: (%)	Room Absorption:	Incident Sound Angle: (deg)	Angle Corr Factor:	Spectrum type:	Veneer STC (STC)	Component Category:	Room Correction	Frequency Correction	Sound Energy Correction	% Total Transmitted Energy (%)	Component Category:	Room Correction	Frequency Correction	% Total Transmitted Energy (%)	Sound Energy Correction	Req'd Glazing STC (STC)
DAYTIME																														
B02_WF2_LR	Building 02- West Façade (ENB) - Living Room	59	3	50	12	41%	2.8	6.0	1.8	10.8	9.9	6.9	91	64	Hard	0 - 90	0	B. avg aircraft, railway wheel noise	54	D. sealed thick window, or exterior wall, or roof/ceiling	3	2	37	5	C. sealed thin window, or openable thick window	1	1	95	0	**14**
B02_WF2_BR	Building 02 - West Façade (ENB) - Bedroom	59	3	50	12	41%	2.8	6.0	1.8	10.8	9.9	6.9	91	64	Hard	0 - 90	0	B. avg aircraft, railway wheel noise	54	D. sealed thick window, or exterior wall, or roof/ceiling	3	2	37	5	C. sealed thin window, or openable thick window	1	1	95	0	**14**
B01_EF2_LR	Building 01 - East Façade (ENB) - Living Room	57	3	50	10	71%	2.8	4.3	1.8	7.7	3.5	8.6	45	111	Hard	0 - 90	0	B. avg aircraft, railway wheel noise	54	D. sealed thick window, or exterior wall, or roof/ceiling	-1	2	43	5	C. sealed thin window, or openable thick window	3	1	95	0	**14**
B01_EF2_BR	Building 01 - East Façade (ENB) - Bedroom	57	3	50	10	71%	2.8	4.3	1.8	7.7	3.5	8.6	45	111	Hard	0 - 90	0	B. avg aircraft, railway wheel noise	54	D. sealed thick window, or exterior wall, or roof/ceiling	-1	2	43	5	C. sealed thin window, or openable thick window	3	1	95	0	**14**
B02_SF2_LR	Building 02 - South Façade (ENB) - Living Room	61	3	50	14	32%	2.8	10.6	1.8	19.1	20.2	9.5	106	50	Hard	0 - 90	0	B. avg aircraft, railway wheel noise	54	D. sealed thick window, or exterior wall, or roof/ceiling	3	2	35	5	C. sealed thin window, or openable thick window	0	1	95	0	**15**
B02_SF2_BR	Building 02 - South Façade (ENB) - Bedroom	61	3	50	14	32%	2.8	10.6	1.8	19.1	20.2	9.5	106	50	Hard	0 - 90	0	B. avg aircraft, railway wheel noise	54	D. sealed thick window, or exterior wall, or roof/ceiling	3	2	35	5	C. sealed thin window, or openable thick window	0	1	95	0	**15**
B01_SF_LR	Building 01 - South Façade (ENBs) - Living Room - Layout 1	61	3	50	14	41%	2.8	6.0	1.8	10.8	9.9	6.9	91	64	Hard	0 - 90	0	B. avg aircraft, railway wheel noise	54	D. sealed thick window, or exterior wall, or roof/ceiling	3	2	35	5	C. sealed thin window, or openable thick window	1	1	95	0	**16**
B01_SF_BR	Building 01 - South Façade (ENBs) - Bedroom - Layout 1	61	3	50	14	41%	2.8	6.0	1.8	10.8	9.9	6.9	91	64	Hard	0 - 90	0	B. avg aircraft, railway wheel noise	54	D. sealed thick window, or exterior wall, or roof/ceiling	3	2	35	5	C. sealed thin window, or openable thick window	1	1	95	0	**16**
B01_SF_LR	Building 01 - South Façade (ENBs) - Living Room - Layout 2	61	3	50	14	36%	2.8	9.3	2.3	21.4	16.6	9.5	77	44	Hard	0 - 90	0	B. avg aircraft, railway wheel noise	54	D. sealed thick window, or exterior wall, or roof/ceiling	2	2	36	5	C. sealed thin window, or openable thick window	-1	1	95	0	**14**
B01_SF_BR	Building 01 - South Façade (ENBs) - Bedroom - Layout 2	61	3	50	14	36%	2.8	9.3	2.3	21.4	16.6	9.5	77	44	Hard	0 - 90	0	B. avg aircraft, railway wheel noise	54	D. sealed thick window, or exterior wall, or roof/ceiling	2	2	36	5	C. sealed thin window, or openable thick window	-1	1	95	0	**14**
NIGHT-TIME																														
B02_WF2_LR	Building 02- West Façade (ENB) - Living Room	62	3	50	15	40%	2.8	6.0	1.8	10.8	10.0	6.8	93	63	Hard	0 - 90	0	B. avg aircraft, railway wheel noise	54	D. sealed thick window, or exterior wall, or roof/ceiling	3	2	34	5	C. sealed thin window, or openable thick window	1	1	95	0	**17**
B02_WF2_BR	Building 02 - West Façade (ENB) - Bedroom	62	3	50	15	40%	2.8	6.0	1.8	10.8	10.0	6.8	93	63	Hard	0 - 90	0	B. avg aircraft, railway wheel noise	54	D. sealed thick window, or exterior wall, or roof/ceiling	3	2	34	5	C. sealed thin window, or openable thick window	1	1	95	0	**17**
B01_EF2_LR	Building 01 - East Façade (ENB) - Living Room	60	3	50	13	71%	2.8	4.3	1.8	7.7	3.5	8.6	45	111	Hard	0 - 90	0	B. avg aircraft, railway wheel noise	54	D. sealed thick window, or exterior wall, or roof/ceiling	-1	2	40	5	C. sealed thin window, or openable thick window	3	1	95	0	**17**
B01_EF2_BR	Building 01 - East Façade (ENB) - Bedroom	60	3	50	13	71%	2.8	4.3	1.8	7.7	3.5	8.6	45	111	Hard	0 - 90	0	B. avg aircraft, railway wheel noise	54	D. sealed thick window, or exterior wall, or roof/ceiling	-1	2	40	5	C. sealed thin window, or openable thick window	3	1	95	0	**17**
B02_SF2_LR	Building 02 - South Façade (ENB) - Living Room	64	3	50	17	31%	2.8	10.6	1.8	19.1	20.5	9.2	107	48	Hard	0 - 90	0	B. avg aircraft, railway wheel noise	54	D. sealed thick window, or exterior wall, or roof/ceiling	3	2	32	5	C. sealed thin window, or openable thick window	0	1	95	0	**18**
B02_SF2_BR	Building 02 - South Façade (ENB) - Bedroom	64	3	50	17	31%	2.8	10.6	1.8	19.1	20.5	9.2	107	48	Hard	0 - 90	0	B. avg aircraft, railway wheel noise	54	D. sealed thick window, or exterior wall, or roof/ceiling	3	2	32	5	C. sealed thin window, or openable thick window	0	1	95	0	**18**
B01_SF_LR	Building 01 - South Façade (ENBs) - Living Room - Layout 1	64	3	50	17	40%	2.8	6.0	1.8	10.8	10.0	6.8	93	63	Hard	0 - 90	0	B. avg aircraft, railway wheel noise	54	D. sealed thick window, or exterior wall, or roof/ceiling	3	2	32	5	C. sealed thin window, or openable thick window	1	1	95	0	**19**
B01_SF_BR	Building 01 - South Façade (ENBs) - Bedroom - Layout 1	64	3	50	17	40%	2.8	6.0	1.8	10.8	10.0	6.8	93	63	Hard	0 - 90	0	B. avg aircraft, railway wheel noise	54	D. sealed thick window, or exterior wall, or roof/ceiling	3	2	32	5	C. sealed thin window, or openable thick window	1	1	95	0	**19**
B01_SF_LR	Building 01 - South Façade (ENBs) - Living Room - Layout 2	64	3	50	17	36%	2.8	9.3	2.3	21.4	16.6	9.5	77	44	Hard	0 - 90	0	B. avg aircraft, railway wheel noise	54	D. sealed thick window, or exterior wall, or roof/ceiling	2	2	33	5	C. sealed thin window, or openable thick window	-1	1	95	0	**17**
B01_SF_BR	Building 01 - South Façade (ENBs) - Bedroom - Layout 2	64	3	50	17	36%	2.8	9.3	2.3	21.4	16.6	9.5	77	44	Hard	0 - 90	0	B. avg aircraft, railway wheel noise	54	D. sealed thick window, or exterior wall, or roof/ceiling	2	2	33	5	C. sealed thin window, or openable thick window	-1	1	95	0	**17**

BPN 56 Calculation Procedure - Required Glazing STC Rating (Fixed Veneer) - RAIL LOCOMOTIVE

Scenario 2 - Reduction from Exterior Wall into ENB - STC 45 Construction of ENB Exterior Wall

		Sound Levels				Room / Façade Inputs										Source Inputs			Veneer - Component 1							Glazing - Component 2					
Receptor ID	Receptor Description	Façade Sound Level: (dBA)	Free - field Corr: (dBA)	Req'd Indoor Sound Level: (dBA)	Req'd Noise Red: (dBA)	Glazing as % of Wall Area	Exp Wall Ht (m)	Exp Wall Length (m)	Room Depth (m)	Total Floor Area (m^2)	Veneer Wall Area (m^2)	Glazing Wall Area (m^2)	Veneer as % of Floor Area: (%)	Glazing as % of Floor Area: (%)	Room Absorption:	Incident Sound Angle: (deg)	Angle Corr Factor:	Spectrum type:	Veneer STC (STC)	Component Category:	Room Correction	Frequency Correction	Sound Energy Correction	% Total Transmitted Energy (%)	Component Category:	Room Correction	Frequency Correction	% Total Transmitted Energy (%)	Sound Energy Correction	Req'd Glazing STC (STC)
DAYTIME																														
B02_WF2_LR	Building 02- West Façade (ENB) - Living Room	66	3	50	19	40%	2.8	6.0	1.8	10.8	10.0	6.8	93	63	Hard	0 - 90	0	F. diesel railway locomotive	45	D. sealed thick window, or exterior wall, or roof/ceiling	3	10	13	5	C. sealed thin window, or openable thick window	1	6	95	0	**26**
B02_WF2_BR	Building 02 - West Façade (ENB) - Bedroom	66	3	50	19	40%	2.8	6.0	1.8	10.8	10.0	6.8	93	63	Hard	0 - 90	0	F. diesel railway locomotive	45	D. sealed thick window, or exterior wall, or roof/ceiling	3	10	13	5	C. sealed thin window, or openable thick window	1	6	95	0	**26**
B01_EF2_LR	Building 01 - East Façade (ENB) - Living Room	63	3	50	16	71%	2.8	4.3	1.8	7.7	3.5	8.6	45	111	Hard	0 - 90	0	F. diesel railway locomotive	45	D. sealed thick window, or exterior wall, or roof/ceiling	-1	10	20	5	C. sealed thin window, or openable thick window	3	6	95	0	**25**
B01_EF2_BR	Building 01 - East Façade (ENB) - Bedroom	63	3	50	16	71%	2.8	4.3	1.8	7.7	3.5	8.6	45	111	Hard	0 - 90	0	F. diesel railway locomotive	45	D. sealed thick window, or exterior wall, or roof/ceiling	-1	10	20	5	C. sealed thin window, or openable thick window	3	6	95	0	**25**
B02_SF2_LR	Building 02 - South Façade (ENB) - Living Room	67	3	50	20	31%	2.8	10.6	1.8	19.1	20.5	9.2	107	48	Hard	0 - 90	0	F. diesel railway locomotive	45	D. sealed thick window, or exterior wall, or roof/ceiling	3	10	12	6	C. sealed thin window, or openable thick window	0	6	94	0	**26**
B02_SF2_BR	Building 02 - South Façade (ENB) - Bedroom	67	3	50	20	31%	2.8	10.6	1.8	19.1	20.5	9.2	107	48	Hard	0 - 90	0	F. diesel railway locomotive	45	D. sealed thick window, or exterior wall, or roof/ceiling	3	10	12	6	C. sealed thin window, or openable thick window	0	6	94	0	**26**
B01_SF_LR	Building 01 - South Façade (ENBs) - Living Room - Layout 1	67	3	50	20	40%	2.8	6.0	1.8	10.8	10.0	6.8	93	63	Hard	0 - 90	0	F. diesel railway locomotive	45	D. sealed thick window, or exterior wall, or roof/ceiling	3	10	12	6	C. sealed thin window, or openable thick window	1	6	94	0	**27**
B01_SF_BR	Building 01 - South Façade (ENBs) - Bedroom - Layout 1	67	3	50	20	40%	2.8	6.0	1.8	10.8	10.0	6.8	93	63	Hard	0 - 90	0	F. diesel railway locomotive	45	D. sealed thick window, or exterior wall, or roof/ceiling	3	10	12	6	C. sealed thin window, or openable thick window	1	6	94	0	**27**
B01_SF_LR	Building 01 - South Façade (ENBs) - Living Room - Layout 2	67	3	50	20	35%	2.8	9.3	2.3	21.4	16.9	9.2	79	43	Hard	0 - 90	0	F. diesel railway locomotive	45	D. sealed thick window, or exterior wall, or roof/ceiling	2	10	13	5	C. sealed thin window, or openable thick window	-1	6	95	0	**25**
B01_SF_BR	Building 01 - South Façade (ENBs) - Bedroom - Layout 2	67	3	50	20	35%	2.8	9.3	2.3	21.4	16.9	9.2	79	43	Hard	0 - 90	0	F. diesel railway locomotive	45	D. sealed thick window, or exterior wall, or roof/ceiling	2	10	13	5	C. sealed thin window, or openable thick window	-1	6	95	0	**25**
NIGHT-TIME																														
B02_WF2_LR	Building 02- West Façade (ENB) - Living Room	69	3	50	22	40%	2.8	6.0	1.8	10.8	10.0	6.8	93	63	Hard	0 - 90	0	F. diesel railway locomotive	45	D. sealed thick window, or exterior wall, or roof/ceiling	3	10	10	10	C. sealed thin window, or openable thick window	1	6	90	0	**29**
B02_WF2_BR	Building 02 - West Façade (ENB) - Bedroom	69	3	50	22	40%	2.8	6.0	1.8	10.8	10.0	6.8	93	63	Hard	0 - 90	0	F. diesel railway locomotive	45	D. sealed thick window, or exterior wall, or roof/ceiling	3	10	10	10	C. sealed thin window, or openable thick window	1	6	90	0	**29**
B01_EF2_LR	Building 01 - East Façade (ENB) - Living Room	67	3	50	20	71%	2.8	4.3	1.8	7.7	3.5	8.6	45	111	Hard	0 - 90	0	F. diesel railway locomotive	45	D. sealed thick window, or exterior wall, or roof/ceiling	-1	10	16	5	C. sealed thin window, or openable thick window	3	6	95	0	**29**
B01_EF2_BR	Building 01 - East Façade (ENB) - Bedroom	67	3	50	20	71%	2.8	4.3	1.8	7.7	3.5	8.6	45	111	Hard	0 - 90	0	F. diesel railway locomotive	45	D. sealed thick window, or exterior wall, or roof/ceiling	-1	10	16	5	C. sealed thin window, or openable thick window	3	6	95	0	**29**
B02_SF2_LR	Building 02 - South Façade (ENB) - Living Room	69	3	50	22	31%	2.8	10.6	1.8	19.1	20.5	9.2	107	48	Hard	0 - 90	0	F. diesel railway locomotive	45	D. sealed thick window, or exterior wall, or roof/ceiling	3	10	10	10	C. sealed thin window, or openable thick window	0	6	90	0	**28**
B02_SF2_BR	Building 02 - South Façade (ENB) - Bedroom	69	3	50	22	31%	2.8	10.6	1.8	19.1	20.5	9.2	107	48	Hard	0 - 90	0	F. diesel railway locomotive	45	D. sealed thick window, or exterior wall, or roof/ceiling	3	10	10	10	C. sealed thin window, or openable thick window	0	6	90	0	**28**
B01_SF_LR	Building 01 - South Façade (ENBs) - Living Room - Layout 1	70	3	50	23	40%	2.8	6.0	1.8	10.8	10.0	6.8	93	63	Hard	0 - 90	0	F. diesel railway locomotive	45	D. sealed thick window, or exterior wall, or roof/ceiling	3	10	9	12	C. sealed thin window, or openable thick window	1	6	88	1	**31**
B01_SF_BR	Building 01 - South Façade (ENBs) - Bedroom - Layout 1	70	3	50	23	40%	2.8	6.0	1.8	10.8	10.0	6.8	93	63	Hard	0 - 90	0	F. diesel railway locomotive	45	D. sealed thick window, or exterior wall, or roof/ceiling	3	10	9	12	C. sealed thin window, or openable thick window	1	6	88	1	**31**
B01_SF_LR	Building 01 - South Façade (ENBs) - Living Room - Layout 2	70	3	50	23	35%	2.8	9.3	2.3	21.4	16.9	9.2	79	43	Hard	0 - 90	0	F. diesel railway locomotive	45	D. sealed thick window, or exterior wall, or roof/ceiling	2	10	10	10	C. sealed thin window, or openable thick window	-1	6	90	0	**28**
B01_SF_BR	Building 01 - South Façade (ENBs) - Bedroom - Layout 2	70	3	50	23	35%	2.8	9.3	2.3	21.4	16.9	9.2	79	43	Hard	0 - 90	0	F. diesel railway locomotive	45	D. sealed thick window, or exterior wall, or roof/ceiling	2	10	10	10	C. sealed thin window, or openable thick window	-1	6	90	0	**28**

BPN 56 Calculation Procedure - Required Glazing STC Rating (Fixed Veneer) - RAIL WHEEL

Scenario 2 - Reduction from Exterior Wall into ENB - STC 45 Construction of ENB Exterior Wall

		Sound Levels				Room / Façade Inputs										Source Inputs			Veneer - Component 1							Glazing - Component 2					
Receptor ID	Receptor Description	Façade Sound Level: (dBA)	Free - field Corr: (dBA)	Req'd Indoor Sound Level: (dBA)	Req'd Noise Red: (dBA)	Glazing as % of Wall Area	Exp Wall Ht (m)	Exp Wall Length (m)	Room Depth (m)	Total Floor Area (m^2)	Veneer Wall Area (m^2)	Glazing Wall Area (m^2)	Veneer as % of Floor Area: (%)	Glazing as % of Floor Area: (%)	Room Absorption:	Incident Sound Angle: (deg)	Angle Corr Factor:	Spectrum type:	Veneer STC (STC)	Component Category:	Room Correction	Frequency Correction	Sound Energy Correction	% Total Transmitted Energy (%)	Component Category:	Room Correction	Frequency Correction	% Total Transmitted Energy (%)	Sound Energy Correction	Req'd Glazing STC (STC)
DAYTIME																														
B02_WF2_LR	Building 02- West Façade (ENB) - Living Room	59	3	50	12	40%	2.8	6.0	1.8	10.8	10.0	6.8	93	63	Hard	0 - 90	0	B. avg aircraft, railway wheel noise	45	D. sealed thick window, or exterior wall, or roof/ceiling	3	2	28	5	C. sealed thin window, or openable thick window	1	1	95	0	**14**
B02_WF2_BR	Building 02 - West Façade (ENB) - Bedroom	59	3	50	12	40%	2.8	6.0	1.8	10.8	10.0	6.8	93	63	Hard	0 - 90	0	B. avg aircraft, railway wheel noise	45	D. sealed thick window, or exterior wall, or roof/ceiling	3	2	28	5	C. sealed thin window, or openable thick window	1	1	95	0	**14**
B01_EF2_LR	Building 01 - East Façade (ENB) - Living Room	57	3	50	10	71%	2.8	4.3	1.8	7.7	3.5	8.6	45	111	Hard	0 - 90	0	B. avg aircraft, railway wheel noise	45	D. sealed thick window, or exterior wall, or roof/ceiling	-1	2	34	5	C. sealed thin window, or openable thick window	3	1	95	0	**14**
B01_EF2_BR	Building 01 - East Façade (ENB) - Bedroom	57	3	50	10	71%	2.8	4.3	1.8	7.7	3.5	8.6	45	111	Hard	0 - 90	0	B. avg aircraft, railway wheel noise	45	D. sealed thick window, or exterior wall, or roof/ceiling	-1	2	34	5	C. sealed thin window, or openable thick window	3	1	95	0	**14**
B02_SF2_LR	Building 02 - South Façade (ENB) - Living Room	61	3	50	14	31%	2.8	10.6	1.8	19.1	20.5	9.2	107	48	Hard	0 - 90	0	B. avg aircraft, railway wheel noise	45	D. sealed thick window, or exterior wall, or roof/ceiling	3	2	26	5	C. sealed thin window, or openable thick window	0	1	95	0	**15**
B02_SF2_BR	Building 02 - South Façade (ENB) - Bedroom	61	3	50	14	31%	2.8	10.6	1.8	19.1	20.5	9.2	107	48	Hard	0 - 90	0	B. avg aircraft, railway wheel noise	45	D. sealed thick window, or exterior wall, or roof/ceiling	3	2	26	5	C. sealed thin window, or openable thick window	0	1	95	0	**15**
B01_SF_LR	Building 01 - South Façade (ENBs) - Living Room - Layout 1	61	3	50	14	40%	2.8	6.0	1.8	10.8	10.0	6.8	93	63	Hard	0 - 90	0	B. avg aircraft, railway wheel noise	45	D. sealed thick window, or exterior wall, or roof/ceiling	3	2	26	5	C. sealed thin window, or openable thick window	1	1	95	0	**16**
B01_SF_BR	Building 01 - South Façade (ENBs) - Bedroom - Layout 1	61	3	50	14	40%	2.8	6.0	1.8	10.8	10.0	6.8	93	63	Hard	0 - 90	0	B. avg aircraft, railway wheel noise	45	D. sealed thick window, or exterior wall, or roof/ceiling	3	2	26	5	C. sealed thin window, or openable thick window	1	1	95	0	**16**
B01_SF_LR	Building 01 - South Façade (ENBs) - Living Room - Layout 2	61	3	50	14	35%	2.8	9.3	2.3	21.4	16.9	9.2	79	43	Hard	0 - 90	0	B. avg aircraft, railway wheel noise	45	D. sealed thick window, or exterior wall, or roof/ceiling	2	2	27	5	C. sealed thin window, or openable thick window	-1	1	95	0	**14**
B01_SF_BR	Building 01 - South Façade (ENBs) - Bedroom - Layout 2	61	3	50	14	35%	2.8	9.3	2.3	21.4	16.9	9.2	79	43	Hard	0 - 90	0	B. avg aircraft, railway wheel noise	45	D. sealed thick window, or exterior wall, or roof/ceiling	2	2	27	5	C. sealed thin window, or openable thick window	-1	1	95	0	**14**
NIGHT-TIME																														
B02_WF2_LR	Building 02- West Façade (ENB) - Living Room	62	3	50	15	40%	2.8	6.0	1.8	10.8	10.0	6.8	93	63	Hard	0 - 90	0	B. avg aircraft, railway wheel noise	45	D. sealed thick window, or exterior wall, or roof/ceiling	3	2	25	5	C. sealed thin window, or openable thick window	1	1	95	0	**17**
B02_WF2_BR	Building 02 - West Façade (ENB) - Bedroom	62	3	50	15	40%	2.8	6.0	1.8	10.8	10.0	6.8	93	63	Hard	0 - 90	0	B. avg aircraft, railway wheel noise	45	D. sealed thick window, or exterior wall, or roof/ceiling	3	2	25	5	C. sealed thin window, or openable thick window	1	1	95	0	**17**
B01_EF2_LR	Building 01 - East Façade (ENB) - Living Room	60	3	50	13	71%	2.8	4.3	1.8	7.7	3.5	8.6	45	111	Hard	0 - 90	0	B. avg aircraft, railway wheel noise	45	D. sealed thick window, or exterior wall, or roof/ceiling	-1	2	31	5	C. sealed thin window, or openable thick window	3	1	95	0	**17**
B01_EF2_BR	Building 01 - East Façade (ENB) - Bedroom	60	3	50	13	71%	2.8	4.3	1.8	7.7	3.5	8.6	45	111	Hard	0 - 90	0	B. avg aircraft, railway wheel noise	45	D. sealed thick window, or exterior wall, or roof/ceiling	-1	2	31	5	C. sealed thin window, or openable thick window	3	1	95	0	**17**
B02_SF2_LR	Building 02 - South Façade (ENB) - Living Room	64	3	50	17	31%	2.8	10.6	1.8	19.1	20.5	9.2	107	48	Hard	0 - 90	0	B. avg aircraft, railway wheel noise	45	D. sealed thick window, or exterior wall, or roof/ceiling	3	2	23	5	C. sealed thin window, or openable thick window	0	1	95	0	**18**
B02_SF2_BR	Building 02 - South Façade (ENB) - Bedroom	64	3	50	17	31%	2.8	10.6	1.8	19.1	20.5	9.2	107	48	Hard	0 - 90	0	B. avg aircraft, railway wheel noise	45	D. sealed thick window, or exterior wall, or roof/ceiling	3	2	23	5	C. sealed thin window, or openable thick window	0	1	95	0	**18**
B01_SF_LR	Building 01 - South Façade (ENBs) - Living Room - Layout 1	64	3	50	17	40%	2.8	6.0	1.8	10.8	10.0	6.8	93	63	Hard	0 - 90	0	B. avg aircraft, railway wheel noise	45	D. sealed thick window, or exterior wall, or roof/ceiling	3	2	23	5	C. sealed thin window, or openable thick window	1	1	95	0	**19**
B01_SF_BR	Building 01 - South Façade (ENBs) - Bedroom - Layout 1	64	3	50	17	40%	2.8	6.0	1.8	10.8	10.0	6.8	93	63	Hard	0 - 90	0	B. avg aircraft, railway wheel noise	45	D. sealed thick window, or exterior wall, or roof/ceiling	3	2	23	5	C. sealed thin window, or openable thick window	1	1	95	0	**19**
B01_SF_LR	Building 01 - South Façade (ENBs) - Living Room - Layout 2	64	3	50	17	35%	2.8	9.3	2.3	21.4	16.9	9.2	79	43	Hard	0 - 90	0	B. avg aircraft, railway wheel noise	45	D. sealed thick window, or exterior wall, or roof/ceiling	2	2	24	5	C. sealed thin window, or openable thick window	-1	1	95	0	**17**
B01_SF_BR	Building 01 - South Façade (ENBs) - Bedroom - Layout 2	64	3	50	17	35%	2.8	9.3	2.3	21.4	16.9	9.2	79	43	Hard	0 - 90	0	B. avg aircraft, railway wheel noise	45	D. sealed thick window, or exterior wall, or roof/ceiling	2	2	24	5	C. sealed thin window, or openable thick window	-1	1	95	0	**17**

BPN 56 Calculation Procedure - Required Glazing STC Rating (Fixed Veneer) - RAIL LOCOMOTIVE

Scenario 1 - Reduction from ENB into Residential Suites - Brick Veneer/Masonry Construction of ENB Exterior Wall

		Sound Levels				Room / Façade Inputs										Source Inputs			Veneer - Component 1							Glazing - Component 2					
Receptor ID	Receptor Description	Façade Sound Level:	Free - field Corr:	Req'd Indoor Sound Level:	Req'd Noise Red:	Glazing as % of Wall Area	Exp Wall Ht	Exp Wall Length	Room Depth	Total Floor Area	Veneer Wall Area	Glazing Wall Area	Veneer as % of Floor Area:	Glazing as % of Floor Area:	Room Absorption:	Incident Sound Angle:	Angle Corr Factor:	Spectrum type:	Veneer STC	Component Category:	Room Correction	Frequency Correction	Sound Energy Correction	% Total Transmitted Energy		Component Category:	Room Correction	Frequency Correction	% Total Transmitted Energy	Sound Energy Correction	Req'd Glazing STC
		(dBA)	(dBA)	(dBA)	(dBA)		(m)	(m)	(m)	(m^2)	(m^2)	(m^2)	(%)	(%)		(deg)			(STC)					(%)					(%)		(STC)
DAYTIME																															
B03_SF_LR	Building 03 - South Façade - Living Room	58	3	40	21	70%	2.8	3.0	6.0	18.0	2.5	5.8	14	32	Intermediate	0 - 90	0	F. diesel railway locomotive	50	D. sealed thick window, or exterior wall, or roof/ceiling	-8	10	27	5		C. sealed thin window, or openable thick window	-4	6	95	0	**23**
B03_SF_BR	Building 03 - South Façade - Bedroom	58	3	40	21	50%	2.8	3.0	3.0	9.0	4.1	4.1	46	46	Very Absorptive	0 - 90	0	F. diesel railway locomotive	50	D. sealed thick window, or exterior wall, or roof/ceiling	-4	10	23	5		C. sealed thin window, or openable thick window	-4	6	95	0	**23**
B03_EF_LR	Building 03 - East Façade - Living Room	58	3	40	21	70%	2.8	3.0	6.0	18.0	2.5	5.8	14	32	Intermediate	0 - 90	0	F. diesel railway locomotive	50	D. sealed thick window, or exterior wall, or roof/ceiling	-8	10	27	5		C. sealed thin window, or openable thick window	-4	6	95	0	**23**
B03_EF_BR	Building 03 - East Façade - Bedroom	58	3	40	21	50%	2.8	3.0	3.0	9.0	4.1	4.1	46	46	Very Absorptive	0 - 90	0	F. diesel railway locomotive	50	D. sealed thick window, or exterior wall, or roof/ceiling	-4	10	23	5		C. sealed thin window, or openable thick window	-4	6	95	0	**23**
B03_NF_LR	Building 03 - North Façade - Living Room	56	3	40	19	70%	2.8	3.0	6.0	18.0	2.5	5.8	14	32	Intermediate	0 - 90	0	F. diesel railway locomotive	50	D. sealed thick window, or exterior wall, or roof/ceiling	-8	10	29	5		C. sealed thin window, or openable thick window	-4	6	95	0	**21**
B03_NF_BR	Building 03 - North Façade - Bedroom	56	3	40	19	50%	2.8	3.0	3.0	9.0	4.1	4.1	46	46	Very Absorptive	0 - 90	0	F. diesel railway locomotive	50	D. sealed thick window, or exterior wall, or roof/ceiling	-4	10	25	5		C. sealed thin window, or openable thick window	-4	6	95	0	**21**
B03_WF_LR	Building 03- West Façade - Living Room	57	3	40	20	70%	2.8	3.0	6.0	18.0	2.5	5.8	14	32	Intermediate	0 - 90	0	F. diesel railway locomotive	50	D. sealed thick window, or exterior wall, or roof/ceiling	-8	10	28	5		C. sealed thin window, or openable thick window	-4	6	95	0	**22**
B03_WF_BR	Building 03 - West Façade - Bedroom	57	3	40	20	50%	2.8	3.0	3.0	9.0	4.1	4.1	46	46	Very Absorptive	0 - 90	0	F. diesel railway locomotive	50	D. sealed thick window, or exterior wall, or roof/ceiling	-4	10	24	5		C. sealed thin window, or openable thick window	-4	6	95	0	**22**
B02_NF_LR	Building 02 - North Façade - Living Room	59	3	40	22	70%	2.8	3.0	6.0	18.0	2.5	5.8	14	32	Intermediate	0 - 90	0	F. diesel railway locomotive	50	D. sealed thick window, or exterior wall, or roof/ceiling	-8	10	26	5		C. sealed thin window, or openable thick window	-4	6	95	0	**24**
B02_NF_BR	Building 02 - North Façade - Bedroom	59	3	40	22	50%	2.8	3.0	3.0	9.0	4.1	4.1	46	46	Very Absorptive	0 - 90	0	F. diesel railway locomotive	50	D. sealed thick window, or exterior wall, or roof/ceiling	-4	10	22	5		C. sealed thin window, or openable thick window	-4	6	95	0	**24**
B02_WF_LR	Building 02 - West Façade (non-ENB) - Living Room	64	3	40	27	70%	2.8	3.0	6.0	18.0	2.5	5.8	14	32	Intermediate	0 - 90	0	F. diesel railway locomotive	54	D. sealed thick window, or exterior wall, or roof/ceiling	-8	10	25	5		C. sealed thin window, or openable thick window	-4	6	95	0	**29**
B02_WF_BR	Building 02 - West Façade (non-ENB) - Bedroom	64	3	40	27	50%	2.8	3.0	3.0	9.0	4.1	4.1	46	46	Very Absorptive	0 - 90	0	F. diesel railway locomotive	54	D. sealed thick window, or exterior wall, or roof/ceiling	-4	10	21	5		C. sealed thin window, or openable thick window	-4	6	95	0	**29**
B02_WF2_LR	Building 02- West or South Façade (ENB) - Living Room	50	3	40	13	70%	2.8	3.0	6.0	18.0	2.5	5.8	14	32	Intermediate	0 - 90	0	F. diesel railway locomotive	45	D. sealed thick window, or exterior wall, or roof/ceiling	-8	10	30	5		C. sealed thin window, or openable thick window	-4	6	95	0	**15**
B02_WF2_BR	Building 02 - West or South Façade (ENB) - Bedroom	50	3	40	13	50%	2.8	3.0	3.0	9.0	4.1	4.1	46	46	Very Absorptive	0 - 90	0	F. diesel railway locomotive	45	D. sealed thick window, or exterior wall, or roof/ceiling	-4	10	26	5		C. sealed thin window, or openable thick window	-4	6	95	0	**15**
B02_EF_LR	Building 02 - East Façade - Living Room	53	3	40	16	70%	2.8	3.0	6.0	18.0	2.5	5.8	14	32	Intermediate	0 - 90	0	F. diesel railway locomotive	50	D. sealed thick window, or exterior wall, or roof/ceiling	-8	10	32	5		C. sealed thin window, or openable thick window	-4	6	95	0	**18**
B02_EF_BR	Building 02 - East Façade - Bedroom	53	3	40	16	50%	2.8	3.0	3.0	9.0	4.1	4.1	46	46	Very Absorptive	0 - 90	0	F. diesel railway locomotive	50	D. sealed thick window, or exterior wall, or roof/ceiling	-4	10	28	5		C. sealed thin window, or openable thick window	-4	6	95	0	**18**
B01_EF_LR	Building 01 - East Façade (non-ENB) - Living Room	64	3	40	27	70%	2.8	3.0	6.0	18.0	2.5	5.8	14	32	Intermediate	0 - 90	0	F. diesel railway locomotive	54	D. sealed thick window, or exterior wall, or roof/ceiling	-8	10	25	5		C. sealed thin window, or openable thick window	-4	6	95	0	**29**
B01_EF_BR	Building 01 - East Façade (non-ENB) - Bedroom	64	3	40	27	50%	2.8	3.0	3.0	9.0	4.1	4.1	46	46	Very Absorptive	0 - 90	0	F. diesel railway locomotive	54	D. sealed thick window, or exterior wall, or roof/ceiling	-4	10	21	5		C. sealed thin window, or openable thick window	-4	6	95	0	**29**
B01_EF2_LR	Building 01 - East Façade (ENB) - Living Room	50	3	40	13	70%	2.8	3.0	6.0	18.0	2.5	5.8	14	32	Intermediate	0 - 90	0	F. diesel railway locomotive	45	D. sealed thick window, or exterior wall, or roof/ceiling	-8	10	30	5		C. sealed thin window, or openable thick window	-4	6	95	0	**15**
B01_EF2_BR	Building 01 - East Façade (ENB) - Bedroom	50	3	40	13	50%	2.8	3.0	3.0	9.0	4.1	4.1	46	46	Very Absorptive	0 - 90	0	F. diesel railway locomotive	45	D. sealed thick window, or exterior wall, or roof/ceiling	-4	10	26	5		C. sealed thin window, or openable thick window	-4	6	95	0	**15**
B01_SF_LR	Building 01 - South Façade (ENBs) - Living Room	50	3	40	13	70%	2.8	3.0	6.0	18.0	2.5	5.8	14	32	Intermediate	0 - 90	0	F. diesel railway locomotive	45	D. sealed thick window, or exterior wall, or roof/ceiling	-8	10	30	5		C. sealed thin window, or openable thick window	-4	6	95	0	**15**
B01_SF_BR	Building 01 - South Façade (ENBs) - Bedroom	50	3	40	13	50%	2.8	3.0	3.0	9.0	4.1	4.1	46	46	Very Absorptive	0 - 90	0	F. diesel railway locomotive	45	D. sealed thick window, or exterior wall, or roof/ceiling	-4	10	26	5		C. sealed thin window, or openable thick window	-4	6	95	0	**15**
B01_NF_LR	Building 01 - North Façade - Living Room	51	3	40	14	70%	3.0	3.0	6.0	18.0	2.7	6.3	15	35	Intermediate	0 - 90	0	F. diesel railway locomotive	50	D. sealed thick window, or exterior wall, or roof/ceiling	-7	10	33	5		C. sealed thin window, or openable thick window	-4	6	95	0	**16**
B01_NF_BR	Building 01 - North Façade - Bedroom	51	3	40	14	50%	3.0	3.0	3.0	9.0	4.4	4.4	49	49	Very Absorptive	0 - 90	0	F. diesel railway locomotive	50	D. sealed thick window, or exterior wall, or roof/ceiling	-4	10	30	5		C. sealed thin window, or openable thick window	-4	6	95	0	**16**
NIGHT-TIME																															
B03_SF_LR	Building 03 - South Façade - Living Room	61	3	40	24	70%	2.8	3.0	6.0	18.0	2.5	5.8	14	32	Intermediate	0 - 90	0	F. diesel railway locomotive	50	D. sealed thick window, or exterior wall, or roof/ceiling	-8	10	24	5		C. sealed thin window, or openable thick window	-4	6	95	0	**26**
B03_SF_BR	Building 03 - South Façade - Bedroom	61	3	35	29	50%	2.8	3.0	3.0	9.0	4.1	4.1	46	46	Very Absorptive	0 - 90	0	F. diesel railway locomotive	50	D. sealed thick window, or exterior wall, or roof/ceiling	-4	10	15	5		C. sealed thin window, or openable thick window	-4	6	95	0	**31**
B03_EF_LR	Building 03 - East Façade - Living Room	62	3	40	25	70%	2.8	3.0	6.0	18.0	2.5	5.8	14	32	Intermediate	0 - 90	0	F. diesel railway locomotive	50	D. sealed thick window, or exterior wall, or roof/ceiling	-8	10	23	5		C. sealed thin window, or openable thick window	-4	6	95	0	**27**
B03_EF_BR	Building 03 - East Façade - Bedroom	62	3	35	30	50%	2.8	3.0	3.0	9.0	4.1	4.1	46	46	Very Absorptive	0 - 90	0	F. diesel railway locomotive	50	D. sealed thick window, or exterior wall, or roof/ceiling	-4	10	14	5		C. sealed thin window, or openable thick window	-4	6	95	0	**32**
B03_NF_LR	Building 03 - North Façade - Living Room	59	3	40	22	70%	2.8	3.0	6.0	18.0	2.5	5.8	14	32	Intermediate	0 - 90	0	F. diesel railway locomotive	50	D. sealed thick window, or exterior wall, or roof/ceiling	-8	10	26	5		C. sealed thin window, or openable thick window	-4	6	95	0	**24**
B03_NF_BR	Building 03 - North Façade - Bedroom	59	3	35	27	50%	2.8	3.0	3.0	9.0	4.1	4.1	46	46	Very Absorptive	0 - 90	0	F. diesel railway locomotive	50	D. sealed thick window, or exterior wall, or roof/ceiling	-4	10	17	5		C. sealed thin window, or openable thick window	-4	6	95	0	**29**
B03_WF_LR	Building 03- West Façade - Living Room	60	3	40	23	70%	2.8	3.0	6.0	18.0	2.5	5.8	14	32	Intermediate	0 - 90	0	F. diesel railway locomotive	50	D. sealed thick window, or exterior wall, or roof/ceiling	-8	10	25	5		C. sealed thin window, or openable thick window	-4	6	95	0	**25**
B03_WF_BR	Building 03 - West Façade - Bedroom	60	3	35	28	50%	2.8	3.0	3.0	9.0	4.1	4.1	46	46	Very Absorptive	0 - 90	0	F. diesel railway locomotive	50	D. sealed thick window, or exterior wall, or roof/ceiling	-4	10	16	5		C. sealed thin window, or openable thick window	-4	6	95	0	**30**
B02_NF_LR	Building 02 - North Façade - Living Room	62	3	40	25	70%	2.8	3.0	6.0	18.0	2.5	5.8	14	32	Intermediate	0 - 90	0	F. diesel railway locomotive	50	D. sealed thick window, or exterior wall, or roof/ceiling	-8	10	23	5		C. sealed thin window, or openable thick window	-4	6	95	0	**27**
B02_NF_BR	Building 02 - North Façade - Bedroom	62	3	35	30	50%	2.8	3.0	3.0	9.0	4.1	4.1	46	46	Very Absorptive	0 - 90	0	F. diesel railway locomotive	50	D. sealed thick window, or exterior wall, or roof/ceiling	-4	10	14	5		C. sealed thin window, or openable thick window	-4	6	95	0	**32**
B02_WF_LR	Building 02 - West Façade (non-ENB) - Living Room	67	3	40	30	70%	2.8	3.0	6.0	18.0	2.5	5.8	14	32	Intermediate	0 - 90	0	F. diesel railway locomotive	54	D. sealed thick window, or exterior wall, or roof/ceiling	-8	10	22	5		C. sealed thin window, or openable thick window	-4	6	95	0	**32**
B02_WF_BR	Building 02 - West Façade (non-ENB) - Bedroom	67	3	35	35	50%	2.8	3.0	3.0	9.0	4.1	4.1	46	46	Very Absorptive	0 - 90	0	F. diesel railway locomotive	54	D. sealed thick window, or exterior wall, or roof/ceiling	-4	10	13	5		C. sealed thin window, or openable thick window	-4	6	95	0	**37**
B02_WF2_LR	Building 02- West or South Façade (ENB) - Living Room	50	3	40	13	70%	2.8	3.0	6.0	18.0	2.5	5.8	14	32	Intermediate	0 - 90	0	F. diesel railway locomotive	45	D. sealed thick window, or exterior wall, or roof/ceiling	-8	10	30	5		C. sealed thin window, or openable thick window	-4	6	95	0	**15**
B02_WF2_BR	Building 02 - West or South Façade (ENB) - Bedroom	50	3	35	18	50%	2.8	3.0	3.0	9.0	4.1	4.1	46	46	Very Absorptive	0 - 90	0	F. diesel railway locomotive	45	D. sealed thick window, or exterior wall, or roof/ceiling	-4	10	21	5		C. sealed thin window, or openable thick window	-4	6	95	0	**20**
B02_EF_LR	Building 02 - East Façade - Living Room	57	3	40	20	70%	2.8	3.0	6.0	18.0	2.5	5.8	14	32	Intermediate	0 - 90	0	F. diesel railway locomotive	50	D. sealed thick window, or exterior wall, or roof/ceiling	-8	10	28	5		C. sealed thin window, or openable thick window	-4	6	95	0	**22**
B02_EF_BR	Building 02 - East Façade - Bedroom	57	3	35	25	50%	2.8	3.0	3.0	9.0	4.1	4.1	46	46	Very Absorptive	0 - 90	0	F. diesel railway locomotive	50	D. sealed thick window, or exterior wall, or roof/ceiling	-4	10	19	5		C. sealed thin window, or openable thick window	-4	6	95	0	**27**
B01_EF_LR	Building 01 - East Façade (non-ENB) - Living Room	64	3	40	27	70%	2.8	3.0	6.0	18.0	2.5	5.8	14	32	Intermediate	0 - 90	0	F. diesel railway locomotive	54	D. sealed thick window, or exterior wall, or roof/ceiling	-8	10	25	5		C. sealed thin window, or openable thick window	-4	6	95	0	**29**
B01_EF_BR	Building 01 - East Façade (non-ENB) - Bedroom	64	3	35	32	50%	2.8	3.0	3.0	9.0	4.1	4.1	46	46	Very Absorptive	0 - 90	0	F. diesel railway locomotive	54	D. sealed thick window, or exterior wall, or roof/ceiling	-4	10	16	5		C. sealed thin window, or openable thick window	-4	6	95	0	**34**
B01_EF2_LR	Building 01 - East Façade (ENB) - Living Room	50	3	40	13	70%	2.8	3.0	6.0	18.0	2.5	5.8	14	32	Intermediate	0 - 90	0	F. diesel railway locomotive	45	D. sealed thick window, or exterior wall, or roof/ceiling	-8	10	30	5		C. sealed thin window, or openable thick window	-4	6	95	0	**15**
B01_EF2_BR	Building 01 - East Façade (ENB) - Bedroom	50	3	35	18	50%	2.8	3.0	3.0	9.0	4.1	4.1	46	46	Very Absorptive	0 - 90	0	F. diesel railway locomotive	45	D. sealed thick window, or exterior wall, or roof/ceiling	-4	10	21	5		C. sealed thin window, or openable thick window	-4	6	95	0	**20**
B01_SF_LR	Building 01 - South Façade (ENBs) - Living Room	50	3	40	13	70%	2.8	3.0	6.0	18.0	2.5	5.8	14	32	Intermediate	0 - 90	0	F. diesel railway locomotive	45	D. sealed thick window, or exterior wall, or roof/ceiling	-8	10	30	5		C. sealed thin window, or openable thick window	-4	6	95	0	**15**
B01_SF_BR	Building 01 - South Façade (ENBs) - Bedroom	50	3	35	18	50%	2.8	3.0	3.0	9.0	4.1	4.1	46	46	Very Absorptive	0 - 90	0	F. diesel railway locomotive	45	D. sealed thick window, or exterior wall, or roof/ceiling	-4	10	21	5		C. sealed thin window, or openable thick window	-4	6	95	0	**20**
B01_NF_LR	Building 01 - North Façade - Living Room	54	3	40	17	70%	3.0	3.0	6.0	18.0	2.7	6.3	15	35	Intermediate	0 - 90	0	F. diesel railway locomotive	50	D. sealed thick window, or exterior wall, or roof/ceiling	-7	10	30	5		C. sealed thin window, or openable thick window	-4	6	95	0	**19**
B01_NF_BR	Building 01 - North Façade - Bedroom	54	3	35	22	50%	3.0	3.0	3.0	9.0	4.4	4.4	49	49	Very Absorptive	0 - 90	0	F. diesel railway locomotive	50	D. sealed thick window, or exterior wall, or roof/ceiling	-4	10	22	5		C. sealed thin window, or openable thick window	-4	6	95	0	**24**

BPN 56 Calculation Procedure - Required Glazing STC Rating (Fixed Veneer) - RAIL WHEEL

Scenario 1 - Reduction from ENB into Residential Suites - Brick Veneer/Masonry Construction of ENB Exterior Wall

Receptor ID	Receptor Description	Sound Levels				Room / Façade Inputs										Source Inputs			Veneer - Component 1							Glazing - Component 2					
		Façade Sound Level:	Free - field Corr:	Req'd Indoor Sound Level:	Req'd Noise Red:	Glazing as % of Wall Area	Exp Wall Ht	Exp Wall Length	Room Depth	Total Floor Area	Veneer Wall Area	Glazing Wall Area	Veneer as % of Floor Area:	Glazing as % of Floor Area:	Room Absorption:	Incident Sound Angle:	Angle Corr Factor:	Spectrum type:	Veneer STC	Component Category:	Room Correction	Frequency Correction	Sound Energy Correction	% Total Transmitted Energy		Component Category:	Room Correction	Frequency Correction	% Total Transmitted Energy	Sound Energy Correction	Req'd Glazing STC
		(dBA)	(dBA)	(dBA)	(dBA)		(m)	(m)	(m)	(m^2)	(m^2)	(m^2)	(%)	(%)		(deg)			(STC)					(%)					(%)		(STC)
DAYTIME																															
B03_SF_LR	Building 03 - South Façade - Living Room	50	3	40	13	70%	2.8	3.0	6.0	18.0	2.5	5.8	14	32	Intermediate	0 - 90	0	B. avg aircraft, railway wheel noise	50	D. sealed thick window, or exterior wall, or roof/ceiling	-8	2	43	5		C. sealed thin window, or openable thick window	-4	1	95	0	**10**
B03_SF_BR	Building 03 - South Façade - Bedroom	50	3	40	13	50%	2.8	3.0	3.0	9.0	4.1	4.1	46	46	Very Absorptive	0 - 90	0	B. avg aircraft, railway wheel noise	50	D. sealed thick window, or exterior wall, or roof/ceiling	-4	2	39	5		C. sealed thin window, or openable thick window	-4	1	95	0	**10**
B03_EF_LR	Building 03 - East Façade - Living Room	51	3	40	14	70%	2.8	3.0	6.0	18.0	2.5	5.8	14	32	Intermediate	0 - 90	0	B. avg aircraft, railway wheel noise	50	D. sealed thick window, or exterior wall, or roof/ceiling	-8	2	42	5		C. sealed thin window, or openable thick window	-4	1	95	0	**11**
B03_EF_BR	Building 03 - East Façade - Bedroom	51	3	40	14	50%	2.8	3.0	3.0	9.0	4.1	4.1	46	46	Very Absorptive	0 - 90	0	B. avg aircraft, railway wheel noise	50	D. sealed thick window, or exterior wall, or roof/ceiling	-4	2	38	5		C. sealed thin window, or openable thick window	-4	1	95	0	**11**
B03_NF_LR	Building 03 - North Façade - Living Room	50	3	40	13	70%	2.8	3.0	6.0	18.0	2.5	5.8	14	32	Intermediate	0 - 90	0	B. avg aircraft, railway wheel noise	50	D. sealed thick window, or exterior wall, or roof/ceiling	-8	2	43	5		C. sealed thin window, or openable thick window	-4	1	95	0	**10**
B03_NF_BR	Building 03 - North Façade - Bedroom	50	3	40	13	50%	2.8	3.0	3.0	9.0	4.1	4.1	46	46	Very Absorptive	0 - 90	0	B. avg aircraft, railway wheel noise	50	D. sealed thick window, or exterior wall, or roof/ceiling	-4	2	39	5		C. sealed thin window, or openable thick window	-4	1	95	0	**10**
B03_WF_LR	Building 03- West Façade - Living Room	50	3	40	13	70%	2.8	3.0	6.0	18.0	2.5	5.8	14	32	Intermediate	0 - 90	0	B. avg aircraft, railway wheel noise	50	D. sealed thick window, or exterior wall, or roof/ceiling	-8	2	43	5		C. sealed thin window, or openable thick window	-4	1	95	0	**10**
B03_WF_BR	Building 03 - West Façade - Bedroom	50	3	40	13	50%	2.8	3.0	3.0	9.0	4.1	4.1	46	46	Very Absorptive	0 - 90	0	B. avg aircraft, railway wheel noise	50	D. sealed thick window, or exterior wall, or roof/ceiling	-4	2	39	5		C. sealed thin window, or openable thick window	-4	1	95	0	**10**
B02_NF_LR	Building 02 - North Façade - Living Room	52	3	40	15	70%	2.8	3.0	6.0	18.0	2.5	5.8	14	32	Intermediate	0 - 90	0	B. avg aircraft, railway wheel noise	50	D. sealed thick window, or exterior wall, or roof/ceiling	-8	2	41	5		C. sealed thin window, or openable thick window	-4	1	95	0	**12**
B02_NF_BR	Building 02 - North Façade - Bedroom	52	3	40	15	50%	2.8	3.0	3.0	9.0	4.1	4.1	46	46	Very Absorptive	0 - 90	0	B. avg aircraft, railway wheel noise	50	D. sealed thick window, or exterior wall, or roof/ceiling	-4	2	37	5		C. sealed thin window, or openable thick window	-4	1	95	0	**12**
B02_WF_LR	Building 02 - West Façade (non-ENB) - Living Room	57	3	40	20	70%	2.8	3.0	6.0	18.0	2.5	5.8	14	32	Intermediate	0 - 90	0	B. avg aircraft, railway wheel noise	54	D. sealed thick window, or exterior wall, or roof/ceiling	-8	2	40	5		C. sealed thin window, or openable thick window	-4	1	95	0	**17**
B02_WF_BR	Building 02 - West Façade (non-ENB) - Bedroom	57	3	40	20	50%	2.8	3.0	3.0	9.0	4.1	4.1	46	46	Very Absorptive	0 - 90	0	B. avg aircraft, railway wheel noise	54	D. sealed thick window, or exterior wall, or roof/ceiling	-4	2	36	5		C. sealed thin window, or openable thick window	-4	1	95	0	**17**
B02_WF2_LR	Building 02- West or South Façade (ENB) - Living Room	50	3	40	13	70%	2.8	3.0	6.0	18.0	2.5	5.8	14	32	Intermediate	0 - 90	0	B. avg aircraft, railway wheel noise	45	D. sealed thick window, or exterior wall, or roof/ceiling	-8	2	38	5		C. sealed thin window, or openable thick window	-4	1	95	0	**10**
B02_WF2_BR	Building 02 - West or South Façade (ENB) - Bedroom	50	3	40	13	50%	2.8	3.0	3.0	9.0	4.1	4.1	46	46	Very Absorptive	0 - 90	0	B. avg aircraft, railway wheel noise	45	D. sealed thick window, or exterior wall, or roof/ceiling	-4	2	34	5		C. sealed thin window, or openable thick window	-4	1	95	0	**10**
B02_EF_LR	Building 02 - East Façade - Living Room	46	3	40	9	70%	2.8	3.0	6.0	18.0	2.5	5.8	14	32	Intermediate	0 - 90	0	B. avg aircraft, railway wheel noise	50	D. sealed thick window, or exterior wall, or roof/ceiling	-8	2	47	5		C. sealed thin window, or openable thick window	-4	1	95	0	**6**
B02_EF_BR	Building 02 - East Façade - Bedroom	46	3	40	9	50%	2.8	3.0	3.0	9.0	4.1	4.1	46	46	Very Absorptive	0 - 90	0	B. avg aircraft, railway wheel noise	50	D. sealed thick window, or exterior wall, or roof/ceiling	-4	2	43	5		C. sealed thin window, or openable thick window	-4	1	95	0	**6**
B01_EF_LR	Building 01 - East Façade (non-ENB) - Living Room	57	3	40	20	70%	2.8	3.0	6.0	18.0	2.5	5.8	14	32	Intermediate	0 - 90	0	B. avg aircraft, railway wheel noise	54	D. sealed thick window, or exterior wall, or roof/ceiling	-8	2	40	5		C. sealed thin window, or openable thick window	-4	1	95	0	**17**
B01_EF_BR	Building 01 - East Façade (non-ENB) - Bedroom	50	3	40	13	50%	2.8	3.0	3.0	9.0	4.1	4.1	46	46	Very Absorptive	0 - 90	0	B. avg aircraft, railway wheel noise	54	D. sealed thick window, or exterior wall, or roof/ceiling	-4	2	43	5		C. sealed thin window, or openable thick window	-4	1	95	0	**10**
B01_EF2_LR	Building 01 - East Façade (ENB) - Living Room	50	3	40	13	70%	2.8	3.0	6.0	18.0	2.5	5.8	14	32	Intermediate	0 - 90	0	B. avg aircraft, railway wheel noise	45	D. sealed thick window, or exterior wall, or roof/ceiling	-8	2	38	5		C. sealed thin window, or openable thick window	-4	1	95	0	**10**
B01_EF2_BR	Building 01 - East Façade (ENB) - Bedroom	50	3	40	13	50%	2.8	3.0	3.0	9.0	4.1	4.1	46	46	Very Absorptive	0 - 90	0	B. avg aircraft, railway wheel noise	45	D. sealed thick window, or exterior wall, or roof/ceiling	-4	2	34	5		C. sealed thin window, or openable thick window	-4	1	95	0	**10**
B01_SF_LR	Building 01 - South Façade (ENBs) - Living Room	50	3	40	13	70%	2.8	3.0	6.0	18.0	2.5	5.8	14	32	Intermediate	0 - 90	0	B. avg aircraft, railway wheel noise	45	D. sealed thick window, or exterior wall, or roof/ceiling	-8	2	38	5		C. sealed thin window, or openable thick window	-4	1	95	0	**10**
B01_SF_BR	Building 01 - South Façade (ENBs) - Bedroom	50	3	40	13	50%	2.8	3.0	3.0	9.0	4.1	4.1	46	46	Very Absorptive	0 - 90	0	B. avg aircraft, railway wheel noise	45	D. sealed thick window, or exterior wall, or roof/ceiling	-4	2	34	5		C. sealed thin window, or openable thick window	-4	1	95	0	**10**
B01_NF_LR	Building 01 - North Façade - Living Room	45	3	40	8	70%	2.8	3.0	6.0	18.0	2.5	5.8	14	32	Intermediate	0 - 90	0	B. avg aircraft, railway wheel noise	50	D. sealed thick window, or exterior wall, or roof/ceiling	-8	2	48	5		C. sealed thin window, or openable thick window	-4	1	95	0	**5**
B01_NF_BR	Building 01 - North Façade - Bedroom	45	3	40	8	50%	2.8	3.0	3.0	9.0	4.1	4.1	46	46	Very Absorptive	0 - 90	0	B. avg aircraft, railway wheel noise	50	D. sealed thick window, or exterior wall, or roof/ceiling	-4	2	44	5		C. sealed thin window, or openable thick window	-4	1	95	0	**5**
NIGHTTIME																															
B03_SF_LR	Building 03 - South Façade - Living Room	53	3	40	16	70%	2.8	3.0	3.0	9.0	2.5	5.8	28	64	Intermediate	0 - 90	0	B. avg aircraft, railway wheel noise	50	D. sealed thick window, or exterior wall, or roof/ceiling	-5	2	37	5		C. sealed thin window, or openable thick window	-1	1	95	0	**16**
B03_SF_BR	Building 03 - South Façade - Bedroom	53	3	35	21	50%	2.8	3.0	6.0	18.0	4.1	4.1	23	23	Very Absorptive	0 - 90	0	B. avg aircraft, railway wheel noise	50	D. sealed thick window, or exterior wall, or roof/ceiling	-7	2	34	5		C. sealed thin window, or openable thick window	-7	1	95	0	**15**
B03_EF_LR	Building 03 - East Façade - Living Room	54	3	40	17	70%	2.8	3.0	3.0	9.0	2.5	5.8	28	64	Intermediate	0 - 90	0	B. avg aircraft, railway wheel noise	50	D. sealed thick window, or exterior wall, or roof/ceiling	-5	2	36	5		C. sealed thin window, or openable thick window	-1	1	95	0	**17**
B03_EF_BR	Building 03 - East Façade - Bedroom	54	3	35	22	50%	2.8	3.0	6.0	18.0	4.1	4.1	23	23	Very Absorptive	0 - 90	0	B. avg aircraft, railway wheel noise	50	D. sealed thick window, or exterior wall, or roof/ceiling	-7	2	33	5		C. sealed thin window, or openable thick window	-7	1	95	0	**16**
B03_NF_LR	Building 03 - North Façade - Living Room	53	3	40	16	70%	2.8	3.0	3.0	9.0	2.5	5.8	28	64	Intermediate	0 - 90	0	B. avg aircraft, railway wheel noise	50	D. sealed thick window, or exterior wall, or roof/ceiling	-5	2	37	5		C. sealed thin window, or openable thick window	-1	1	95	0	**16**
B03_NF_BR	Building 03 - North Façade - Bedroom	53	3	35	21	50%	2.8	3.0	6.0	18.0	4.1	4.1	23	23	Very Absorptive	0 - 90	0	B. avg aircraft, railway wheel noise	50	D. sealed thick window, or exterior wall, or roof/ceiling	-7	2	34	5		C. sealed thin window, or openable thick window	-7	1	95	0	**15**
B03_WF_LR	Building 03- West Façade - Living Room	53	3	40	16	70%	2.8	3.0	3.0	9.0	2.5	5.8	28	64	Intermediate	0 - 90	0	B. avg aircraft, railway wheel noise	50	D. sealed thick window, or exterior wall, or roof/ceiling	-5	2	37	5		C. sealed thin window, or openable thick window	-1	1	95	0	**16**
B03_WF_BR	Building 03 - West Façade - Bedroom	53	3	35	21	50%	2.8	3.0	6.0	18.0	4.1	4.1	23	23	Very Absorptive	0 - 90	0	B. avg aircraft, railway wheel noise	50	D. sealed thick window, or exterior wall, or roof/ceiling	-7	2	34	5		C. sealed thin window, or openable thick window	-7	1	95	0	**15**
B02_NF_LR	Building 02 - North Façade - Living Room	55	3	40	18	70%	2.8	3.0	3.0	9.0	2.5	5.8	28	64	Intermediate	0 - 90	0	B. avg aircraft, railway wheel noise	50	D. sealed thick window, or exterior wall, or roof/ceiling	-5	2	35	5		C. sealed thin window, or openable thick window	-1	1	95	0	**18**
B02_NF_BR	Building 02 - North Façade - Bedroom	55	3	35	23	50%	2.8	3.0	6.0	18.0	4.1	4.1	23	23	Very Absorptive	0 - 90	0	B. avg aircraft, railway wheel noise	50	D. sealed thick window, or exterior wall, or roof/ceiling	-7	2	32	5		C. sealed thin window, or openable thick window	-7	1	95	0	**17**
B02_WF_LR	Building 02 - West Façade (non-ENB) - Living Room	60	3	40	23	70%	2.8	3.0	3.0	9.0	2.5	5.8	28	64	Intermediate	0 - 90	0	B. avg aircraft, railway wheel noise	54	D. sealed thick window, or exterior wall, or roof/ceiling	-5	2	34	5		C. sealed thin window, or openable thick window	-1	1	95	0	**23**
B02_WF_BR	Building 02 - West Façade (non-ENB) - Bedroom	60	3	35	28	50%	2.8	3.0	6.0	18.0	4.1	4.1	23	23	Very Absorptive	0 - 90	0	B. avg aircraft, railway wheel noise	54	D. sealed thick window, or exterior wall, or roof/ceiling	-7	2	31	5		C. sealed thin window, or openable thick window	-7	1	95	0	**22**
B02_WF2_LR	Building 02- West or South Façade (ENB) - Living Room	50	3	40	13	70%	2.8	3.0	6.0	18.0	2.5	5.8	14	32	Intermediate	0 - 90	0	B. avg aircraft, railway wheel noise	45	D. sealed thick window, or exterior wall, or roof/ceiling	-8	2	38	5		C. sealed thin window, or openable thick window	-4	1	95	0	**10**
B02_WF2_BR	Building 02 - West or South Façade (ENB) - Bedroom	50	3	35	18	50%	2.8	3.0	3.0	9.0	4.1	4.1	46	46	Very Absorptive	0 - 90	0	B. avg aircraft, railway wheel noise	45	D. sealed thick window, or exterior wall, or roof/ceiling	-4	2	29	5		C. sealed thin window, or openable thick window	-4	1	95	0	**15**
B02_EF_LR	Building 02 - East Façade - Living Room	49	3	40	12	70%	2.8	3.0	6.0	18.0	2.5	5.8	14	32	Intermediate	0 - 90	0	B. avg aircraft, railway wheel noise	50	D. sealed thick window, or exterior wall, or roof/ceiling	-8	2	44	5		C. sealed thin window, or openable thick window	-4	1	95	0	**9**
B02_EF_BR	Building 02 - East Façade - Bedroom	49	3	35	17	50%	2.8	3.0	3.0	9.0	4.1	4.1	46	46	Very Absorptive	0 - 90	0	B. avg aircraft, railway wheel noise	50	D. sealed thick window, or exterior wall, or roof/ceiling	-4	2	35	5		C. sealed thin window, or openable thick window	-4	1	95	0	**14**
B01_EF_LR	Building 01 - East Façade (non-ENB) - Living Room	60	3	40	23	70%	2.8	3.0	6.0	18.0	2.5	5.8	14	32	Intermediate	0 - 90	0	B. avg aircraft, railway wheel noise	54	D. sealed thick window, or exterior wall, or roof/ceiling	-8	2	37	5		C. sealed thin window, or openable thick window	-4	1	95	0	**20**
B01_EF_BR	Building 01 - East Façade (non-ENB) - Bedroom	60	3	35	28	50%	2.8	3.0	3.0	9.0	4.1	4.1	46	46	Very Absorptive	0 - 90	0	B. avg aircraft, railway wheel noise	54	D. sealed thick window, or exterior wall, or roof/ceiling	-4	2	28	5		C. sealed thin window, or openable thick window	-4	1	95	0	**25**
B01_EF2_LR	Building 01 - East Façade (ENB) - Living Room	50	3	40	13	70%	2.8	3.0	6.0	18.0	2.5	5.8	14	32	Intermediate	0 - 90	0	B. avg aircraft, railway wheel noise	45	D. sealed thick window, or exterior wall, or roof/ceiling	-8	2	38	5		C. sealed thin window, or openable thick window	-4	1	95	0	**10**
B01_EF2_BR	Building 01 - East Façade (ENB) - Bedroom	50	3	35	18	50%	2.8	3.0	3.0	9.0	4.1	4.1	46	46	Very Absorptive	0 - 90	0	B. avg aircraft, railway wheel noise	45	D. sealed thick window, or exterior wall, or roof/ceiling	-4	2	29	5		C. sealed thin window, or openable thick window	-4	1	95	0	**15**
B01_SF_LR	Building 01 - South Façade (ENBs) - Living Room	50	3	40	13	70%	2.8	3.0	6.0	18.0	2.5	5.8	14	32	Intermediate	0 - 90	0	B. avg aircraft, railway wheel noise	45	D. sealed thick window, or exterior wall, or roof/ceiling	-8	2	38	5		C. sealed thin window, or openable thick window	-4	1	95	0	**10**
B01_SF_BR	Building 01 - South Façade (ENBs) - Bedroom	50	3	35	18	50%	2.8	3.0	3.0	9.0	4.1	4.1	46	46	Very Absorptive	0 - 90	0	B. avg aircraft, railway wheel noise	45	D. sealed thick window, or exterior wall, or roof/ceiling	-4	2	29	5		C. sealed thin window, or openable thick window	-4	1	95	0	**15**
B01_NF_LR	Building 01 - North Façade - Living Room	48	3	40	11	70%	2.8	3.0	6.0	18.0	2.5	5.8	14	32	Intermediate	0 - 90	0	B. avg aircraft, railway wheel noise	50	D. sealed thick window, or exterior wall, or roof/ceiling	-8	2	45	5		C. sealed thin window, or openable thick window	-4	1	95	0	**8**
B01_NF_BR	Building 01 - North Façade - Bedroom	48	3	35	16	50%	2.8	3.0	3.0	9.0	4.1	4.1	46	46	Very Absorptive	0 - 90	0	B. avg aircraft, railway wheel noise	50	D. sealed thick window, or exterior wall, or roof/ceiling	-4	2	36	5		C. sealed thin window, or openable thick window	-4	1	95	0	**13**

BPN 56 Calculation Procedure - Required Glazing STC Rating (Fixed Veneer) - RAIL LOCOMOTIVE

Scenario 2 - Reduction from Exterior Wall into ENB - STC 45 Construction of ENB Exterior Wall

		Sound Levels				Room / Façade Inputs										Source Inputs			Veneer - Component 1						Glazing - Component 2						
Receptor ID	**Receptor Description**	**Façade Sound Level:**	**Free - field Corr:**	**Req'd Indoor Sound Level:**	**Req'd Noise Red:**	**Glazing as % of Wall Area**	**Exp Wall Ht**	**Exp Wall Length**	**Room Depth**	**Total Floor Area**	**Veneer Wall Area**	**Glazing Wall Area**	**Veneer as % of Floor Area:**	**Glazing as % of Floor Area:**	**Room Absorption:**	**Incident Sound Angle:**	**Angle Corr Factor:**	**Spectrum type:**	**Veneer STC**	**Component Category:**	**Room Correction**	**Frequency Correction**	**Sound Energy Correction**	**% Total Transmitted Energy**	**Component Category:**	**Room Correction**	**Frequency Correction**	**% Total Transmitted Energy**	**Sound Energy Correction**	**Req'd Glazing STC**
		(dBA)	(dBA)	(dBA)	(dBA)		(m)	(m)	(m)	(m^2)	(m^2)	(m^2)	(%)	(%)		(deg)			(STC)					(%)				(%)		(STC)
DAYTIME																														
B03_SF_LR	Building 03 - South Façade - Living Room	58	3	40	21	70%	2.8	3.0	6.0	18.0	2.5	5.8	14	32	Intermediate	0 - 90	0	F. diesel railway locomotive	50	D. sealed thick window, or exterior wall, or roof/ceiling	-8	10	27	5	C. sealed thin window, or openable thick window	-4	6	95	0	**23**
B03_SF_BR	Building 03 - South Façade - Bedroom	58	3	40	21	50%	2.8	3.0	3.0	9.0	4.1	4.1	46	46	Very Absorptive	0 - 90	0	F. diesel railway locomotive	50	D. sealed thick window, or exterior wall, or roof/ceiling	-4	10	23	5	C. sealed thin window, or openable thick window	-4	6	95	0	**23**
B03_EF_LR	Building 03 - East Façade - Living Room	58	3	40	21	70%	2.8	3.0	6.0	18.0	2.5	5.8	14	32	Intermediate	0 - 90	0	F. diesel railway locomotive	50	D. sealed thick window, or exterior wall, or roof/ceiling	-8	10	27	5	C. sealed thin window, or openable thick window	-4	6	95	0	**23**
B03_EF_BR	Building 03 - East Façade - Bedroom	58	3	40	21	50%	2.8	3.0	3.0	9.0	4.1	4.1	46	46	Very Absorptive	0 - 90	0	F. diesel railway locomotive	50	D. sealed thick window, or exterior wall, or roof/ceiling	-4	10	23	5	C. sealed thin window, or openable thick window	-4	6	95	0	**23**
B03_NF_LR	Building 03 - North Façade - Living Room	56	3	40	19	70%	2.8	3.0	6.0	18.0	2.5	5.8	14	32	Intermediate	0 - 90	0	F. diesel railway locomotive	50	D. sealed thick window, or exterior wall, or roof/ceiling	-8	10	29	5	C. sealed thin window, or openable thick window	-4	6	95	0	**21**
B03_NF_BR	Building 03 - North Façade - Bedroom	56	3	40	19	50%	2.8	3.0	3.0	9.0	4.1	4.1	46	46	Very Absorptive	0 - 90	0	F. diesel railway locomotive	50	D. sealed thick window, or exterior wall, or roof/ceiling	-4	10	25	5	C. sealed thin window, or openable thick window	-4	6	95	0	**21**
B03_WF_LR	Building 03- West Façade - Living Room	57	3	40	20	70%	2.8	3.0	6.0	18.0	2.5	5.8	14	32	Intermediate	0 - 90	0	F. diesel railway locomotive	50	D. sealed thick window, or exterior wall, or roof/ceiling	-8	10	28	5	C. sealed thin window, or openable thick window	-4	6	95	0	**22**
B03_WF_BR	Building 03 - West Façade - Bedroom	57	3	40	20	50%	2.8	3.0	3.0	9.0	4.1	4.1	46	46	Very Absorptive	0 - 90	0	F. diesel railway locomotive	50	D. sealed thick window, or exterior wall, or roof/ceiling	-4	10	24	5	C. sealed thin window, or openable thick window	-4	6	95	0	**22**
B02_NF_LR	Building 02 - North Façade - Living Room	59	3	40	22	70%	2.8	3.0	6.0	18.0	2.5	5.8	14	32	Intermediate	0 - 90	0	F. diesel railway locomotive	50	D. sealed thick window, or exterior wall, or roof/ceiling	-8	10	26	5	C. sealed thin window, or openable thick window	-4	6	95	0	**24**
B02_NF_BR	Building 02 - North Façade - Bedroom	59	3	40	22	50%	2.8	3.0	3.0	9.0	4.1	4.1	46	46	Very Absorptive	0 - 90	0	F. diesel railway locomotive	50	D. sealed thick window, or exterior wall, or roof/ceiling	-4	10	22	5	C. sealed thin window, or openable thick window	-4	6	95	0	**24**
B02_WF_LR	Building 02 - West Façade (non-ENB) - Living Room	64	3	40	27	70%	2.8	3.0	6.0	18.0	2.5	5.8	14	32	Intermediate	0 - 90	0	F. diesel railway locomotive	54	D. sealed thick window, or exterior wall, or roof/ceiling	-8	10	25	5	C. sealed thin window, or openable thick window	-4	6	95	0	**29**
B02_WF_BR	Building 02 - West Façade (non-ENB) - Bedroom	64	3	40	27	50%	2.8	3.0	3.0	9.0	4.1	4.1	46	46	Very Absorptive	0 - 90	0	F. diesel railway locomotive	54	D. sealed thick window, or exterior wall, or roof/ceiling	-4	10	21	5	C. sealed thin window, or openable thick window	-4	6	95	0	**29**
B02_WF2_LR	Building 02- West or South Façade (ENB) - Living Room	50	3	40	13	70%	2.8	3.0	6.0	18.0	2.5	5.8	14	32	Intermediate	0 - 90	0	F. diesel railway locomotive	54	D. sealed thick window, or exterior wall, or roof/ceiling	-8	10	39	5	C. sealed thin window, or openable thick window	-4	6	95	0	**15**
B02_WF2_BR	Building 02 - West or South Façade (ENB) - Bedroom	50	3	40	13	50%	2.8	3.0	3.0	9.0	4.1	4.1	46	46	Very Absorptive	0 - 90	0	F. diesel railway locomotive	54	D. sealed thick window, or exterior wall, or roof/ceiling	-4	10	35	5	C. sealed thin window, or openable thick window	-4	6	95	0	**15**
B02_EF_LR	Building 02 - East Façade - Living Room	53	3	40	16	70%	2.8	3.0	6.0	18.0	2.5	5.8	14	32	Intermediate	0 - 90	0	F. diesel railway locomotive	50	D. sealed thick window, or exterior wall, or roof/ceiling	-8	10	32	5	C. sealed thin window, or openable thick window	-4	6	95	0	**18**
B02_EF_BR	Building 02 - East Façade - Bedroom	53	3	40	16	50%	2.8	3.0	3.0	9.0	4.1	4.1	46	46	Very Absorptive	0 - 90	0	F. diesel railway locomotive	50	D. sealed thick window, or exterior wall, or roof/ceiling	-4	10	28	5	C. sealed thin window, or openable thick window	-4	6	95	0	**18**
B01_EF_LR	Building 01 - East Façade (non-ENB) - Living Room	64	3	40	27	70%	2.8	3.0	6.0	18.0	2.5	5.8	14	32	Intermediate	0 - 90	0	F. diesel railway locomotive	54	D. sealed thick window, or exterior wall, or roof/ceiling	-8	10	25	5	C. sealed thin window, or openable thick window	-4	6	95	0	**29**
B01_EF_BR	Building 01 - East Façade (non-ENB) - Bedroom	64	3	40	27	50%	2.8	3.0	3.0	9.0	4.1	4.1	46	46	Very Absorptive	0 - 90	0	F. diesel railway locomotive	54	D. sealed thick window, or exterior wall, or roof/ceiling	-4	10	21	5	C. sealed thin window, or openable thick window	-4	6	95	0	**29**
B01_EF2_LR	Building 01 - East Façade (ENB) - Living Room	50	3	40	13	70%	2.8	3.0	6.0	18.0	2.5	5.8	14	32	Intermediate	0 - 90	0	F. diesel railway locomotive	54	D. sealed thick window, or exterior wall, or roof/ceiling	-8	10	39	5	C. sealed thin window, or openable thick window	-4	6	95	0	**15**
B01_EF2_BR	Building 01 - East Façade (ENB) - Bedroom	50	3	40	13	50%	2.8	3.0	3.0	9.0	4.1	4.1	46	46	Very Absorptive	0 - 90	0	F. diesel railway locomotive	54	D. sealed thick window, or exterior wall, or roof/ceiling	-4	10	35	5	C. sealed thin window, or openable thick window	-4	6	95	0	**15**
B01_SF_LR	Building 01 - South Façade (ENBs) - Living Room	50	3	40	13	70%	2.8	3.0	6.0	18.0	2.5	5.8	14	32	Intermediate	0 - 90	0	F. diesel railway locomotive	54	D. sealed thick window, or exterior wall, or roof/ceiling	-8	10	39	5	C. sealed thin window, or openable thick window	-4	6	95	0	**15**
B01_SF_BR	Building 01 - South Façade (ENBs) - Bedroom	50	3	40	13	50%	2.8	3.0	3.0	9.0	4.1	4.1	46	46	Very Absorptive	0 - 90	0	F. diesel railway locomotive	54	D. sealed thick window, or exterior wall, or roof/ceiling	-4	10	35	5	C. sealed thin window, or openable thick window	-4	6	95	0	**15**
B01_NF_LR	Building 01 - North Façade - Living Room	51	3	40	14	70%	3.0	3.0	6.0	18.0	2.7	6.3	15	35	Intermediate	0 - 90	0	F. diesel railway locomotive	50	D. sealed thick window, or exterior wall, or roof/ceiling	-7	10	33	5	C. sealed thin window, or openable thick window	-4	6	95	0	**16**
B01_NF_BR	Building 01 - North Façade - Bedroom	51	3	40	14	50%	3.0	3.0	3.0	9.0	4.4	4.4	49	49	Very Absorptive	0 - 90	0	F. diesel railway locomotive	50	D. sealed thick window, or exterior wall, or roof/ceiling	-4	10	30	5	C. sealed thin window, or openable thick window	-4	6	95	0	**16**
NIGHT-TIME																														
B03_SF_LR	Building 03 - South Façade - Living Room	61	3	40	24	70%	2.8	3.0	6.0	18.0	2.5	5.8	14	32	Intermediate	0 - 90	0	F. diesel railway locomotive	50	D. sealed thick window, or exterior wall, or roof/ceiling	-8	10	24	5	C. sealed thin window, or openable thick window	-4	6	95	0	**26**
B03_SF_BR	Building 03 - South Façade - Bedroom	61	3	35	29	50%	2.8	3.0	3.0	9.0	4.1	4.1	46	46	Very Absorptive	0 - 90	0	F. diesel railway locomotive	50	D. sealed thick window, or exterior wall, or roof/ceiling	-4	10	15	5	C. sealed thin window, or openable thick window	-4	6	95	0	**31**
B03_EF_LR	Building 03 - East Façade - Living Room	62	3	40	25	70%	2.8	3.0	6.0	18.0	2.5	5.8	14	32	Intermediate	0 - 90	0	F. diesel railway locomotive	50	D. sealed thick window, or exterior wall, or roof/ceiling	-8	10	23	5	C. sealed thin window, or openable thick window	-4	6	95	0	**27**
B03_EF_BR	Building 03 - East Façade - Bedroom	62	3	35	30	50%	2.8	3.0	3.0	9.0	4.1	4.1	46	46	Very Absorptive	0 - 90	0	F. diesel railway locomotive	50	D. sealed thick window, or exterior wall, or roof/ceiling	-4	10	14	5	C. sealed thin window, or openable thick window	-4	6	95	0	**32**
B03_NF_LR	Building 03 - North Façade - Living Room	59	3	40	22	70%	2.8	3.0	6.0	18.0	2.5	5.8	14	32	Intermediate	0 - 90	0	F. diesel railway locomotive	50	D. sealed thick window, or exterior wall, or roof/ceiling	-8	10	26	5	C. sealed thin window, or openable thick window	-4	6	95	0	**24**
B03_NF_BR	Building 03 - North Façade - Bedroom	59	3	35	27	50%	2.8	3.0	3.0	9.0	4.1	4.1	46	46	Very Absorptive	0 - 90	0	F. diesel railway locomotive	50	D. sealed thick window, or exterior wall, or roof/ceiling	-4	10	17	5	C. sealed thin window, or openable thick window	-4	6	95	0	**29**
B03_WF_LR	Building 03- West Façade - Living Room	60	3	40	23	70%	2.8	3.0	6.0	18.0	2.5	5.8	14	32	Intermediate	0 - 90	0	F. diesel railway locomotive	50	D. sealed thick window, or exterior wall, or roof/ceiling	-8	10	25	5	C. sealed thin window, or openable thick window	-4	6	95	0	**25**
B03_WF_BR	Building 03 - West Façade - Bedroom	60	3	35	28	50%	2.8	3.0	3.0	9.0	4.1	4.1	46	46	Very Absorptive	0 - 90	0	F. diesel railway locomotive	50	D. sealed thick window, or exterior wall, or roof/ceiling	-4	10	16	5	C. sealed thin window, or openable thick window	-4	6	95	0	**30**
B02_NF_LR	Building 02 - North Façade - Living Room	62	3	40	25	70%	2.8	3.0	6.0	18.0	2.5	5.8	14	32	Intermediate	0 - 90	0	F. diesel railway locomotive	50	D. sealed thick window, or exterior wall, or roof/ceiling	-8	10	23	5	C. sealed thin window, or openable thick window	-4	6	95	0	**27**
B02_NF_BR	Building 02 - North Façade - Bedroom	62	3	35	30	50%	2.8	3.0	3.0	9.0	4.1	4.1	46	46	Very Absorptive	0 - 90	0	F. diesel railway locomotive	50	D. sealed thick window, or exterior wall, or roof/ceiling	-4	10	14	5	C. sealed thin window, or openable thick window	-4	6	95	0	**32**
B02_WF_LR	Building 02 - West Façade (non-ENB) - Living Room	67	3	40	30	70%	2.8	3.0	6.0	18.0	2.5	5.8	14	32	Intermediate	0 - 90	0	F. diesel railway locomotive	54	D. sealed thick window, or exterior wall, or roof/ceiling	-8	10	22	5	C. sealed thin window, or openable thick window	-4	6	95	0	**32**
B02_WF_BR	Building 02 - West Façade (non-ENB) - Bedroom	67	3	35	35	50%	2.8	3.0	3.0	9.0	4.1	4.1	46	46	Very Absorptive	0 - 90	0	F. diesel railway locomotive	54	D. sealed thick window, or exterior wall, or roof/ceiling	-4	10	13	5	C. sealed thin window, or openable thick window	-4	6	95	0	**37**
B02_WF2_LR	Building 02- West or South Façade (ENB) - Living Room	50	3	40	13	70%	2.8	3.0	6.0	18.0	2.5	5.8	14	32	Intermediate	0 - 90	0	F. diesel railway locomotive	54	D. sealed thick window, or exterior wall, or roof/ceiling	-8	10	39	5	C. sealed thin window, or openable thick window	-4	6	95	0	**15**
B02_WF2_BR	Building 02 - West or South Façade (ENB) - Bedroom	50	3	35	18	50%	2.8	3.0	3.0	9.0	4.1	4.1	46	46	Very Absorptive	0 - 90	0	F. diesel railway locomotive	54	D. sealed thick window, or exterior wall, or roof/ceiling	-4	10	30	5	C. sealed thin window, or openable thick window	-4	6	95	0	**20**
B02_EF_LR	Building 02 - East Façade - Living Room	57	3	40	20	70%	2.8	3.0	6.0	18.0	2.5	5.8	14	32	Intermediate	0 - 90	0	F. diesel railway locomotive	50	D. sealed thick window, or exterior wall, or roof/ceiling	-8	10	28	5	C. sealed thin window, or openable thick window	-4	6	95	0	**22**
B02_EF_BR	Building 02 - East Façade - Bedroom	57	3	35	25	50%	2.8	3.0	3.0	9.0	4.1	4.1	46	46	Very Absorptive	0 - 90	0	F. diesel railway locomotive	50	D. sealed thick window, or exterior wall, or roof/ceiling	-4	10	19	5	C. sealed thin window, or openable thick window	-4	6	95	0	**27**
B01_EF_LR	Building 01 - East Façade (non-ENB) - Living Room	67	3	40	30	70%	2.8	3.0	6.0	18.0	2.5	5.8	14	32	Intermediate	0 - 90	0	F. diesel railway locomotive	54	D. sealed thick window, or exterior wall, or roof/ceiling	-8	10	22	5	C. sealed thin window, or openable thick window	-4	6	95	0	**32**
B01_EF_BR	Building 01 - East Façade (non-ENB) - Bedroom	67	3	35	35	50%	2.8	3.0	3.0	9.0	4.1	4.1	46	46	Very Absorptive	0 - 90	0	F. diesel railway locomotive	54	D. sealed thick window, or exterior wall, or roof/ceiling	-4	10	13	5	C. sealed thin window, or openable thick window	-4	6	95	0	**37**
B01_EF2_LR	Building 01 - East Façade (ENB) - Living Room	50	3	40	13	70%	2.8	3.0	6.0	18.0	2.5	5.8	14	32	Intermediate	0 - 90	0	F. diesel railway locomotive	54	D. sealed thick window, or exterior wall, or roof/ceiling	-8	10	39	5	C. sealed thin window, or openable thick window	-4	6	95	0	**15**
B01_EF2_BR	Building 01 - East Façade (ENB) - Bedroom	50	3	35	18	50%	2.8	3.0	3.0	9.0	4.1	4.1	46	46	Very Absorptive	0 - 90	0	F. diesel railway locomotive	54	D. sealed thick window, or exterior wall, or roof/ceiling	-4	10	30	5	C. sealed thin window, or openable thick window	-4	6	95	0	**20**
B01_SF_LR	Building 01 - South Façade (ENBs) - Living Room	50	3	40	13	70%	2.8	3.0	6.0	18.0	2.5	5.8	14	32	Intermediate	0 - 90	0	F. diesel railway locomotive	54	D. sealed thick window, or exterior wall, or roof/ceiling	-8	10	39	5	C. sealed thin window, or openable thick window	-4	6	95	0	**15**
B01_SF_BR	Building 01 - South Façade (ENBs) - Bedroom	50	3	35	18	50%	2.8	3.0	3.0	9.0	4.1	4.1	46	46	Very Absorptive	0 - 90	0	F. diesel railway locomotive	54	D. sealed thick window, or exterior wall, or roof/ceiling	-4	10	30	5	C. sealed thin window, or openable thick window	-4	6	95	0	**20**
B01_NF_LR	Building 01 - North Façade - Living Room	54	3	40	17	70%	3.0	3.0	6.0	18.0	2.7	6.3	15	35	Intermediate	0 - 90	0	F. diesel railway locomotive	50	D. sealed thick window, or exterior wall, or roof/ceiling	-7	10	30	5	C. sealed thin window, or openable thick window	-4	6	95	0	**19**
B01_NF_BR	Building 01 - North Façade - Bedroom	54	3	35	22	50%	3.0	3.0	3.0	9.0	4.4	4.4	49	49	Very Absorptive	0 - 90	0	F. diesel railway locomotive	50	D. sealed thick window, or exterior wall, or roof/ceiling	-4	10	22	5	C. sealed thin window, or openable thick window	-4	6	95	0	**24**

BPN 56 Calculation Procedure - Required Glazing STC Rating (Fixed Veneer) - RAIL WHEEL

Scenario 2 - Reduction from Exterior Wall into ENB - STC 45 Construction of ENB Exterior Wall

Receptor ID	Receptor Description	Sound Levels				Room / Façade Inputs										Source Inputs			Veneer - Component 1							Glazing - Component 2					
		Façade Sound Level:	Free - field Corr:	Req'd Indoor Sound Level:	Req'd Noise Red:	Glazing as % of Wall Area	Exp Wall Ht	Exp Wall Length	Room Depth	Total Floor Area	Veneer Wall Area	Glazing Wall Area	Veneer as % of Floor Area:	Glazing as % of Floor Area:	Room Absorption:	Incident Sound Angle:	Angle Corr Factor:	Spectrum type:	Veneer STC	Component Category:	Room Correction	Frequency Correction	Sound Energy Correction	% Total Transmitted Energy		Component Category:	Room Correction	Frequency Correction	% Total Transmitted Energy	Sound Energy Correction	Req'd Glazing STC
		(dBA)	(dBA)	(dBA)	(dBA)		(m)	(m)	(m)	(m^2)	(m^2)	(m^2)	(%)	(%)		(deg)			(STC)					(%)					(%)		(STC)
DAYTIME																															
B03_SF_LR	Building 03 - South Façade - Living Room	50	3	40	13	70%	2.8	3.0	6.0	18.0	2.5	5.8	14	32	Intermediate	0 - 90	0	B. avg aircraft, railway wheel noise	50	D. sealed thick window, or exterior wall, or roof/ceiling	-8	2	43	5		C. sealed thin window, or openable thick window	-4	1	95	0	**10**
B03_SF_BR	Building 03 - South Façade - Bedroom	50	3	40	13	50%	2.8	3.0	3.0	9.0	4.1	4.1	46	46	Very Absorptive	0 - 90	0	B. avg aircraft, railway wheel noise	50	D. sealed thick window, or exterior wall, or roof/ceiling	-4	2	39	5		C. sealed thin window, or openable thick window	-4	1	95	0	**10**
B03_EF_LR	Building 03 - East Façade - Living Room	51	3	40	14	70%	2.8	3.0	6.0	18.0	2.5	5.8	14	32	Intermediate	0 - 90	0	B. avg aircraft, railway wheel noise	50	D. sealed thick window, or exterior wall, or roof/ceiling	-8	2	42	5		C. sealed thin window, or openable thick window	-4	1	95	0	**11**
B03_EF_BR	Building 03 - East Façade - Bedroom	51	3	40	14	50%	2.8	3.0	3.0	9.0	4.1	4.1	46	46	Very Absorptive	0 - 90	0	B. avg aircraft, railway wheel noise	50	D. sealed thick window, or exterior wall, or roof/ceiling	-4	2	38	5		C. sealed thin window, or openable thick window	-4	1	95	0	**11**
B03_NF_LR	Building 03 - North Façade - Living Room	50	3	40	13	70%	2.8	3.0	6.0	18.0	2.5	5.8	14	32	Intermediate	0 - 90	0	B. avg aircraft, railway wheel noise	50	D. sealed thick window, or exterior wall, or roof/ceiling	-8	2	43	5		C. sealed thin window, or openable thick window	-4	1	95	0	**10**
B03_NF_BR	Building 03 - North Façade - Bedroom	50	3	40	13	50%	2.8	3.0	3.0	9.0	4.1	4.1	46	46	Very Absorptive	0 - 90	0	B. avg aircraft, railway wheel noise	50	D. sealed thick window, or exterior wall, or roof/ceiling	-4	2	39	5		C. sealed thin window, or openable thick window	-4	1	95	0	**10**
B03_WF_LR	Building 03- West Façade - Living Room	50	3	40	13	70%	2.8	3.0	6.0	18.0	2.5	5.8	14	32	Intermediate	0 - 90	0	B. avg aircraft, railway wheel noise	50	D. sealed thick window, or exterior wall, or roof/ceiling	-8	2	43	5		C. sealed thin window, or openable thick window	-4	1	95	0	**10**
B03_WF_BR	Building 03 - West Façade - Bedroom	50	3	40	13	50%	2.8	3.0	3.0	9.0	4.1	4.1	46	46	Very Absorptive	0 - 90	0	B. avg aircraft, railway wheel noise	50	D. sealed thick window, or exterior wall, or roof/ceiling	-4	2	39	5		C. sealed thin window, or openable thick window	-4	1	95	0	**10**
B02_NF_LR	Building 02 - North Façade - Living Room	52	3	40	15	70%	2.8	3.0	6.0	18.0	2.5	5.8	14	32	Intermediate	0 - 90	0	B. avg aircraft, railway wheel noise	50	D. sealed thick window, or exterior wall, or roof/ceiling	-8	2	41	5		C. sealed thin window, or openable thick window	-4	1	95	0	**12**
B02_NF_BR	Building 02 - North Façade - Bedroom	52	3	40	15	50%	2.8	3.0	3.0	9.0	4.1	4.1	46	46	Very Absorptive	0 - 90	0	B. avg aircraft, railway wheel noise	50	D. sealed thick window, or exterior wall, or roof/ceiling	-4	2	37	5		C. sealed thin window, or openable thick window	-4	1	95	0	**12**
B02_WF_LR	Building 02 - West Façade (non-ENB) - Living Room	57	3	40	20	70%	2.8	3.0	6.0	18.0	2.5	5.8	14	32	Intermediate	0 - 90	0	B. avg aircraft, railway wheel noise	54	D. sealed thick window, or exterior wall, or roof/ceiling	-8	2	40	5		C. sealed thin window, or openable thick window	-4	1	95	0	**17**
B02_WF_BR	Building 02 - West Façade (non-ENB) - Bedroom	57	3	40	20	50%	2.8	3.0	3.0	9.0	4.1	4.1	46	46	Very Absorptive	0 - 90	0	B. avg aircraft, railway wheel noise	54	D. sealed thick window, or exterior wall, or roof/ceiling	-4	2	36	5		C. sealed thin window, or openable thick window	-4	1	95	0	**17**
B02_WF2_LR	Building 02- West or South Façade (ENB) - Living Room	50	3	40	13	70%	2.8	3.0	6.0	18.0	2.5	5.8	14	32	Intermediate	0 - 90	0	B. avg aircraft, railway wheel noise	54	D. sealed thick window, or exterior wall, or roof/ceiling	-8	2	47	5		C. sealed thin window, or openable thick window	-4	1	95	0	**10**
B02_WF2_BR	Building 02 - West or South Façade (ENB) - Bedroom	50	3	40	13	50%	2.8	3.0	3.0	9.0	4.1	4.1	46	46	Very Absorptive	0 - 90	0	B. avg aircraft, railway wheel noise	54	D. sealed thick window, or exterior wall, or roof/ceiling	-4	2	43	5		C. sealed thin window, or openable thick window	-4	1	95	0	**10**
B02_EF_LR	Building 02 - East Façade - Living Room	46	3	40	9	70%	2.8	3.0	6.0	18.0	2.5	5.8	14	32	Intermediate	0 - 90	0	B. avg aircraft, railway wheel noise	50	D. sealed thick window, or exterior wall, or roof/ceiling	-8	2	47	5		C. sealed thin window, or openable thick window	-4	1	95	0	**6**
B02_EF_BR	Building 02 - East Façade - Bedroom	46	3	40	9	50%	2.8	3.0	3.0	9.0	4.1	4.1	46	46	Very Absorptive	0 - 90	0	B. avg aircraft, railway wheel noise	50	D. sealed thick window, or exterior wall, or roof/ceiling	-4	2	43	5		C. sealed thin window, or openable thick window	-4	1	95	0	**6**
B01_EF_LR	Building 01 - East Façade (non-ENB) - Living Room	57	3	40	20	70%	2.8	3.0	6.0	18.0	2.5	5.8	14	32	Intermediate	0 - 90	0	B. avg aircraft, railway wheel noise	54	D. sealed thick window, or exterior wall, or roof/ceiling	-8	2	40	5		C. sealed thin window, or openable thick window	-4	1	95	0	**17**
B01_EF_BR	Building 01 - East Façade (non-ENB) - Bedroom	50	3	40	13	50%	2.8	3.0	3.0	9.0	4.1	4.1	46	46	Very Absorptive	0 - 90	0	B. avg aircraft, railway wheel noise	54	D. sealed thick window, or exterior wall, or roof/ceiling	-4	2	43	5		C. sealed thin window, or openable thick window	-4	1	95	0	**10**
B01_EF2_LR	Building 01 - East Façade (ENB) - Living Room	50	3	40	13	70%	2.8	3.0	6.0	18.0	2.5	5.8	14	32	Intermediate	0 - 90	0	B. avg aircraft, railway wheel noise	54	D. sealed thick window, or exterior wall, or roof/ceiling	-8	2	47	5		C. sealed thin window, or openable thick window	-4	1	95	0	**10**
B01_EF2_BR	Building 01 - East Façade (ENB) - Bedroom	50	3	40	13	50%	2.8	3.0	3.0	9.0	4.1	4.1	46	46	Very Absorptive	0 - 90	0	B. avg aircraft, railway wheel noise	54	D. sealed thick window, or exterior wall, or roof/ceiling	-4	2	43	5		C. sealed thin window, or openable thick window	-4	1	95	0	**10**
B01_SF_LR	Building 01 - South Façade (ENBs) - Living Room	50	3	40	13	70%	2.8	3.0	6.0	18.0	2.5	5.8	14	32	Intermediate	0 - 90	0	B. avg aircraft, railway wheel noise	54	D. sealed thick window, or exterior wall, or roof/ceiling	-8	2	47	5		C. sealed thin window, or openable thick window	-4	1	95	0	**10**
B01_SF_BR	Building 01 - South Façade (ENBs) - Bedroom	50	3	40	13	50%	2.8	3.0	3.0	9.0	4.1	4.1	46	46	Very Absorptive	0 - 90	0	B. avg aircraft, railway wheel noise	54	D. sealed thick window, or exterior wall, or roof/ceiling	-4	2	43	5		C. sealed thin window, or openable thick window	-4	1	95	0	**10**
B01_NF_LR	Building 01 - North Façade - Living Room	45	3	40	8	70%	2.8	3.0	6.0	18.0	2.5	5.8	14	32	Intermediate	0 - 90	0	B. avg aircraft, railway wheel noise	50	D. sealed thick window, or exterior wall, or roof/ceiling	-8	2	48	5		C. sealed thin window, or openable thick window	-4	1	95	0	**5**
B01_NF_BR	Building 01 - North Façade - Bedroom	45	3	40	8	50%	2.8	3.0	3.0	9.0	4.1	4.1	46	46	Very Absorptive	0 - 90	0	B. avg aircraft, railway wheel noise	50	D. sealed thick window, or exterior wall, or roof/ceiling	-4	2	44	5		C. sealed thin window, or openable thick window	-4	1	95	0	**5**
NIGHT-TIME																															
B03_SF_LR	Building 03 - South Façade - Living Room	53	3	40	16	70%	2.8	3.0	3.0	9.0	2.5	5.8	28	64	Intermediate	0 - 90	0	B. avg aircraft, railway wheel noise	50	D. sealed thick window, or exterior wall, or roof/ceiling	-5	2	37	5		C. sealed thin window, or openable thick window	-1	1	95	0	**16**
B03_SF_BR	Building 03 - South Façade - Bedroom	53	3	35	21	50%	2.8	3.0	6.0	18.0	4.1	4.1	23	23	Very Absorptive	0 - 90	0	B. avg aircraft, railway wheel noise	50	D. sealed thick window, or exterior wall, or roof/ceiling	-7	2	34	5		C. sealed thin window, or openable thick window	-7	1	95	0	**15**
B03_EF_LR	Building 03 - East Façade - Living Room	54	3	40	17	70%	2.8	3.0	3.0	9.0	2.5	5.8	28	64	Intermediate	0 - 90	0	B. avg aircraft, railway wheel noise	50	D. sealed thick window, or exterior wall, or roof/ceiling	-5	2	36	5		C. sealed thin window, or openable thick window	-1	1	95	0	**17**
B03_EF_BR	Building 03 - East Façade - Bedroom	54	3	35	22	50%	2.8	3.0	6.0	18.0	4.1	4.1	23	23	Very Absorptive	0 - 90	0	B. avg aircraft, railway wheel noise	50	D. sealed thick window, or exterior wall, or roof/ceiling	-7	2	33	5		C. sealed thin window, or openable thick window	-7	1	95	0	**16**
B03_NF_LR	Building 03 - North Façade - Living Room	53	3	40	16	70%	2.8	3.0	3.0	9.0	2.5	5.8	28	64	Intermediate	0 - 90	0	B. avg aircraft, railway wheel noise	50	D. sealed thick window, or exterior wall, or roof/ceiling	-5	2	37	5		C. sealed thin window, or openable thick window	-1	1	95	0	**16**
B03_NF_BR	Building 03 - North Façade - Bedroom	53	3	35	21	50%	2.8	3.0	6.0	18.0	4.1	4.1	23	23	Very Absorptive	0 - 90	0	B. avg aircraft, railway wheel noise	50	D. sealed thick window, or exterior wall, or roof/ceiling	-7	2	34	5		C. sealed thin window, or openable thick window	-7	1	95	0	**15**
B03_WF_LR	Building 03- West Façade - Living Room	53	3	40	16	70%	2.8	3.0	3.0	9.0	2.5	5.8	28	64	Intermediate	0 - 90	0	B. avg aircraft, railway wheel noise	50	D. sealed thick window, or exterior wall, or roof/ceiling	-5	2	37	5		C. sealed thin window, or openable thick window	-1	1	95	0	**16**
B03_WF_BR	Building 03 - West Façade - Bedroom	53	3	35	21	50%	2.8	3.0	6.0	18.0	4.1	4.1	23	23	Very Absorptive	0 - 90	0	B. avg aircraft, railway wheel noise	50	D. sealed thick window, or exterior wall, or roof/ceiling	-7	2	34	5		C. sealed thin window, or openable thick window	-7	1	95	0	**15**
B02_NF_LR	Building 02 - North Façade - Living Room	55	3	40	18	70%	2.8	3.0	3.0	9.0	2.5	5.8	28	64	Intermediate	0 - 90	0	B. avg aircraft, railway wheel noise	50	D. sealed thick window, or exterior wall, or roof/ceiling	-5	2	35	5		C. sealed thin window, or openable thick window	-1	1	95	0	**18**
B02_NF_BR	Building 02 - North Façade - Bedroom	55	3	35	23	50%	2.8	3.0	6.0	18.0	4.1	4.1	23	23	Very Absorptive	0 - 90	0	B. avg aircraft, railway wheel noise	50	D. sealed thick window, or exterior wall, or roof/ceiling	-7	2	32	5		C. sealed thin window, or openable thick window	-7	1	95	0	**17**
B02_WF_LR	Building 02 - West Façade (non-ENB) - Living Room	60	3	40	23	70%	2.8	3.0	3.0	9.0	2.5	5.8	28	64	Intermediate	0 - 90	0	B. avg aircraft, railway wheel noise	54	D. sealed thick window, or exterior wall, or roof/ceiling	-5	2	34	5		C. sealed thin window, or openable thick window	-1	1	95	0	**23**
B02_WF_BR	Building 02 - West Façade (non-ENB) - Bedroom	60	3	35	28	50%	2.8	3.0	6.0	18.0	4.1	4.1	23	23	Very Absorptive	0 - 90	0	B. avg aircraft, railway wheel noise	54	D. sealed thick window, or exterior wall, or roof/ceiling	-7	2	31	5		C. sealed thin window, or openable thick window	-7	1	95	0	**22**
B02_WF2_LR	Building 02- West or South Façade (ENB) - Living Room	50	3	40	13	70%	2.8	3.0	6.0	18.0	2.5	5.8	14	32	Intermediate	0 - 90	0	B. avg aircraft, railway wheel noise	54	D. sealed thick window, or exterior wall, or roof/ceiling	-8	2	47	5		C. sealed thin window, or openable thick window	-4	1	95	0	**10**
B02_WF2_BR	Building 02 - West or South Façade (ENB) - Bedroom	50	3	35	18	50%	2.8	3.0	3.0	9.0	4.1	4.1	46	46	Very Absorptive	0 - 90	0	B. avg aircraft, railway wheel noise	54	D. sealed thick window, or exterior wall, or roof/ceiling	-4	2	38	5		C. sealed thin window, or openable thick window	-4	1	95	0	**15**
B02_EF_LR	Building 02 - East Façade - Living Room	49	3	40	12	70%	2.8	3.0	6.0	18.0	2.5	5.8	14	32	Intermediate	0 - 90	0	B. avg aircraft, railway wheel noise	50	D. sealed thick window, or exterior wall, or roof/ceiling	-8	2	44	5		C. sealed thin window, or openable thick window	-4	1	95	0	**9**
B02_EF_BR	Building 02 - East Façade - Bedroom	49	3	35	17	50%	2.8	3.0	3.0	9.0	4.1	4.1	46	46	Very Absorptive	0 - 90	0	B. avg aircraft, railway wheel noise	50	D. sealed thick window, or exterior wall, or roof/ceiling	-4	2	35	5		C. sealed thin window, or openable thick window	-4	1	95	0	**14**
B01_EF_LR	Building 01 - East Façade (non-ENB) - Living Room	60	3	40	23	70%	2.8	3.0	6.0	18.0	2.5	5.8	14	32	Intermediate	0 - 90	0	B. avg aircraft, railway wheel noise	54	D. sealed thick window, or exterior wall, or roof/ceiling	-8	2	37	5		C. sealed thin window, or openable thick window	-4	1	95	0	**20**
B01_EF_BR	Building 01 - East Façade (non-ENB) - Bedroom	60	3	35	28	50%	2.8	3.0	3.0	9.0	4.1	4.1	46	46	Very Absorptive	0 - 90	0	B. avg aircraft, railway wheel noise	54	D. sealed thick window, or exterior wall, or roof/ceiling	-4	2	28	5		C. sealed thin window, or openable thick window	-4	1	95	0	**25**
B01_EF2_LR	Building 01 - East Façade (ENB) - Living Room	50	3	40	13	70%	2.8	3.0	6.0	18.0	2.5	5.8	14	32	Intermediate	0 - 90	0	B. avg aircraft, railway wheel noise	54	D. sealed thick window, or exterior wall, or roof/ceiling	-8	2	47	5		C. sealed thin window, or openable thick window	-4	1	95	0	**10**
B01_EF2_BR	Building 01 - East Façade (ENB) - Bedroom	50	3	35	18	50%	2.8	3.0	3.0	9.0	4.1	4.1	46	46	Very Absorptive	0 - 90	0	B. avg aircraft, railway wheel noise	54	D. sealed thick window, or exterior wall, or roof/ceiling	-4	2	38	5		C. sealed thin window, or openable thick window	-4	1	95	0	**15**
B01_SF_LR	Building 01 - South Façade (ENBs) - Living Room	50	3	40	13	70%	2.8	3.0	6.0	18.0	2.5	5.8	14	32	Intermediate	0 - 90	0	B. avg aircraft, railway wheel noise	54	D. sealed thick window, or exterior wall, or roof/ceiling	-8	2	47	5		C. sealed thin window, or openable thick window	-4	1	95	0	**10**
B01_SF_BR	Building 01 - South Façade (ENBs) - Bedroom	50	3	35	18	50%	2.8	3.0	3.0	9.0	4.1	4.1	46	46	Very Absorptive	0 - 90	0	B. avg aircraft, railway wheel noise	54	D. sealed thick window, or exterior wall, or roof/ceiling	-4	2	38	5		C. sealed thin window, or openable thick window	-4	1	95	0	**15**
B01_NF_LR	Building 01 - North Façade - Living Room	48	3	40	11	70%	2.8	3.0	6.0	18.0	2.5	5.8	14	32	Intermediate	0 - 90	0	B. avg aircraft, railway wheel noise	50	D. sealed thick window, or exterior wall, or roof/ceiling	-8	2	45	5		C. sealed thin window, or openable thick window	-4	1	95	0	**8**
B01_NF_BR	Building 01 - North Façade - Bedroom	48	3	35	16	50%	2.8	3.0	3.0	9.0	4.1	4.1	46	46	Very Absorptive	0 - 90	0	B. avg aircraft, railway wheel noise	50	D. sealed thick window, or exterior wall, or roof/ceiling	-4	2	36	5		C. sealed thin window, or openable thick window	-4	1	95	0	**13**

Appendix D Ventilation, Warning Clause and Mitigation Summary

Updated Environmental Noise & Vibration Study

1 Rosetta Street, Georgetown

1 Rosetta Street Inc.

SLR Project No.: 241.V20210.00002

October 4, 2024

Appendix D Ventilation, Warning Clause and Mitigation Summary

The following warning clauses are recommended for inclusion in agreements registered on Title for the residential units and included in all agreements of purchase and sale or lease, and all rental agreements.

A summary of the warning clause, ventilation and OLA mitigation requirements is included in **Table D.1**. Glazing requirements are presented separately in **Table D.2**, **Table D.3** and **Table D.4.**

MECP Type A: “Purchasers/tenants are advised that sound levels due to increasing road and rail traffic may occasionally interfere with some activities of the dwelling occupants as the sound levels exceed the sound level limits of the Municipality and the Ministry of the Environment.”

MECP Type B: "Purchasers/tenants are advised that despite the inclusion of noise control features in the development and within the building units, sound levels due to increasing rail traffic may on occasions interfere with some activities of the dwelling occupants as the sound levels exceed the sound level limits of the Municipality and the Ministry of the Environment.”

MECP 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.”

MECP Type E: “Purchasers/tenants are advised that due to the proximity of the adjacent rail facility (Layover Yard), noise from the facility may at times be audible.”

MECP Type F: “Purchasers/tenants are advised that sound levels due to the adjacent industry are required to comply with sound level limits that are protective of indoor areas and are based on the assumption that windows and exterior doors are closed. This dwelling unit has been supplied with a ventilation/air conditioning system which will allow windows and exterior doors to remain closed.”

Metrolinx: “Metrolinx and its assigns and successors in interest operate commuter transit service within 300 metres from the land which is the subject hereof. In addition to the current use of these lands, there may be alterations to or expansions of the rail and other facilities on such lands in the future including the possibility that Metrolinx or any railway entering into an agreement with Metrolinx or any railway assigns or successors as aforesaid may expand their operations, which expansion may affect the living environment of the residents in the vicinity, notwithstanding the inclusion of any noise and vibration attenuating measures in the design of the development and individual dwellings. Metrolinx will not be responsible for any complaints or claims arising from use of such facilities and/or operations on, over or under these lands.”

CN: “Purchasers are advised that Canadian National Railway Company or its assigns or successors in interest has or have a right-of-way within 300 metres from the land the subject thereof. There may be alterations to or expansions of the rail facilities on such right-of-way in the future, including the possibility that the railway or its assigns or successors as aforesaid may expand its operations, which expansion may affect the living environment of the residents in the vicinity, notwithstanding the inclusion of any

noise and vibration attenuating measures in the design of the development and individual dwelling(s). CNR will not be responsible for any complaints or claims arising from use of such facilities and/or operations on, over or under the aforesaid right-of-way."

Table D.1: Summary of Mitigation, Ventilation and Warning Clause Requirements

Residential Units	Façade Requirements	Barrier Requirements	Ventilation Requirements	Warning Clause Requirements
Building 01 – All Residential Units	See Table **D.2** **Table D.3** and **Table D.4**[1]	2.95 m high barrier for 2nd Floor Outdoor Amenity Terrace (Building 01 and Building 02)[1]	Central AC (Mandatory)	Type B, Type D, Type E, Type F, Metrolinx, CN
Building 02 – All Residential Units			Central AC (Mandatory)	Type B, Type D, Type E, Type F, Metrolinx, CN
Building 03 – All Residential Units		None Required for Rooftop Amenity Space	Central AC (Mandatory)	Type A, Type D, Type E, Metrolinx, CN

Notes: [1] **Table D.2**, **Table D.3** and **Table D.4** summarize glazing and exterior wall requirements. Further details is provided in report **Section 2.5**.

[2] Refer to **Figure 5** for location and extent of required barrier.

Table D.2: Summary of Façade Glazing Requirements for Proposed Development – Single Exposed Façade – Scenario 1 – ENBs of Building 01/02 South Façade with STC 54 Exterior Wall Construction

Building	Applicable Façade [1]	Non-Glazing Components	Glazing STC Requirements [2]	
			Living/Dining Room	Bedroom
Building 01	North	STC 50	OBC	OBC
	East (non-ENB)	STC 54[4]	STC 32	STC 37
	East (with ENB)	Inner Wall: STC 45	Inner Glazing: OBC	Inner Glazing: OBC
		Outer Wall: STC 54[3]	Outer Glazing: STC 30	Outer Glazing: STC 30
	South (with ENB)	Inner Wall: STC 45	Inner Glazing: OBC	Inner Glazing: OBC
		Outer Wall: STC 54[3]	Outer Glazing: STC 30	Outer Glazing: STC 30
	West	---	---	---
Building 02	North	STC 50	OBC	STC 32
	East	STC 50	OBC	OBC
	South (with ENB)	Inner Wall: STC 45	Inner Glazing: OBC	Inner Glazing: OBC
		Outer Wall: STC 54[3]	Outer Glazing: STC 30	Outer Glazing: STC 30
	West (non-ENB)	STC 54[4]	STC 33	STC 37
	West (with ENB)	Inner Wall: STC 45	Inner Glazing: OBC	Inner Glazing: OBC
		Outer Wall: STC 54[3]	Outer Glazing: STC 30	Outer Glazing: STC 30
Building 03	North	STC 50	OBC	OBC
	East	STC 50	OBC	STC 32
	South	STC 50	OBC	STC 31
	West	STC 50	OBC	STC 30

Notes: [1] Refer to **Figure 3** and **Figure 4** for façade location identification. 'with ENB' = facades where ENBs are planned. 'Non-ENB' = facades where there will not be ENBs.

[2] OBC = windows meeting the minimum non-acoustic requirements of the Ontario Building Code (STC 29).

[3] The STC 54 assembly is to be brick veneer or concrete panel.

[4] Portions of exterior wall showing spandrel panel design require concrete/masonry wall assembly behind.

Table D.3: Summary of Façade Glazing Requirements for Proposed Development – Single Exposed Façade – Scenario 2 – ENBs on Exterior of Building 01/02 South Façade with STC 45 Construction

Building	Applicable Façade [1]	Non-Glazing Components [2]	Glazing STC Requirements [2]	
			Living/Dining Room	Bedroom
Building 01	North	STC 50	OBC	OBC
	East (non-ENB)	STC 54[4]	STC 32	STC 37
	East (with ENB)	Inner Wall: STC 54[3]	Inner Glazing: OBC	Inner Glazing: OBC
		Outer Wall: STC 45	Outer Glazing: STC 31	Outer Glazing: STC 31
	South (with ENB)	Inner Wall: STC 54[3]	Inner Glazing: OBC	Inner Glazing: OBC
		Outer Wall: STC 45	Outer Glazing: STC 31	Outer Glazing: STC 31
	West	---	---	---
Building 02	North	STC 50	OBC	STC 32
	East	STC 50	OBC	OBC
	South (with ENB)	Inner Wall: STC 54[3]	Inner Glazing: OBC	Inner Glazing: OBC
		Outer Wall: STC 45	Outer Glazing: STC 31	Outer Glazing: STC 31
	West (non-ENB)	STC 54[4]	STC 33	STC 37
	West (with ENB)	Inner Wall: STC 54[3]	Inner Glazing: OBC	Inner Glazing: OBC
		Outer Wall: STC 45	Outer Glazing: STC 31	Outer Glazing: STC 31
Building 03	North	STC 50	OBC	OBC
	East	STC 50	OBC	STC 32
	South	STC 50	OBC	STC 31
	West	STC 50	OBC	STC 30

Notes:
[1] Refer to **Figure 3** and **Figure 4** for façade location identification. 'with ENB' = facades where ENBs are planned. 'Non-ENB' = facades where there will not be ENBs.
[2] OBC = windows meeting the minimum non-acoustic requirements of the Ontario Building Code (STC 29).
[3] The STC 54 ENB interior wall assembly is to be a concrete wall assembly.
[4] Portions of exterior wall showing spandrel panel design require concrete/masonry wall assembly behind.

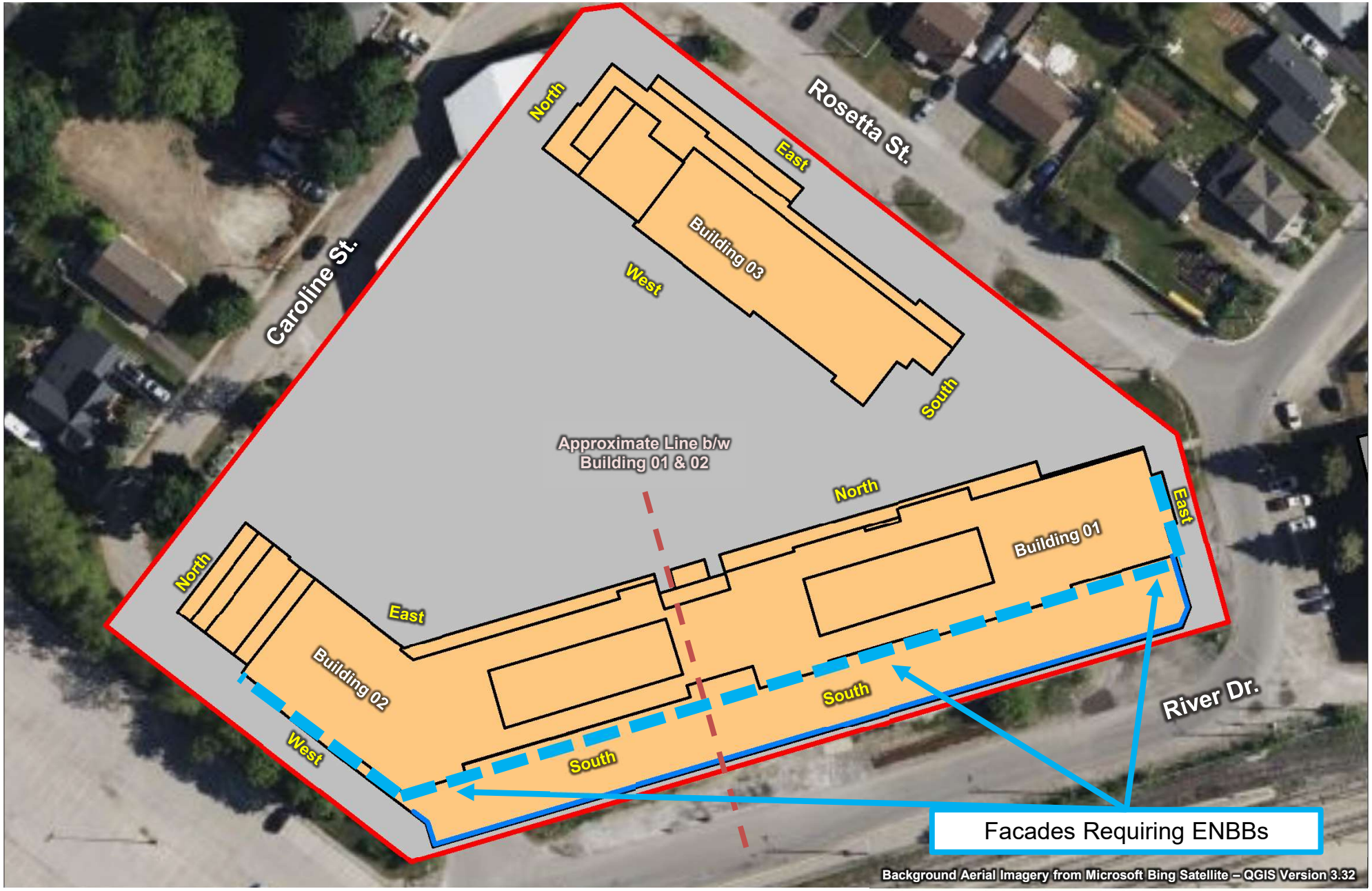
Table D.4: Summary of Façade Glazing Requirements for Proposed Development – Corner Units

Building	Applicable Location [1]	Non-Glazing Components	Glazing STC Requirements [2]	
			Living/Dining Room	Bedroom
Building 01	NE Corner	STC 54	STC 32	STC 37
Building 02	NE Corner	STC 54	OBC	STC 33
	NW Corner	STC 54[3] / STC 50	STC 34	STC 38
Building 03	NE Corner	STC 50	OBC	STC 34
	SE Corner	STC 50	OBC	STC 35
	SW Corner	STC 50	OBC	STC 34
	NE Corner	STC 50	OBC	STC 33

Notes: [1] Refer to **Figure 3** and **Figure 4** for façade location identification. 'with ENB' = facades where ENBs are planned. 'Non-ENB' = facades where there will not be ENBs.

[2] OBC = windows meeting the minimum non-acoustic requirements of the Ontario Building Code (STC 29).

[3] West facade of exterior wall with spandrel panel design requires concrete/masonry wall assembly behind.

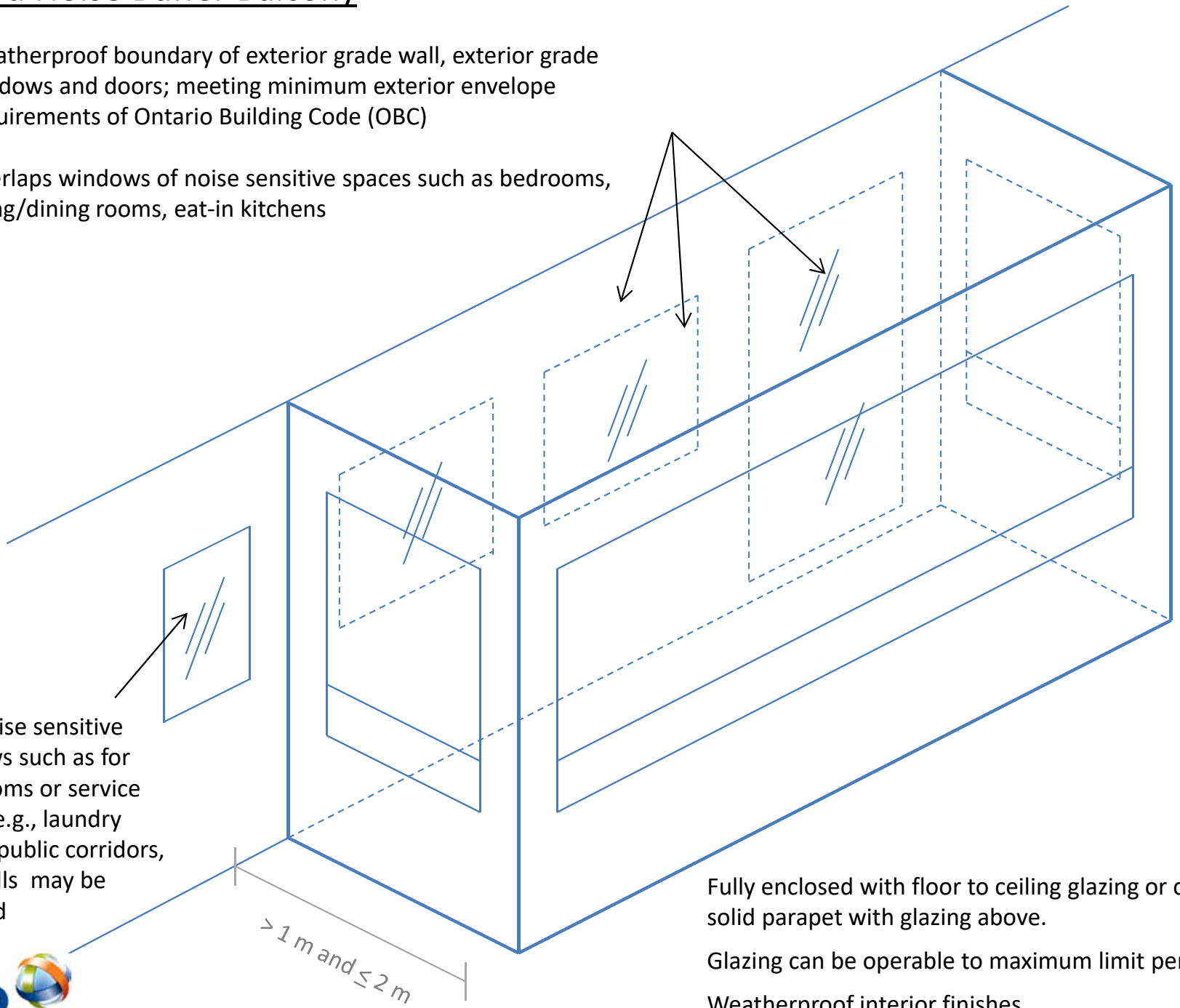


1 ROSETTA STREET INC.	True North	Scale: 1:900	METRES	SLR
1 ROSETTA STREET, GEORGETOWN		Date: Oct. 4, 2024 Rev. 0	Figure No. **D1**	
FACADES REQUIRING ENCLOSED NOISE BUFFERS		Project No. 241.V20210.00002		

Enclosed Noise Buffer Balcony

Weatherproof boundary of exterior grade wall, exterior grade windows and doors; meeting minimum exterior envelope requirements of Ontario Building Code (OBC)

Overlaps windows of noise sensitive spaces such as bedrooms, living/dining rooms, eat-in kitchens



Non-noise sensitive windows such as for bathrooms or service Areas (e.g., laundry room), public corridors, stairwells may be exposed

Fully enclosed with floor to ceiling glazing or combination of solid parapet with glazing above.

Glazing can be operable to maximum limit permitted by OBC.

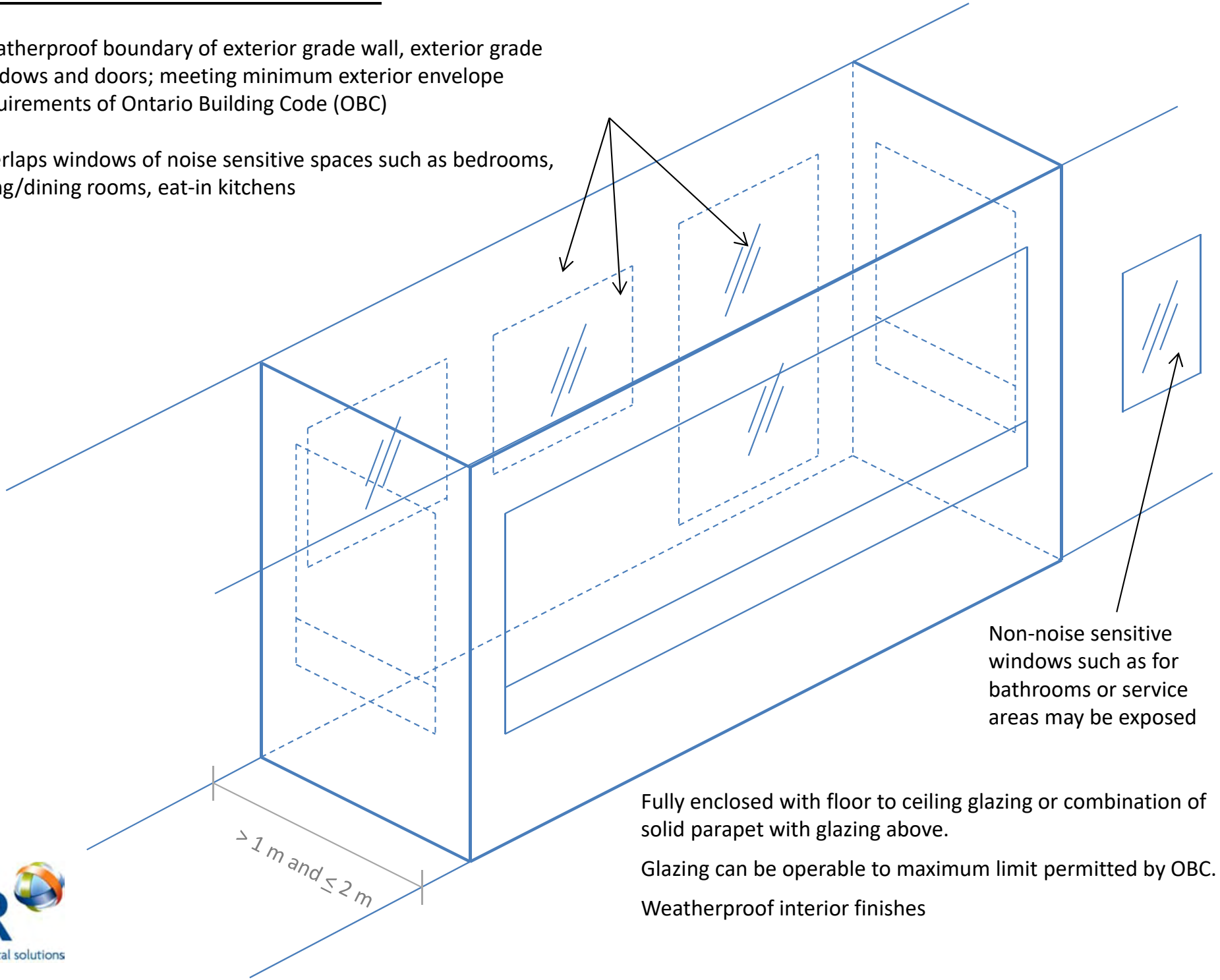
Weatherproof interior finishes

SLR
global environmental solutions

Enclosed Noise Buffer within Suite

Weatherproof boundary of exterior grade wall, exterior grade windows and doors; meeting minimum exterior envelope requirements of Ontario Building Code (OBC)

Overlaps windows of noise sensitive spaces such as bedrooms, living/dining rooms, eat-in kitchens



Non-noise sensitive windows such as for bathrooms or service areas may be exposed

Fully enclosed with floor to ceiling glazing or combination of solid parapet with glazing above.

Glazing can be operable to maximum limit permitted by OBC.

Weatherproof interior finishes

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Appendix E Stationary Source Modelling Data

Updated Environmental Noise & Vibration Study

1 Rosetta Street, Georgetown

1 Rosetta Street Inc.

SLR Project No.: 241.V20210.00002

October 4, 2024

Modelling Information Summary

Source Description	Maximum Sound Power Levels (1/1 Octave Band Levels)									Modelled Sound Power Level (dBA)	Notes
	32	63	125	250	500	1000	2000	4000	8000		
Loblaws											
Idling Train	117	127	114	110	103	98	97	95	90	108	- Based on historical SLR data. - Train Idling 15 during daytime and 15 min during nighttime

Making Sustainability Happen