



Environmental Noise and Vibration Assessment Report

153 Union Street East

Southside Group

75 Blackfriars Street, London, ON N6H 1K8

Prepared by:

SLR Consulting (Canada) Ltd.

100 Stone Road West, Suite 201, Guelph, ON N1G 5L3

SLR Project No.: 241.030933.00001

January 23, 2026

Revision: 0

Revision Record

Revision	Date	Prepared By	Checked By	Authorized By
0	January 23, 2026	S. Arnold	A.K. Haniff	A.K. Haniff



Statement of Limitations

This report has been prepared by SLR Consulting (Canada) Ltd. (SLR) for Southside Group (Client) in accordance with the scope of work and all other terms and conditions of the agreement between such parties. SLR acknowledges and agrees that the Client may provide this report to government agencies, interest holders, and/or Indigenous communities as part of project planning or regulatory approval processes. Copying or distribution of this report, in whole or in part, for any other purpose other than as aforementioned is not permitted without the prior written consent of SLR.

Any findings, conclusions, recommendations, or designs provided in this report are based on conditions and criteria that existed at the time work was completed and the assumptions and qualifications set forth herein.

This report may contain data or information provided by third party sources on which SLR is entitled to rely without verification and SLR does not warranty the accuracy of any such data or information.

Nothing in this report constitutes a legal opinion nor does SLR make any representation as to compliance with any laws, rules, regulations, or policies established by federal, provincial territorial, or local government bodies, other than as specifically set forth in this report. Revisions to legislative or regulatory standards referred to in this report may be expected over time and, as a result, modifications to the findings, conclusions, or recommendations may be necessary.



Executive Summary

SLR Consulting (Canada) Ltd. (SLR), was retained by Southside Group to conduct an Environmental Noise and Vibration report in support of a Zoning By-law Amendment (ZBA) application for the proposed development. The development is located at 153 Union Street East in Waterloo, Ontario (the Project Site).

This report has been prepared according to the land use planning guidelines which are included in the Regional Municipality of Waterloo – Noise Policy Implementation Guideline (2019) and following Ministry of the Environment Conservation, and Parks (MECP) NPC-300.

This assessment has considered:

- Transportation-related noise;
- Industrial/commercial noise; and
- Rail induced vibration.

It is recommended that Warning Clauses be included in the architectural design of the Project Site structures. A summary of the Warning Clauses is provided in Appendix D. With the inclusion of Warning Clauses, the Project Site is anticipated to be compatible with the surrounding land uses from an environmental noise, and vibration perspective.

Further, the Project Site will not affect the ability for facilities in the area to obtain or maintain compliance with applicable Provincial environmental policies, regulations, approvals, authorization, and guidelines. The requirements of the Regional Municipality of Waterloo – Noise Policy Implementation Guideline (2019) and the MECP Publication NPC-300 Environmental Noise Guideline Stationary and Transportation Sources, Approval and Planning are met. As the applicable policies and guidelines are met, the requirements of the provincial Policy Statement are met, and the Project Site is:

- Unlikely to result in increased risk of complaint and nuisance claims;
- Unlikely to result in operational constraints for the major facilities; and
- Unlikely to result in constraints on major facilities to reasonably expand, intensify or introduce changes to their operations.



Table of Contents

Statement of Limitations	ii
Executive Summary	iii
Table of Contents	iv
Acronyms and Abbreviations	vii
1.0 Introduction	1
1.1 Report Focus.....	1
1.2 Nature of Proposed Development	1
1.3 Nature of Surroundings	1
Part 1: Impacts of The Environment on The Development	2
2.0 Transportation Noise Impacts	2
2.1 Transportation Noise Sources	2
2.2 Surface Transportation Noise Criteria.....	2
2.2.1 Ministry of Environment Publication NPC-300	2
2.2.2 Regional Municipality of Waterloo – Noise Policy Implementation Guidelines	4
2.2.3 Guidelines for New Developments in Proximity to Railway	4
2.3 Transportation Vibration Criteria.....	6
2.3.1 Transportation Vibration Sources	6
2.3.2 Rail Vibration Guidelines	6
2.3.3 Vibration Measurement Program.....	6
2.4 Traffic Data and Future Projections	7
2.4.1 Road Traffic Data	7
2.4.2 Rail Traffic Data.....	7
2.5 Predicted Sound Levels.....	8
2.5.1 Façade Sound Levels.....	8
2.5.2 Outdoor Living Area Sound Levels	9
2.6 Noise Control Measures	10
2.6.1 Façade Assessment.....	10
2.6.2 Ventilation and Warning Clause Requirements	11
3.0 Stationary Source Noise Assessment	12
3.1 Stationary Source Modelling.....	12
3.2 Stationary Source Noise Criteria	13
3.3 Predicted Stationary Source Sound levels.....	14
3.3.1 Façade Sound Levels.....	14



3.3.2 Discussion of Results and Mitigation Measures.....	15
4.0 Vibration Impact Assessment	15
4.1 Vibration Data Processing	15
4.2 Vibration Assessment Results	16
Part 2: Impacts of The Development on Itself	17
5.0 Stationary Source Noise from the Development on Itself	17
Part 3: Impacts of The Development on The Surrounding Area	17
6.0 Stationary Source Noise from the Development on the Surroundings	17
7.0 Summary	18
7.1 Transportation Noise	18
7.2 Stationary Noise	18
7.3 Overall Assessment	19
8.0 Closure.....	19
9.0 References.....	20

Tables in Text

Table 1: NPC-300 Sound Level Criteria for Road and Rail Noise	2
Table 2: NPC-300 OLA Sound Level Criteria for Road and Rail Noise	3
Table 3: NPC-300 Ventilation and Warning Clause Recommendations.....	3
Table 4: NPC-300 Building Component Assessment Requirements.....	4
Table 5: Recommended Noise Criteria for New Residential or Other Sensitive Land Uses in Proximity to Freight Railway Corridors.....	5
Table 6: Summary of Road Traffic Data Used in the Transportation Analysis	7
Table 7: Summary of Rail Traffic Data Used in the Analysis	8
Table 8: Summary of Predicted Worst-Case Sound Level (dBA)	9
Table 9: Summary of Predicted Transportation OLA Sound Levels	10
Table 10: Summary of Façade Glazing Requirements for Proposed Development.....	10
Table 11: NPC-300 Class 1 Continuous (Steady, Non-Impulsive) Sound Level Limits	14
Table 12: Summary of Predicted Stationary Source Facade Sound Levels	15
Table 13: Summary of Rail Vibration Levels	16



Appended Figures

- Figures 1: Site and Context Plan
- Figures 2: Zoning By law Map – City of Waterloo
- Figures 3: Vibration Monitoring Location Map
- Figures 4: Predicted Total Transportation Sound Levels-Daytime
- Figures 5: Predicted Total Transportation Sound Levels-Nighttime
- Figures 6: Stationary Noise Source Map
- Figures 7: Predicted Stationary Sound Levels - Daytime
- Figures 8: Predicted Stationary Sound Levels – Nighttime
- Figures C.1: Cadna/A vs Stamson validation

Appendices

- Appendix A** **Site Plan – 153 Union Street**
- Appendix B** **Road Traffic Data**
- Appendix C** **STAMSON Validation**
- Appendix D** **Noise Warning Clauses**
- Appendix E** **Stationary Source Summary**



Acronyms and Abbreviations

AADT	Average Annual Daily Traffic
dB	Decibel
dBA	The A-weighted sound pressure level in Decibels
dBAI	The A-weighted sound pressure level of an impulsive sound in Decibels
L _{eq}	Energy equivalent sound level
m	Meters
MECP	Ministry of the Environment, Conservation and Parks
NEF	Noise Exposure Forecast
NHS	Natural Heritage System
OLA	Outdoor Living Area
OPOR	Outdoor Point of Reception
POR	Point of Reception
RMOW	Regional Municipality of Waterloo
RMS	Root-mean-square
SLR	SLR Consulting (Canada) Ltd.
SPA	Site Plan Application
ZBA	Zoning Bylaw Amendment



1.0 Introduction

SLR Consulting (Canada) Ltd. (SLR), was retained by Southside Group to prepare an Environmental Noise and Vibration Study in support of a Zoning By-law Amendment (ZBA) application for a proposed mixed-use residential/commercial development. The development is located at 153 Union Street East in Waterloo, Ontario (the Project Site).

1.1 Report Focus

This report evaluates the compatibility of the proposed development with the existing acoustic environment. The scope of this assessment includes:

- Transportation noise impacts from nearby roadways and rail line;
- Rail induced vibration impacts; and
- Stationary noise impacts from surrounding commercial and industrial operations.

1.2 Nature of Proposed Development

The Project Site is located at 153 Union Street East in Waterloo, Ontario, and is currently occupied by a vacant medical building. The proposed development consists of two buildings:

- Building A (North): An 11-storey mixed-use building comprising of commercial space and 139 residential units.
- Building B (South): A 12-storey residential building comprising 105 residential units.

A copy of the site plan for the proposed development is included as Appendix A.

1.3 Nature of Surroundings

The land uses surrounding the Project Site and boundaries are described as follows:

- North: Union Street East, followed by residentially zoned lands;
- South: The Canadian National Railway (CN) Waterloo Spur line, with residentially zoned lands beyond; and
- East & West: Existing commercial developments.

A context plan of the Project Site and surroundings is provided as Figure 1. A zoning map of the Project Site and surroundings is provided as Figure 2.



Part 1: Impacts of The Environment on The Development

2.0 Transportation Noise Impacts

2.1 Transportation Noise Sources

Transportation noise sources with the potential to impact the Project Site include:

- Roadway traffic along Union Street East, Roger Street, and Waterloo Street; and
- Railway traffic along the CN Waterloo Spur line.

Future sound levels at the Project Site were predicted as part of this assessment using historic roadway and rail traffic volumes. Modelled noise impacts were used to determine specific requirements for building, façade, ventilation, and warning clauses.

2.2 Surface Transportation Noise Criteria

2.2.1 Ministry of Environment Publication NPC-300

2.2.1.1 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.

2.2.1.2 Location-Specific Criteria

Table 1 summarizes criteria in terms of energy equivalent sound 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 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 1 are exceeded.

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



2.2.1.3 Outdoor Living Areas

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

For the assessment of outdoor 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 Level L_{eq} (dBA)	Mitigation Requirements/Warning Clause Recommendations
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

2.2.1.4 Ventilation and Warning Clauses

Table 3 summarizes recommendations for ventilation where windows would potentially have to remain closed as a means of noise control. Despite implementation of ventilation measures where recommended, 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 Level – L _{eq} (dBA)		Ventilation and Warning Clause Recommendations ^[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.



2.2.1.5 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 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.				

2.2.2 Regional Municipality of Waterloo – Noise Policy Implementation Guidelines

The Regional Municipality of Waterloo (RMOW) has published Noise Policy Implementation Guidelines (last updated October 22, 2019) for assessment of surface transportation (road and rail) sound levels. Though the document is no longer not directly applicable, the related portions for new developments are outlined in Part A – New Development Impacted by Noise from Roads and Railways.

The RMOW Noise Policy Implementation Guidelines and associated sound level limits, ventilation requirements and building component requirements generally follow those in MECP Publication NPC-300. The exception is that nighttime indoor sound level limits are not prescribed for living/dining room spaces. For these indoor spaces, guideline limits from MECP Publication NPC-300 have been applied. RMOW-specific warning clauses also differ from those discussed in Section 2.2.1, and these been adopted in the assessment.

2.2.3 Guidelines for New Developments in Proximity to Railway

The Railway Association of Canada / Federation of Canadian Municipalities (“RAC/FCM”) have developed Guidelines for New Development in Proximity to Railway Operations. The “Proximity Guidelines” have been adopted by CN, CP, and Metrolinx. The “Proximity Guidelines” outline a recommended minimum noise influence area for the various types of railway corridors.

For a spur line such as the Waterloo Spur, the recommended area is 75 metres. Since the proposed development falls within this area of influence, a detailed noise study of the Project Site is recommended.



The RAC/FCM guidelines also recommend building setbacks for new residential developments in proximity to railway operations which are detailed below:

- Freight Rail Yard: 300 metres;
- Principle Main Line: 30 metres;
- Secondary Main Line: 30 metres;
- Principle Branch Line: 15 metres;
- Secondary Branch Line: 15 metres; and
- Spur Line: 15 metres.

The proposed development structures are outside of the 15-metre setback to rail tracks recommendations by the RAC/FCM guidelines.

Noise barrier/berm heights are recommended by the “Proximity Guidelines” and state that required heights will be determined by an acoustical engineer in a noise report. Given the setback distance and grade separations between the site grade and railway cut, a ground level noise barrier/berm is unlikely to be required.

The RAC/FCM guideline provides recommend noise criteria for residential and sensitive land uses which are summarized in Table 5.

Table 5: Recommended Noise Criteria for New Residential or Other Sensitive Land Uses in Proximity to Freight Railway Corridors

Type of Space	Time Period	Energy Equivalent Sound Level L_{eq} (dBA)	
		Limit ^[1]	Outdoors, Trigger for Air Conditioning ^[2]
Indoors, Living/Dining Room ^[3]	Daytime (0700-2300h)	40	55
	Night-time (2300-0700h)	Not provided	Not provided
Indoors, Sleeping Quarters	Daytime (0700-2300h)	Not provided	Not provided
	Night-time (2300-0700h)	35	50
Outdoors, Outdoor Living Area	Daytime (0700-2300h)	55 ^[3]	n/a
<p>Notes:</p> <p>[1] The indoor sound level limits are used only to determine the architectural component requirements. Whistle noise (where applicable) is included when determining indoor noise levels and excluded when determining outdoor noise levels.</p> <p>[2] The outside façade sound level limits are used to determine the air conditioning requirements.</p> <p>[3] Mitigation is recommended between 55 dBA and 60 dBA and if levels are 60 dBA or above, mitigation should be implemented to reduce the levels as close as practicable to 55 dBA.</p>			

The guideline limits in the table were derived from MECP Publication LU-131, the predecessor guideline to Publication NPC-300, and are essentially equivalent to it. The “triggers” for requiring air conditioning are 10 dB stricter than Publication NPC-300, which would only require forced air heating with a provision to add air conditioning at these levels.



The Proximity Guidelines do not have a requirement for façade construction but instead note “the architectural component requirements must include the minimum requirements of the railways.”

A CN warning clause is recommended for all residential units associated with the development. Warning Clause Text can be found in Appendix D.

2.3 Transportation Vibration Criteria

2.3.1 Transportation Vibration Sources

The CN Waterloo Spur is located south of the proposed development, immediately adjacent to the Project Site. Ground-borne vibration due to rail traffic along this spur line is the focus of this portion of the assessment.

2.3.2 Rail 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 FCM/RAC guideline is also applicable for rail vibration and used as a reference tool of best practices for rail-adjacent development. Both CN and Metrolinx/GO endorse the FCM/RAC guidelines, which require the following:

- 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 vertical 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 determined to be in excess, vibration isolation measures will be required to ensure vertical vibration levels in living areas do not exceed 0.14 mm/sec RMS at residential units within the development.

2.3.3 Vibration Measurement Program

Measurements of ground-induced vibration due to rail traffic along the CN Waterloo Spur were conducted at the Project Site. Measurements were conducted between December 1, 2025, and December 5, 2025, at one location approximately 25m from the center of the right-of-way. The measurement setback distance was selected to correspond to the closest proposed building footprint of the development.

The vibration measurement locations are shown on Figure 3.

Vibration velocity data were collected with a Svantek SV803 unit sampling at a rate of 1024 Hz. A total of four (4) freight pass bys were measured over the monitoring period. Though a total of 5 pass bys is suggested, the measurement of 4 was deemed sufficient.



2.4 Traffic Data and Future Projections

2.4.1 Road Traffic Data

SLR requested road traffic data from the RMOW on November 21, 2025. Data was received from the RMOW on December 29, 2025. SLR used the future traffic volume data and vehicle composition percentages provided by the RMOW to model roadways in proximity to the Project Site apart from Waterloo Street, as no data was provided for it (covered under City of Waterloo data set).

Traffic data was also requested from the City of Waterloo and was received on November 26, 2025. The City provided Annual Average Daily Traffic (AADT) counts for Union Street East (2019), Roger Street (2025), and Waterloo Street (2023). Traffic volume data from the City of Waterloo was only used for Waterloo Street.

Ultimate traffic data and vehicle percentages for the roads were estimated using a 2% growth rate per annum to a future traffic volume horizon of 12 years (2038). Vehicle composition was not included in the data provided by the City of Waterloo; therefore, typical compositions for non-regional roads were assumed for Waterloo Street.

The road traffic data used in this assessment is summarized in Table 6. Copies of the road traffic data provided by the City of Waterloo and RMOW are provided for reference in Appendix B.

Table 6: Summary of Road Traffic Data Used in the Transportation Analysis

Roadway Link	Future Traffic Volumes (AADT)	% Day/ Night Volume Split		Commercial Traffic Breakdown		Vehicle Speed (km/h)
		Daytime	Night-time	% Med Trucks	% Heavy Trucks	
Union Street East	12,947	90	10	1	1	50
Waterloo Street	693	90 ^[1]	10	3	3	30
Roger Street	2,016	90	10	3	4	30
Dover Street	1,592	90	10	2	1	30
Moore Avenue South	2,653	90	10	2	1	40
Notes:						
[1] The Day/Night split was determined from historic data at SLR for urban areas.						

2.4.2 Rail Traffic Data

Freight traffic volume along the CN Waterloo Spur was obtained from previous assessments conducted by SLR for nearby developments. A growth rate of 2.5% per annum was applied to the data and volumes were conservatively rounded up. The modelled rail traffic volumes are summarized in Table 7.



Table 7: Summary of Rail Traffic Data Used in the Analysis

Train Type	Future Year 2035 No. of Trains		Typical No. of Locomotives	Typical No. of Cars (Consist)	Maximum Speed (km/h)
	Daytime	Nighttime			
Freight ^[1]	0	4	4	140	24
Notes:					
[1] Based on data obtained from CN and forecasted to the year 2035.					

Rail traffic data for the CN Waterloo Spur was obtained for SLR historical projects in the area.

As the tracks are jointed throughout the study area, a 5 dB penalty has been included as part of the wheel noise assessment. CN institutes an anti-whistling practice within the City of Waterloo; therefore, whistle noise has not been included as part of the rail noise impact assessment.

2.5 Predicted Sound Levels

Future road traffic sound levels at the proposed development were predicted using the Cadna/A implementation ISO-9613-2: (1996) environmental noise propagation algorithms. Roadways were modelled as line sources of sound, with sound emission rates calculated using the ORNAMENT algorithms, the road traffic noise model of the MECF. These predictions were validated and are equivalent to those made using the MECF's ORNAMENT or STAMSON v5.04 road traffic noise models. STAMSON validation details, sample calculations, and Cadna/A sample calculations are included for reference in Appendix C.

Rail noise levels were modelled as line sources of sound using the U.S. Federal Railway Administration/ Federal Transit Administration ("FTA/FRA") noise emission and propagation algorithms in Cadna/A. The reference sound levels were used for diesel locomotives and rail cars.

Sound levels were predicted along the façades of the proposed development using the "building evaluation" feature of Cadna/A. This feature allows for noise levels to be predicted across the entire façade of a structure. OLA sound levels were assessed at a height of 1.5 m.

Global ground absorption was conservatively considered to be reflective ($G = 0.2$), and the area surrounding the Project Site is generally flat.

2.5.1 Façade Sound Levels

Predicted worst-case façade sound levels due to road and rail traffic are presented in Table 8.

Total sound levels on the proposed development for daytime and nighttime periods are provided as Figure 4 for daytime and Figure 5 for nighttime periods.



Table 8: Summary of Predicted Worst-Case Sound Level (dBA)

Building Section	Façade ^[1]	Component Predicted Worst-Case Sound Level (dBA)		
		Road Traffic Sound Levels	Rail Traffic Sound Levels	Total Road and Rail Sound Levels ^[1]
Daytime (7am to 11 pm)				
Building A (Ground Floor to 11th Floor)	North	58	-	58
	East	55	-	55
	South	47	-	47
	West	55	-	55
Building B (Ground Floor to 12th Floor)	North	51	-	51
	East	52	-	52
	South	51	-	51
	West	51	-	51
Night-time (11 pm to 7 am)				
Building A (Ground Floor to 11th Floor)	North	51	50	53
	East	48	51	52
	South	40	57	57
	West	48	58	59
Building B (Ground Floor to 12th Floor)	North	45	55	56
	East	45	56	56
	South	45	64	64
	West	45	63	63
Notes:				
[1] Level represents the maximum combined road and rail impact. Maximum roadway plus railway sound levels may not sum to maximum combined, as locations of maxima vary.				

2.5.2 Outdoor Living Area Sound Levels

The patios at the base of Buildings A and B as depicted on the site plan included in Appendix A meet the NPC-300 definition of outdoor living area (OLA) and require assessment. Predicted OLA sound levels due to noise impacts from the roadways and railway are presented in Table 9.



Table 9: Summary of Predicted Transportation OLA Sound Levels

Building Section	Orientation	Component Predicted Worst-Case Sound Level (dBA)		
		Road Traffic Sound Levels	Rail Traffic Sound Levels	Total Road and Rail Sound Levels
Daytime (7am to 11 pm)				
Building A (Ground Floor)	East	55	-	55
	West	55	-	55
Building B (Ground Floor)	North	52	-	52
	South	51	-	51

2.6 Noise Control Measures

2.6.1 Façade Assessment

An assessment of indoor sound levels is required because façade sound levels due to transportation noise are expected to exceed thresholds summarized in Table 4.

Indoor sound levels and required facade Sound Transmission Classes (STCs) were estimated using the procedures outlined in National Research Council Building Practice Note 56 (BPN-56). Detailed floor plans and elevation drawings were not available at the time of the assessment, and building massing is only conceptual. The preliminary façade requirements analysis is therefore based on the following assumptions, to provide an indication of required building components for the proposed development.

- Non-glazing portions of the exterior walls are assumed to have a rating of STC 45 (spandrel panel).
- For living/dining rooms, 70% of the exterior facade is vision glass/patio doors. Rooms are assumed to have intermediate absorption; and
- For bedrooms, 50% of the exterior wall is vision. Rooms are assumed to be very absorptive.

The worst-case building façade requirements based on the road traffic sound levels and assumptions listed above are outlined in Table 10.

Table 10: Summary of Façade Glazing Requirements for Proposed Development

Building Section	Façade	Non-Glazing Components ^[1]	Glazing STC Requirements ^[1]	
			Living/Dining Room	Bedroom
Building A (Ground Floor to 11th Floor)	North	45	OBC	OBC
	East		OBC	OBC
	South		OBC	OBC
	West		OBC	OBC



Building Section	Façade	Non-Glazing Components ^[1]	Glazing STC Requirements ^[1]	
			Living/Dining Room	Bedroom
Building B (Ground Floor to 12th Floor)	North	45	OBC	OBC
	East		OBC	OBC
	South		OBC	35
	West		OBC	34
Notes: [1] OBC = meeting the minimum non-acoustical requirements of the Ontario Building Code, with a rating of STC 29 for windows.				

Corner rooms may have STC requirements up to +3 above those noted in the above table due to sound penetration through two façades.

The window STC requirements for some façades are potentially high, particularly along the south and west façades of Building B of the Project Site. The high STC requirements are primarily due to elevated sound levels caused by rail traffic noise during nighttime hours on the adjacent rail corridor.

Design measures can be used to reduce the window STC requirements and should be considered as early in the design process as possible. Some measures may include:

- Reducing the size of the windows or ensuring that the exterior window area is small relative to floor area of the associated space. That is, do not use floor-to-floor windows or curtain walls.
- Designing spaces such that the rooms at the corners of the buildings have windows on only one facade.
- Having non-noise sensitive spaces, such as walk-in closets or washrooms, at the corners of the towers.
- Using a further upgraded exterior wall assembly.

The above-noted measures should be considered as building massing, suite layouts and elevations are developed, at later stages in the Project. The building façade requirements should be reviewed by an Acoustical Consultant when the detailed suite layouts and elevations are available later in the planning process.

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.

2.6.2 Ventilation and Warning Clause Requirements

The triggers for warning clauses are summarized in Table 3 and supplementary documentation to the RMOW Noise Policy Implementation Guideline. Where required, 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.

Predicted OLA sound levels are between 55 and 60 dBA at some OLAs. Therefore, a Type A Warning Clause are required.



Predicted façade sound levels at Building A of the Project Site require a provision for central air conditioning and an MECP Type C warning clause.

Predicted façade sound levels at Building B of the Project Site require central air-conditioning and an MECP Type D warning clause.

Ventilation and warning clause requirements are summarized in Appendix D.

3.0 Stationary Source Noise Assessment

A site visit to the Project Site and surrounding area was completed conducted by SLR to the Project Site on December 1, 2025. The focus of the site visit was to identify any nearby facilities with the potential for stationary noise impacts at the proposed development. The site was found to be surrounded primarily by commercial and residential land uses.

There are no large industrial facilities in proximity to the proposed development. Noise sources in the area requiring assessment were determined based on the MECP Guideline D-6 Potential Influence Areas. The Forbes Motorsport facility located at 156 Roger Street and Boucher & Jones Fuels Petro-Canada Distributor at 155 Roger Street are considered a Class I industries, in which a 70m influence area was applied for considering assessment of stationary sources. The closest Class II and Class III industries are located outside of the 300 m and 1000 m areas of influence, respectively. Therefore, no Class II or Class III industries have been considered in this assessment.

3.1 Stationary Source Modelling

Based on information obtained during the site visit and a review of aerial photography, the sources of noise with the potential to produce noise impacts at the proposed development have been identified. Sound levels for the sources were determined based on at-grade measurements collected during the site visit on December 1, 2025 and information contained in the SLR in-house database. No sources of impulse noise were observed during the site visit. No emergency generators were observed during the site visit.

Modelled source of noise include those within 70m of the proposed development or associated with buildings located within 70 m. Modelled noise sources associated with the buildings included the following:

- Commercial Medical Building at 139 Union Street East:
 - 2 x Rooftop HVAC Unit (5-Ton units).
- Commercial Medical building at 135 Union Street East:
 - 1 x Rooftop HVAC Unit (10-Ton unit); and
 - 2 x Rooftop HVAC Unit (5-Ton unit).
- EarlyON at 161 Roger Street:
 - 1 x Rooftop HVAC Unit (10-Ton Unit).
- Forbes Motorsport at 156 Roger Street
 - 1 x Idling Heavy Truck; and
 - Up to (1) Truck pass by.

Operation at the facility occurs between 7 a.m. to 7 p.m.



- Boucher & Jones Fuels Petro-Canada Distributor at 155 Roger Street:
 - 1 x Rooftop HVAC (10-Ton Unit); and
 - Up to two (2) truck pass bys.

Operation of the facility occurs between 5 a.m. to 7 p.m.

Rooftop HVAC was assumed to operate continuously during the day and evening with reduced hours during the nighttime period.

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 (predictable worst-case assessment of noise levels):

- Temperature: 10°C;
- Relative Humidity: 70%;
- Ground Absorption G: $G = 0.2$ (reflective) as the default global parameter. No localized ground absorption was considered in the assessment;
- Reflection: One (1) order of reflection was used (accounts for noise reflecting from walls);
- Wall Absorption Coefficients: Set to 0.37 (21%/37% of energy is absorbed, 79%/63% reflected); and
- Ground elevations surrounding the Project Site are generally flat. No terrain data was included in the assessment.

Sound level data from SLR historical sound level database were applied in the stationary noise modelling assessment. Modelled source sound levels include correction factors such that compliance at the existing residences was demonstrated. A summary of the sound levels used in the analysis and equipment operating conditions is included in Appendix E. All stationary sources modelled are shown in Figure 6.

3.2 Stationary Source Noise Criteria

MECP guidelines for stationary source noise impacting residential developments are given in MECP Publication NPC-300. The applicable portions of NPC-300 are Part C – Land Use Planning and the associated definitions outlined in Part A – Background.



The acoustic environment surrounding the proposed development is generally dominated by roadway noise from Union Street East and distant road traffic noise during all periods of the day. Therefore, the proposed development is considered to be located in a Class 1 area.

The sound level limits for steady sound sources are expressed as a 1-hr equivalent sound level (L_{eq} (1 hr) values, in dBA) and is the higher of the NPC-300 exclusionary limits and the existing background sound level. The NPC-300 stationary source guidelines for a Class 1 Area are summarized in Table 11 for steady sound sources.

Table 11: NPC-300 Class 1 Continuous (Steady, Non-Impulsive) Sound Level Limits

Point of Reception Category	Time Period	Minimum Exclusionary Sound Level Limit L_{eq} (1-hr), dBA ^[1]
Outdoors	Daytime (0700-1900h)	50
	Evening (1900-2300h)	50
	Nighttime (2300-0700h)	N/A ^[3]
Plane of Window ^[2]	Daytime (0700-1900h)	50
	Evening (1900-2300h)	50
	Nighttime (2300-0700h)	45
Notes: [1] Or minimum hourly L_{eq} of background noise; whichever is higher. [2] Applicable for windows opening into “noise-sensitive spaces” as defined in NPC-300. [3] Sound level limits during night-time hours are not applicable at outdoor points of reception.		

The Class 1 minimum exclusionary limits were applied in the assessment.

Sound level limits for emergency equipment operating in non-emergency situations are 5 dB greater than the sound level limits otherwise applicable to other stationary sources, as outlined in NPC-300. Additionally, emergency equipment operating in non-emergency situations is to be assessed independently of all other stationary sources of noise. No emergency equipment was identified in the surrounding area. No further assessment of emergency sources has been completed in this study.

3.3 Predicted Stationary Source Sound levels

The “building evaluation” feature of Cadna/A was used to assess façade sound levels on the residential portions of the proposed development. This feature allows for noise levels to be predicted across the entire façade of a structure. Outdoor sound levels were assessed at a height of 1.5 m above the ground.

3.3.1 Façade Sound Levels

A summary of the predicted sound levels on each façade due to simultaneous operation of all modelled stationary sources are shown in Table 12, summarized in Figure 7 (daytime / evening), and Figure 8 (nighttime), respectively.



Table 12: Summary of Predicted Stationary Source Façade Sound Levels

Project Building	Façade	Predicted Sound Levels ^[1] L _{eq} (1-hr) (dBA)	Applicable Sound Level Limit L _{eq} (1-hr) (dBA)	Compliance with Applicable Limit? (D/E/N)
		Daytime/Evening/ Nighttime	Day/Eve/Night	(Y/N)
Building A (Ground Floor to 11th Floor)	North	42 / 42 / 39	50 / 50 / 45	Y / Y / Y
	East	43 / 43 / 39	50 / 50 / 45	Y / Y / Y
	South	43 / 43 / 39	50 / 50 / 45	Y / Y / Y
	West	47 / 47 / 44	50 / 50 / 45	Y / Y / Y
Building B (Ground Floor to 12th Floor)	North	42 / 42 / 39	50 / 50 / 45	Y / Y / Y
	East	46 / 46 / 43	50 / 50 / 45	Y / Y / Y
	South	47 / 47 / 43	50 / 50 / 45	Y / Y / Y
	West	42 / 42 / 39	50 / 50 / 45	Y / Y / Y
Building A (Ground Floor Patio)	East	43 / 43 / -	50 / 50 / - ^[2]	Y / Y / - ^[2]
	West	47 / 47 / -	50 / 50 / - ^[2]	Y / Y / - ^[2]
Building B (Ground Floor Patio)	North	42 / 42 / -	50 / 50 / - ^[2]	Y / Y / - ^[2]
	South	47 / 47 / -	50 / 50 / - ^[2]	Y / Y / - ^[2]
Notes:				
[1] The highest predicted sound level at the façade is presented.				
[2] Outdoor points of reception are not assessed during the nighttime period.				

3.3.2 Discussion of Results and Mitigation Measures

Sound levels at facades and OPORs are predicted to meet applicable Class 1 guideline limits from non-impulsive stationary sources. Further mitigation to reduce stationary sound levels is not required.

4.0 Vibration Impact Assessment

4.1 Vibration Data Processing

Vibration levels are attenuated as they travel from the soil and enter building structures, due to coupling losses between the soil 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 United States (“US”) FTA Transit Noise and Vibration Impact Assessment Manual (FTA, 2018), 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 effect of ground coupling to building foundation has been considered at this stage to estimate the transmitted vibration impact at the worst-case ground floor receptor. Updates to the adjustments should be considered as part of further vibration analysis and when building massing is further developed.



4.2 Vibration Assessment Results

Table 13 summarizes the average vector sum measured vibration levels (X, Y, and Z contributions) of the four observed pass bys during the monitoring period from December 1, 2025, to December 5, 2025. Table 13 also summarizes the predicted vibration levels for the proposed development inclusive of the effect of ground coupling to building foundation per the FTA manual.

Table 13: Summary of Rail Vibration Levels

Train Pass-By Event	Description	Time	RMS Vibration Level (mm/s)			Compliance (Y/N)
			Measured Vector Sum Level	Estimated indoor level ^[1]	Criterion	
1	Freight Pass by	Dec. 2, 2025, 12:31 a.m.	0.23	0.07	0.14	Y
2	Freight Pass by	Dec. 2, 2025, 4:44 a.m.	0.24	0.08	0.14	Y
3	Freight Pass by	Dec. 4, 2025 12:52 a.m.	0.31	0.10	0.14	Y
4	Freight Pass by	Dec. 4, 2025 4:56 a.m.	0.26	0.08	0.14	Y
Average Level			0.26	0.08	0.14	Y
Notes: [1] Given the height and size of the proposed buildings, a 10 dB building coupling loss has been considered to assess the propagation of measured vibration levels into buildings part of the proposed development.						

Although measured ground vibration levels at the monitoring location exceeded the 0.14 mm/s guideline, the projected indoor levels—accounting for foundation coupling losses—are below the 0.14 mm/s limit at the worst-case ground floor receivers. Consequently, no specific vibration mitigation measures are required. The Project Site is anticipated to be feasible for development of sensitive uses (e.g., residential) in consideration of rail-induced ground borne vibration.

It is recommended that a detailed vibration assessment be conducted as building design progresses, later in the planning process, when building massing and architectural drawing are further developed.



Part 2: Impacts of The Development on Itself

5.0 Stationary Source Noise from the Development on Itself

At the time of this assessment, mechanical systems for the proposed development have not been sufficiently designed to complete a detailed assessment of stationary source noise from the development on itself.

For common mechanical systems that will be implemented as part of the proposed development, sound levels from all noise-generating equipment should comply with the guideline limits in MECP Publication NPC-300. The potential noise from mechanical equipment in the proposed development (such as from make-up air units, cooling towers, parking garage exhaust fans, emergency generators, etc.) should be assessed as part of the final building design. The applicable criteria can be met at all on-site receptors through 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.

This can be confirmed either later in the site plan approval process, or at the building permit approval stages.

If individual air conditioning systems are to be implemented for individual residential units within the proposed development, the sound levels from each unit should meet the requirements of MECP Publication NPC-216.

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

Part 3: Impacts of The Development on The Surrounding Area

6.0 Stationary Source Noise from the Development on the Surroundings

With respect to the acoustic environment of the area, it is expected that the proposed development will have a negligible effect on neighbouring noise-sensitive properties.

Traffic related to the proposed development will be small relative to the existing traffic volumes within the area and is not of concern with respect to potential transportation noise.

Other sources associated within the proposed development with the potential to generate noise are mechanical equipment (e.g., air conditioning units, make up air units, cooling units, and parking garage exhaust fans). Sound levels due to operation of these sources should meet MECP Publication NPC-300 noise guidelines at all off-site noise sensitive receptors.

Off-site sound levels are not expected to be of concern are not anticipated because systems will be designed to ensure that the applicable noise guidelines are met at on-site receptors.



Regardless, off-site sound levels from mechanical equipment should be assessed as part of the final building designs. The applicable criteria can be met at all surrounding receptors through 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, barriers) into the designs.

If individual air conditioning systems are to be implemented for individual residential units within the proposed development, the sound levels from each unit should meet the requirements of MECP Publication NPC-216.

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

7.0 Summary

The potential for noise and vibration impacts on the 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:

7.1 Transportation Noise

- An assessment of transportation sound levels from surrounding roadways and railway has been completed.
- Upgraded windows are expected to be required at certain facades of Building B to meet indoor noise guidelines due to road and rail traffic. Wall and window STC requirements should be reviewed and refined at a later stage when detailed architectural drawings (suite layouts and elevation plans) are available.
- The building façade requirements should be reviewed by an Acoustical Consultant when the detailed suite layouts and elevations are available later in the planning process.
- Ventilation and Warning Clause Requirements:
 - A provision for central air conditioning is recommended for residential suites for Building A.
 - Mandatory central air conditioning is recommended for residential suites for Building B.
 - A Type A Warning Clause is required for some OLAs.
- Warning clauses should be included in agreements registered on Title for the residential units and included in agreements of purchase and sale/rental agreements. Warning clauses are summarized in Appendix D.

7.2 Stationary Noise

An assessment of stationary noise has been completed, as outlined in Section Stationary Source Noise Assessment. Noise impacts from off-site noise sources onto the development meet the applicable MECP noise criteria limits for a Class 1 area.



7.3 Overall Assessment

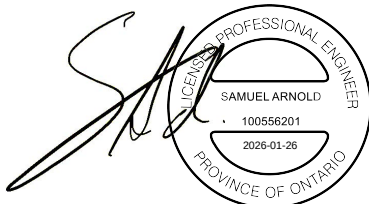
- Impacts of the environment on the proposed development are anticipated to meet the applicable MECP noise limits as outlined in Part 1 of this report.
- Impacts of the proposed development on the surrounding area are anticipated to be negligible and can be adequately controlled by following the design guidance outlined in Part 2 of this report.
- Impacts of the proposed development on itself are anticipated to be negligible and can be adequately controlled by following the design guidance outlined in Part 3 of this report.

8.0 Closure

Please contact the undersigned if there are any questions.

Regards,

SLR Consulting (Canada) Ltd.



Samuel Arnold, P.Eng. M.A.Sc.
Acoustics Engineer

A handwritten signature in black ink, appearing to read "Aaron K. Haniff".

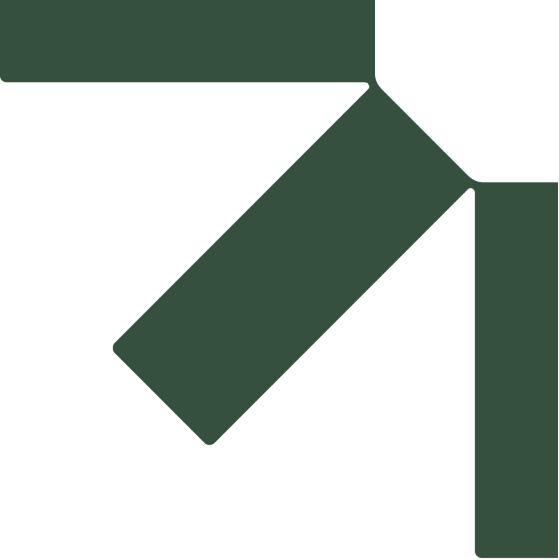
Aaron K. Haniff, P.Eng.
Principal, Acoustics Engineer



9.0 References

- Federation of Canadian Municipalities and the railway Association of Canada- *Guidelines for New Developments in Proximity to Railway Operations* (May 2013)
- International Organization for Standardization, ISO 9613-2: *Acoustics – Attenuation of Sound During Propagation Outdoors Part 2: General Method of Calculation*, Geneva, Switzerland, 1996.
- National Research Council, Building Practice Note 56: *Controlling Sound Transmission into Buildings*, Canada 1985.
- 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 & Parks (MECP 1995), Guideline D-6: *Compatibility Between Industrial Facilities and Sensitive Land Uses*
- Ontario Ministry of the Environment, Conservation and Parks, Publication NPC-300: *Environmental Noise Guideline, Stationery and Transportation Sources – Approval and Planning*, 2013.
- Ontario Ministry of the Environment, Conservation and Parks, 1996, STAMSON v5.03: Road, Rail and Rapid Transit Noise Prediction.
- Regional Municipality of Waterloo – *Noise Policy Implementation Guideline* (2019)
- United States Department of Transportation – Federal Transit Administration (FTA). 2018. *Transit Noise and Vibration Impact Assessment Manual*. FTA Report No. 0123.





Figures

Environmental Noise and Vibration Assessment Report

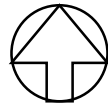
153 Union Street East

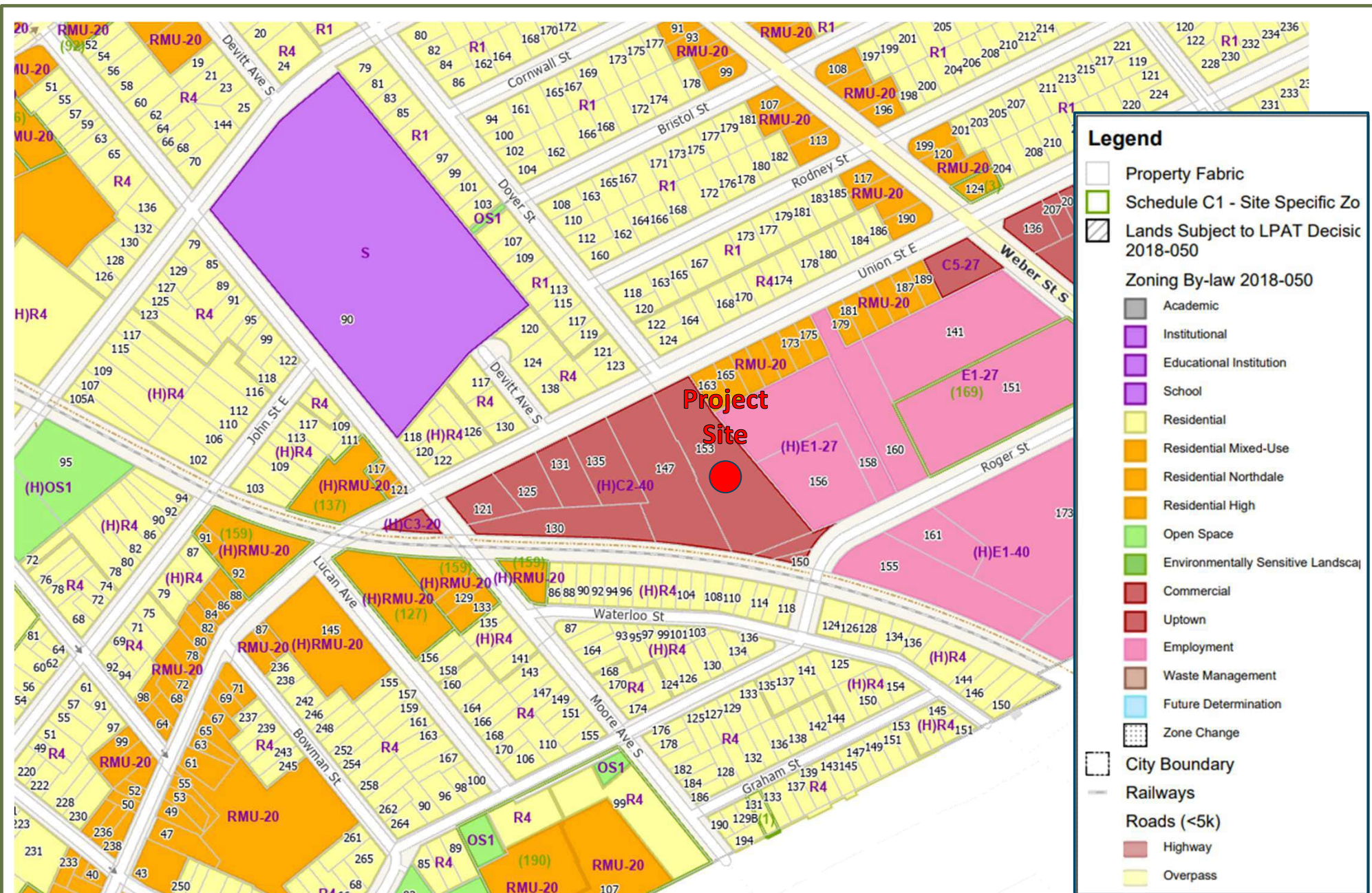
Southside Group

SLR Project No.: 241.030933.00001

January 23, 2026



SOUTH SIDE GROUP		<div>True North</div> 	Scale: 1:15,000		METRES	
153 UNION STREET WATERLOO, ONTARIO			Date: Jan. 2026	Rev 0.0	Figure No. 1	
SITE CONTEXT MAP			Project No. 241.030933.00001			



SOUTH SIDE GROUP

153 UNION STREET WATERLOO, ONTARIO

ZONING MAP BY – CITY OF WATERLOO

True North



Scale: n/a

Date: Jan. 2026 Rev 0.0

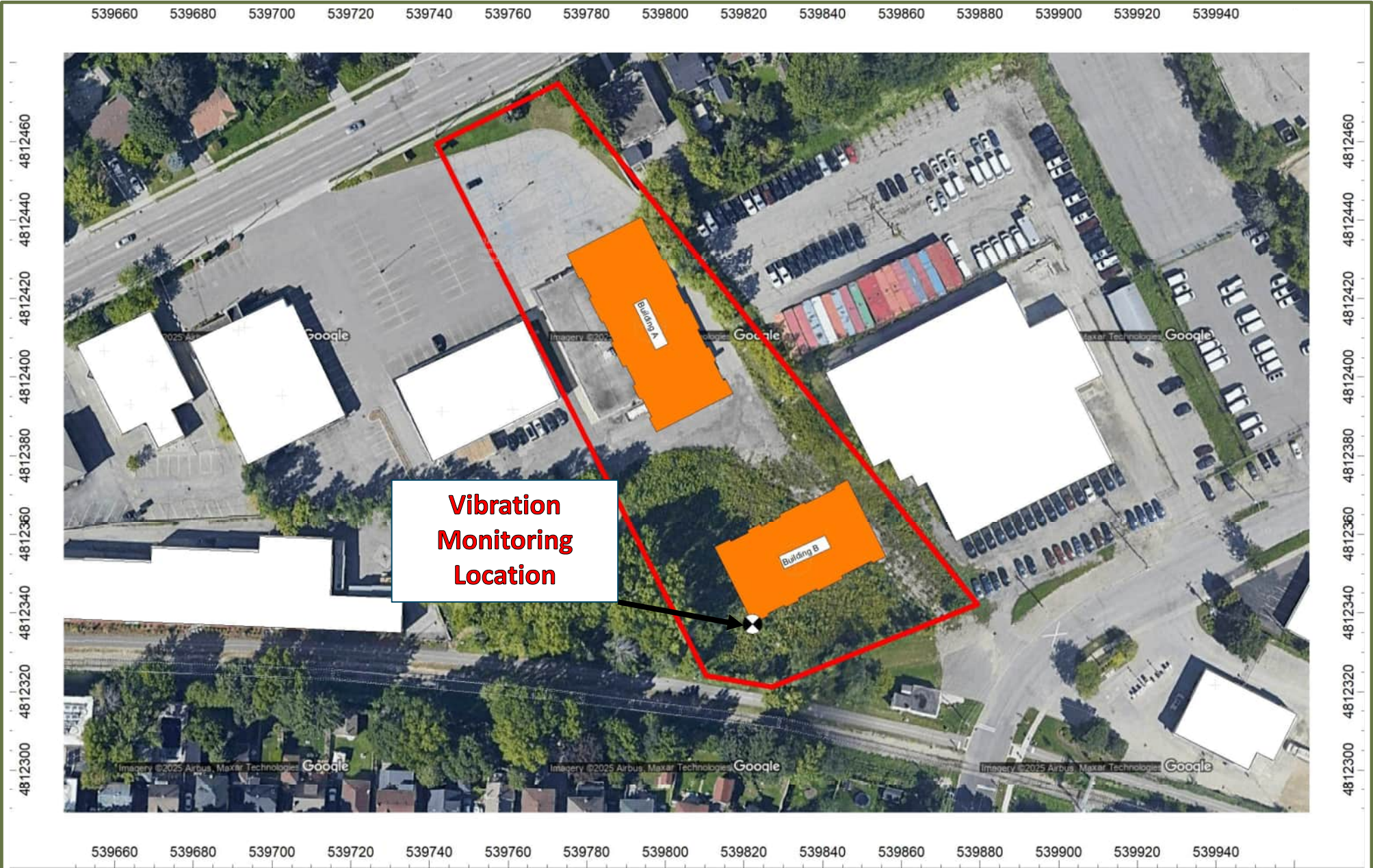
Project No. 241.030933.00001

METRES

Figure No.

2





SOUTH SIDE GROUP		True North 	Scale: n/a		METRES	
153 UNION STREET WATERLOO, ONTARIO			Date: Jan. 2026	Rev 0.0	Figure No.	
VIBRATION MONITORING LOCATION			Project No. 241.030933.00001		3	

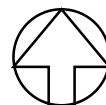


SOUTH SIDE GROUP

153 UNION STREET WATERLOO, ONTARIO

PREDICTED TOTAL TRANSPORTATION SOUND LEVELS-DAYTIME

True North



Scale:

1:1,600

METRES

Date:

Jan. 2026

Rev 1.0

Figure No.

4

Project No. 241.030933.00001



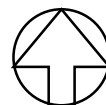


SOUTH SIDE GROUP

153 UNION STREET WATERLOO, ONTARIO

PREDICTED TOTAL TRANSPORTATION SOUND LEVELS-NIGHTTIME

True North



Scale:

1:1,600

METRES

Date:

Jan. 2026

Rev 1.0

Figure No.

5

Project No. 241.030933.00001





SOUTH SIDE GROUP

153 UNION STREET WATERLOO, ONTARIO

STATIONARY NOISE SOURCE MAP

True North



Scale:

1:1,600

METRES

Date: Jan. 2026

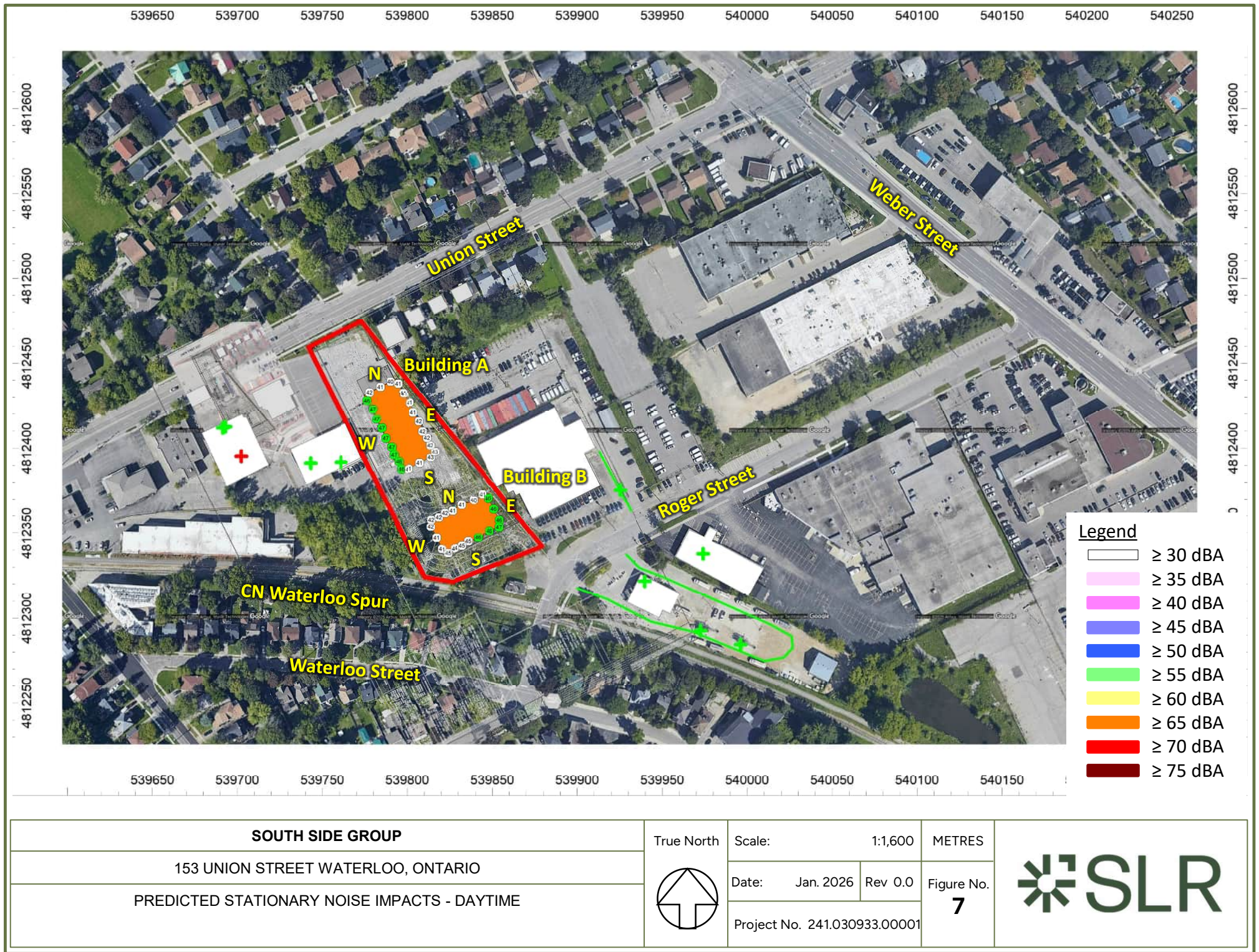
Rev 0.0

Figure No.

6

Project No. 241.030933.00001







SOUTH SIDE GROUP

153 UNION STREET WATERLOO, ONTARIO

PREDICTED STATIONARY NOISE IMPACTS - NIGHTTIME

True North



Scale: 1:1,600 METRES

Date: Jan. 2026 Rev 0.0 Figure No.

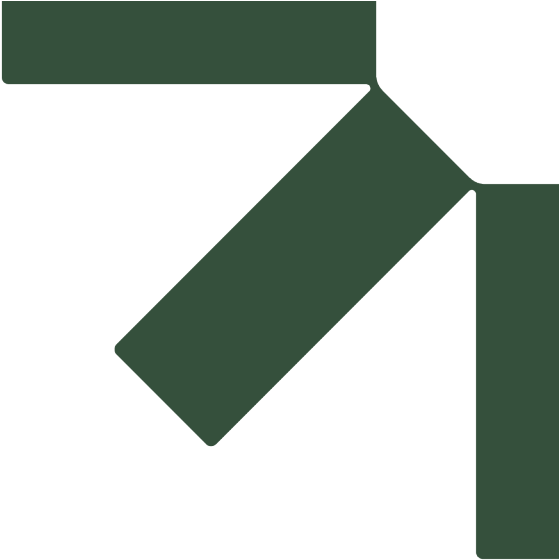
Project No. 241.030933.00001

8





SOUTH SIDE GROUP		<div>True North</div> <div></div>	Scale: 1:1,000		METRES	<div></div>
153 UNION STREET WATERLOO, ONTARIO			Date: Jan. 2026	Rev 1.0	Figure No. C.1	
CADNA/A VS STAMSON VALIDATION			Project No. 241.030933.00001			



Appendix A Site Plan – 153 Union Street

Environmental Noise and Vibration Assessment Report

153 Union Street East

Southside Group

SLR Project No.: 241.030933.00001

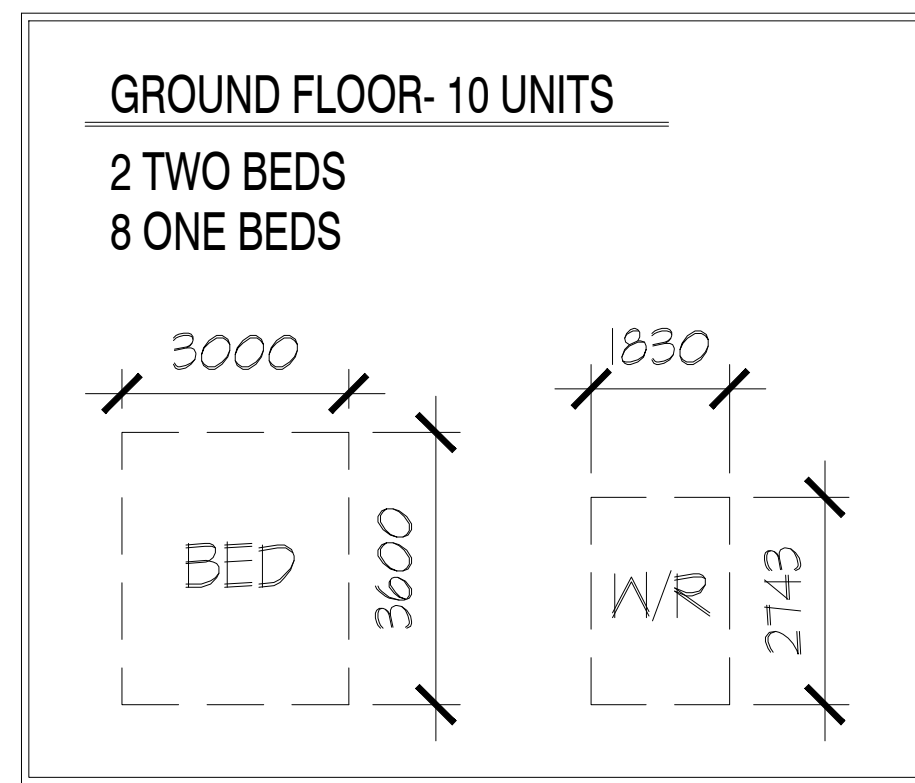
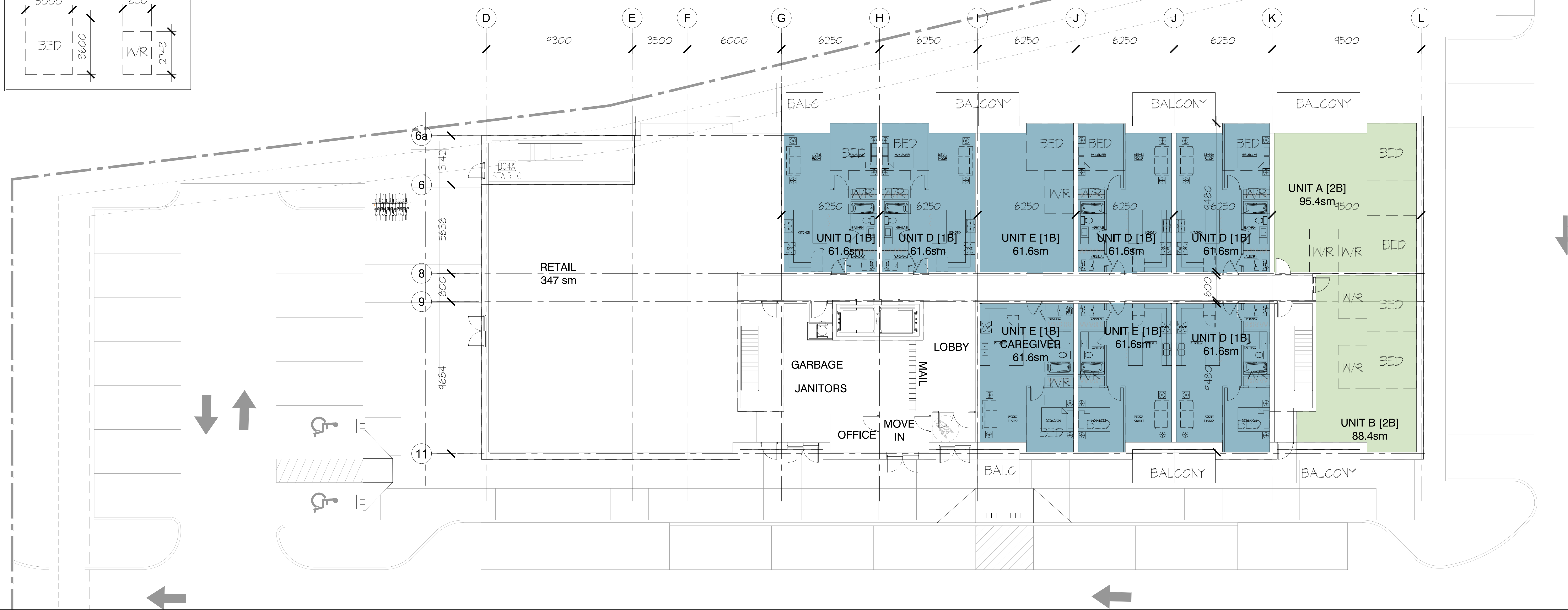
January 23, 2026

A201

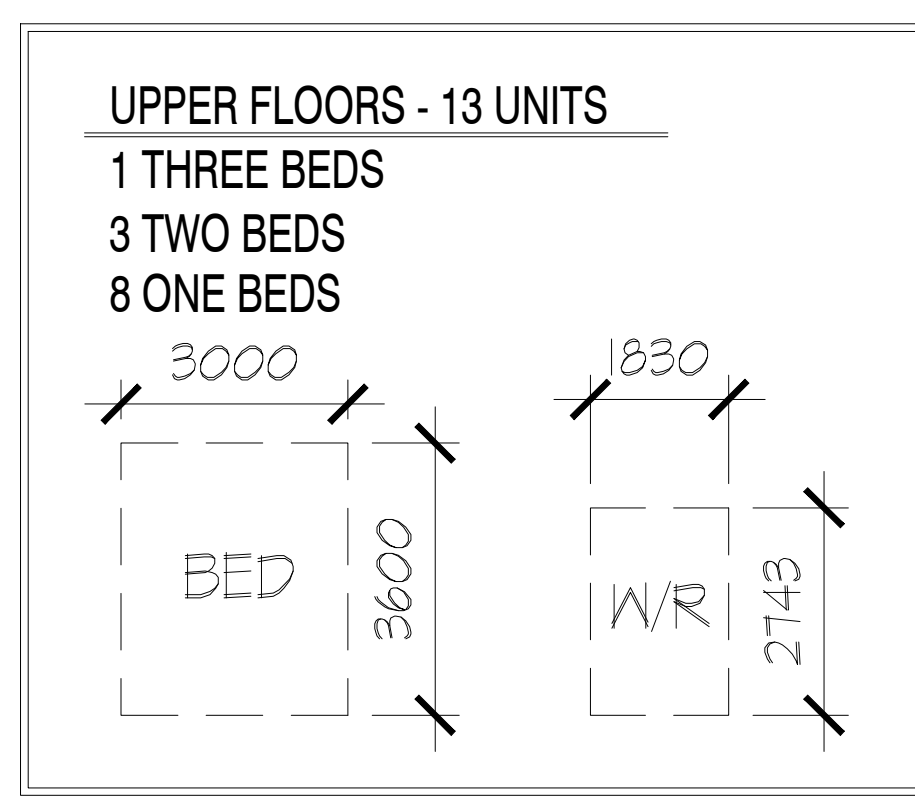
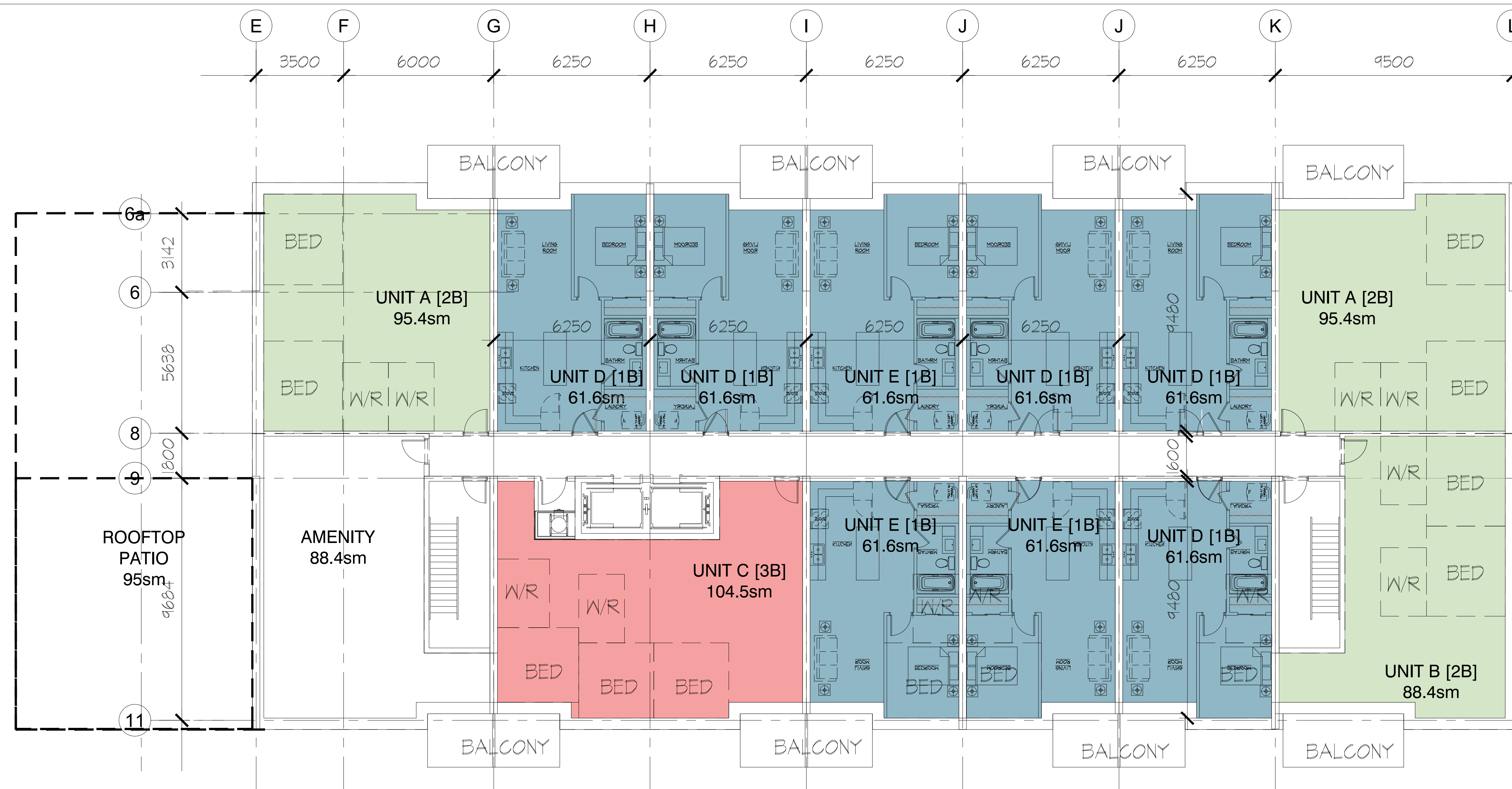


**SOUTHSIDE
GROUP**

All survey information, existing & proposed measurements are to be confirmed on site by the contractor. The contractor shall immediately notify the architect of all inaccuracies, errors or omissions in this, or other documents, or in their relation to whole or in part. Do not proceed where there is any discrepancy. This drawing is an instrument of service & remains the property of the author firm. This drawing & the designs incorporated in it are the property of the author firm.

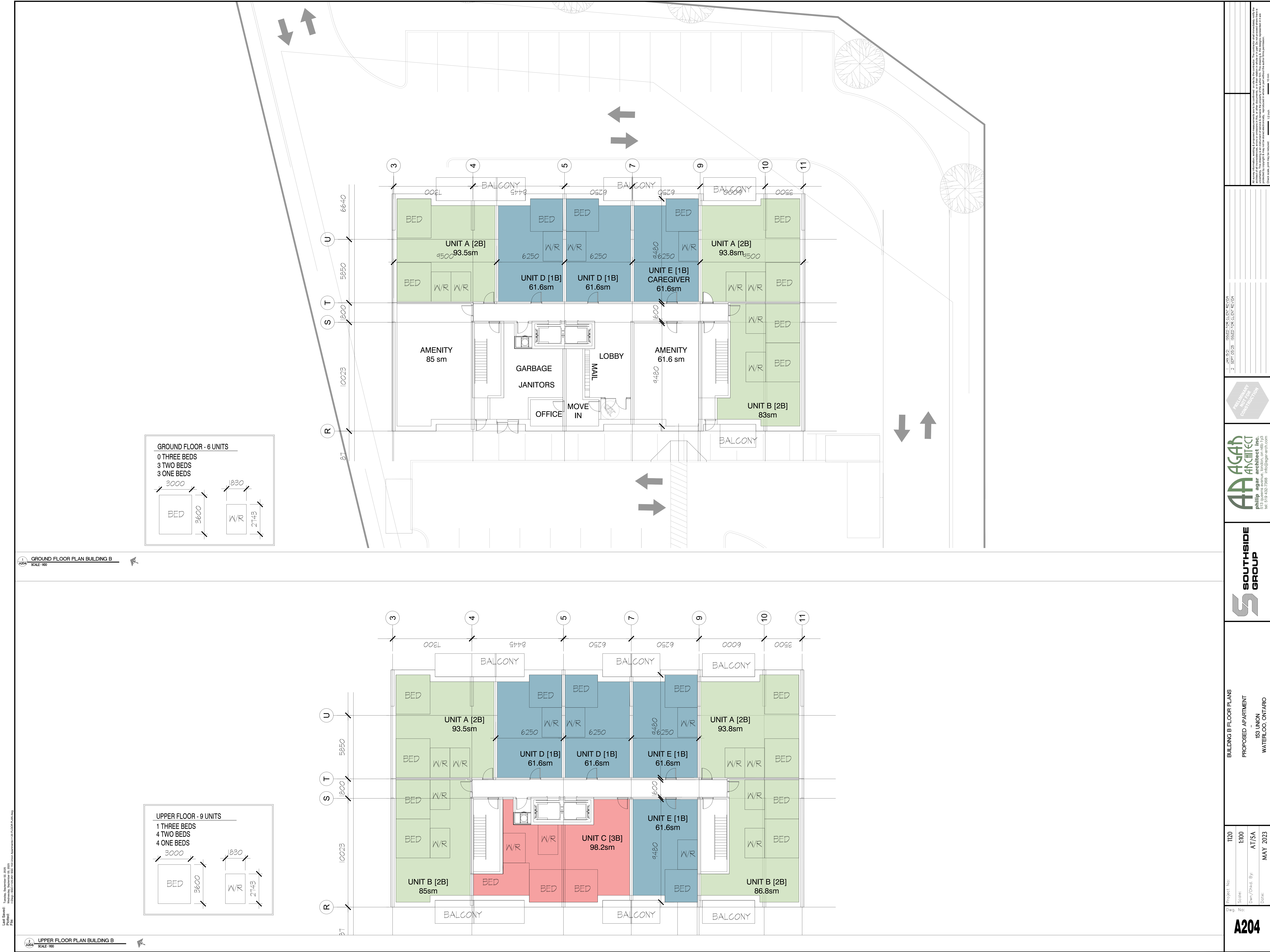


GROUND FLOOR PLAN BUILDING A
SCALE: 1/80



UPPER FLOOR PLAN BUILDING A
SCALE: 1/80

<p>Project No: 1120 Scale: 1/80 Drawn/Checked By: AT/SA Date: MAY 2023</p>		<p>SOUTHSIDE GROUP</p>	<p>AA AGAR architect inc. philip agar architect inc. 585 Queen Avenue, London, ON N6B 1Y3 416-593-8888, 1-800-465-5555</p>	<p>PRELIMINARY NO CONSTRUCTION</p>	<p>1. JAN 2023 ISSUED FOR CLIENT REVIEW 2. SEPT 2023 ISSUED FOR CLIENT REVIEW</p>		<p>1. 1/8" = 1'-0"</p>
<p>BUILDING A FLOOR PLANS PROPOSED APARTMENT 153 UNION WATERLOO, ONTARIO</p>					<p>1. 1/8" = 1'-0"</p>		



GROUND FLOOR - 6 UNITS
0 THREE BEDS
3 TWO BEDS
3 ONE BEDS

BED 3000 3600
W/R 1830 2143

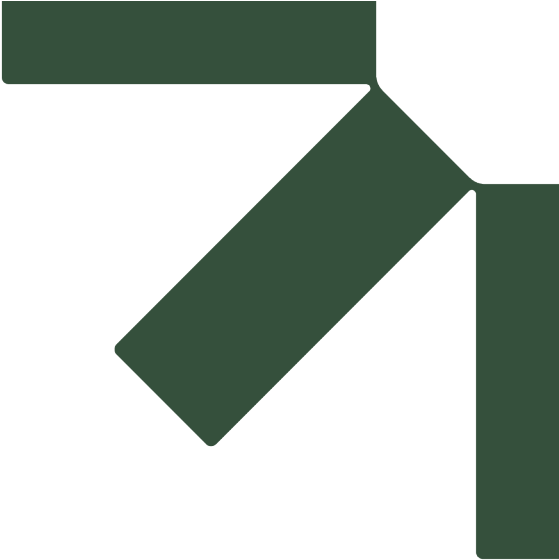
UPPER FLOOR - 9 UNITS
1 THREE BEDS
4 TWO BEDS
4 ONE BEDS

BED 3000 3600
W/R 1830 2143

1 GROUND FLOOR PLAN BUILDING B
SCALE: 1/80

2 UPPER FLOOR PLAN BUILDING B
SCALE: 1/80

Project No: 1120		Scale: 1/80		Date: MAY 2023	
Dwg. No: A204		Drawn/Checked By: AT/SA		Project Name: 153 UNION WATERLOO, ONTARIO	
BUILDING B FLOOR PLANS PROPOSED APARTMENT					
SOUTHSIDE GROUP					
AA AGAR architect inc. philip agar architect inc. 505 Queen Street West, Toronto, ON M5G 1H3 TEL: 416-593-8888 FAX: 416-593-8889					
PRELIMINARY CONSTRUCTION					
1. JAN 2023 ISSUED FOR CLIENT REVIEW 2. SEPT 2023 ISSUED FOR CLIENT REVIEW					
This drawing is the property of the Architect and is to be used only for the project and location specified. It is not to be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or by any information storage and retrieval system, without the prior written permission of the Architect. The Architect assumes no responsibility for the accuracy or completeness of the information provided in this drawing. The Architect is not responsible for the accuracy or completeness of the information provided by others. The Architect is not responsible for the accuracy or completeness of the information provided by others. The Architect is not responsible for the accuracy or completeness of the information provided by others.					



Appendix B Road Traffic Data

Environmental Noise and Vibration Assessment Report

153 Union Street East

Southside Group

SLR Project No.: 241.030933.00001

January 23, 2026

Samuel Arnold

From: Haydn Kocznur <Haydn.Kocznur@waterloo.ca>
Sent: Wednesday, November 26, 2025 2:44 PM
To: Samuel Arnold
Cc: Jenny Renaud
Subject: RE: 153 Union Street Waterloo Noise Study - 241.030933
Attachments: MOORE AVE S @ ROGER ST.xlsx; UNION ST E @ MOORE AVE S.xlsx

Good afternoon Samuel,

Attached is the TMC AADTs and below is the road segment AADTs we have on file.

UNION ST E btwn MOORE AVE S & DEVITT AVE S

- 2025 AADT: 10507
- 2023 AADT: 10009

UNION ST E btwn DOVER ST & WEBER ST S

- 2023 AADT: 10632

WATERLOO ST btwn MOORE AVE S & ROGER ST

- 2023 Nov: 515
- 2023 April: 500
- 2022 Oct: 464
- 2022 Sept: 493
- 2022 May: 507

Regards,



Haydn Kocznur, C. Tech

Traffic Operations Technician, Transportation Engineering Section

Integrated Planning and Public Works

City of Waterloo

265 Lexington Court

PO Box 337, Station Waterloo

Waterloo, ON N2J 4A8

P: 1.519.886.2310 ext. 30293

E: haydn.kocznur@waterloo.ca

W: www.waterloo.ca

From: Samuel Arnold <samuel.arnold@slrconsulting.com>

Sent: November 26, 2025 2:04 PM

To: Jenny Renaud <Jenny.Renaud@waterloo.ca>

Cc: Haydn Kocznur <Haydn.Kocznur@waterloo.ca>

Subject: [EXTERNAL] 153 Union Street Waterloo Noise Study - 241.030933

CAUTION:

This email originated from outside the organization. Do not click links or open attachments unless you recognise the sender and know the content is safe.

Hi Jenny,

We've been retained to complete a noise and vibration study for a proposed development at 153 Union St E. in Waterloo.

I've submitted a traffic request to the Region but as the adjacent roads are not regional roads, I believe this may fall under your jurisdiction. Could you please confirm and provide AADT traffic data for the following roads:

- Union St. E. between Moore Avenue S and Weber St. S
- Rogers St. between Moore Ave. S. and Weber St. S
- Waterloo St. between More Ave. S. and Guelph St.

Thanks,
Sam

Samuel Arnold P.Eng
Acoustics Engineer - Acoustics & Vibration

O 613-725-1777
M 613-277-9285
E samuel.arnold@slrconsulting.com

SLR Consulting (Canada) Ltd.
2301 St. Laurent, Ste. 400, Ottawa, ON, Canada K1G 4J7

**Confidentiality Notice and Disclaimer**

This communication and any attachment(s) contain information which is confidential and may also be legally privileged. It is intended for the exclusive use of the recipient(s) to whom it is addressed. If you have received this communication in error, please e-mail us by return e-mail and then delete the e-mail from your system together with any copies of it. Any views or opinions are solely those of the author and do not represent those of SLR International Corporation, or any of its subsidiaries, unless specifically stated.

SLR is committed to the responsible and ethical use of relevant technologies including artificial intelligence (AI). If you have any questions or concerns, please contact us directly.

Email attachments - Haryn Kocznur 11/26/25 - TMC AADTs

Date	Major AADT	Minor AADT	North Approach	South Approach	East Approach	West Approach	Source Type
Union Street East @ Moore Avenue South							
4/30/2019	13449	4318	4398	3873	13220	14042	Count
Moore Ave South at Roger Street							
4/22/2025	2115	931	2298	2115	733	946	Count

O R N A M E N T - Sound Power Emissions & Source Heights

Ontario Road Noise Analysis Method for Environment and Transportation

Road Segment ID	Roadway Name	Link Description	Speed (kph)	Period (h)	Percentage of Daily Traffic	Total Traffic Volumes	Period Traffic Volumes	Auto %	Med %	Hvy %	Auto	Med	Heavy	Road Gradient (%)	PWL (dBA)	Source Height, s (m)
Daytime																
Union_Avg	Union Street East between Moore ave. S. and Weber St. S	Daytime Impacts	50	16	90%	12947	11652	98.0%	1.0%	1.0%	11419	117	117	0	78.2	1.0
Waterloo_Avg	Waterloo St. Between Moore Ave. S. and Roger St.	Daytime Impacts	40	16	90%	693	624	94.0%	3.0%	3.0%	586	19	19	0	66.3	1.3
Roger_Avg	Roger St. Between Waterloo St. and Weber St. S.	Daytime Impacts	40	16	90%	2016	1815	93.0%	3.0%	4.0%	1688	54	73	0	71.8	1.4
Dover St.	Dover St. Final AADT	Daytime Impacts	40	16	90%	1592	1433	97.0%	2.0%	1.0%	1390	29	14	0	67.3	1.0
Moore Ave. S	Moore Ave. Final AADT	Daytime Impacts	40	16	90%	2653	2388	97.0%	2.0%	1.0%	2316	48	24	0	69.5	1.0
Nighttime																
Union_Avg	Union Street East between Moore ave. S. and Weber St. S	Nighttime Impacts	50	8	10%	12947	1295	98.0%	1.0%	1.0%	1269	13	13	0	71.7	1.0
Waterloo_Avg	Waterloo St. Between Moore Ave. S. and Roger St.	Nighttime Impacts	40	8	10%	693	69	94.0%	3.0%	3.0%	65	2	2	0	59.8	1.3
Roger_Avg	Roger St. Between Waterloo St. and Weber St. S.	Nighttime Impacts	40	8	10%	2016	202	93.0%	3.0%	4.0%	188	6	8	0	65.3	1.4
Dover St.	Dover St. Final AADT	Nighttime Impacts	40	8	10%	1592	159	94.0%	3.0%	3.0%	150	5	5	0	63.4	1.3
Moore Ave. S	Moore Ave. Final AADT	Nighttime Impacts	40	8	10%	2653	265	97.0%	2.0%	1.0%	257	5	3	0	63.0	1.0



THE WCR PRESS

VOLUNTEER & STAFF EDITION



Issue No. 5 - Wednesday, May 6, 2020

FIFTH EDITION

This is our Fifth Edition of the WCR Press. We have continued planning for when our trains begin to operate again by developing a plan to ensure our passengers and visitors feel safe travelling with us.

Through the WCR Press we hope to stay in touch with our volunteers, neighbours and partners during the temporary shut down and showcase the initiatives being undertaken that are required to keep the WCR operating in a safe fashion. We enjoy providing a history of our heritage operating rail collection as well as other railway operations that have served the area over the years.

We would be remiss if we did not thank those who have been so helpful to us during this unprecedented time by providing information and answers to our questions and concerns. They themselves are either in shutdown and working from home, on lay-off or with reduced staff but have continued to be there for us. Among them have been the Waterloo Region Tourism Marketing Corporation, The Greater KW Chamber of Commerce, the Village of St. Jacobs BIA, the Township of Woolwich, the City of Waterloo, Regional Municipality of Waterloo, MP Tim Louis, MPP Mike Harris and Transport Canada.



No. 9 takes its train south between Elmira and St. Jacobs in August of 2019.

Photo by Greg McDonnell

Although primarily a volunteer not-for-profit organization, we are also a provincially licensed shortline railway operating with oversight provided by Transport Canada – that never stops. We are also a small business facing the same challenges as every other small business trying to maintain a payroll, meeting on-going expenses – all while attempting to determine whether we will be able to operate or not with little or no revenue. Just like everyone else.

If you have questions that we can address in future issues, please do not hesitate to get in touch.

Air Horn Tribute, Thank You to Our Frontline Workers – *Beverly Brenneman*

On Monday April 27, Waterloo Central Railway joined the Canadian Pacific Railway, Canadian National Railway, and other railways associated with the Railway Association of Canada (RAC) in an international movement to recognize the extraordinary service of hospital and healthcare workers. We honoured them with an air horn tribute in hopes of letting them know that their incredible commitment is appreciated by everyone. We launched the initiative on April 24 and to our excitement Kitchener Today, 570News and CTV all helped us spread the word.

On Monday, April 27 at 7:00PM, we took our heritage diesel locomotives No. 1001 and No. 6593 just north of town to the Conestogo River bridge and sounded one long whistle from both locomotives simultaneously. It was exciting to hear the community join in on the tribute, there was a small group of people standing by the tracks banging their pots and pans and we even received reports that noise could be heard all the way down in Kitchener near Victoria Street!

CTV even came out and covered the story, which ran on the 11:30PM news, and again the next day. You can see our video of the tribute on our Facebook page and the CTV news story at the links below.

Thank you again to everyone who joined in, and an even bigger thank you to any healthcare and essential workers that may be reading this. Your continuous, selfless efforts are what is keeping us safe and our essential needs met during this complicated time.

Facebook Video: <https://www.facebook.com/WaterlooCentralRailway/videos/1145496782496971/>

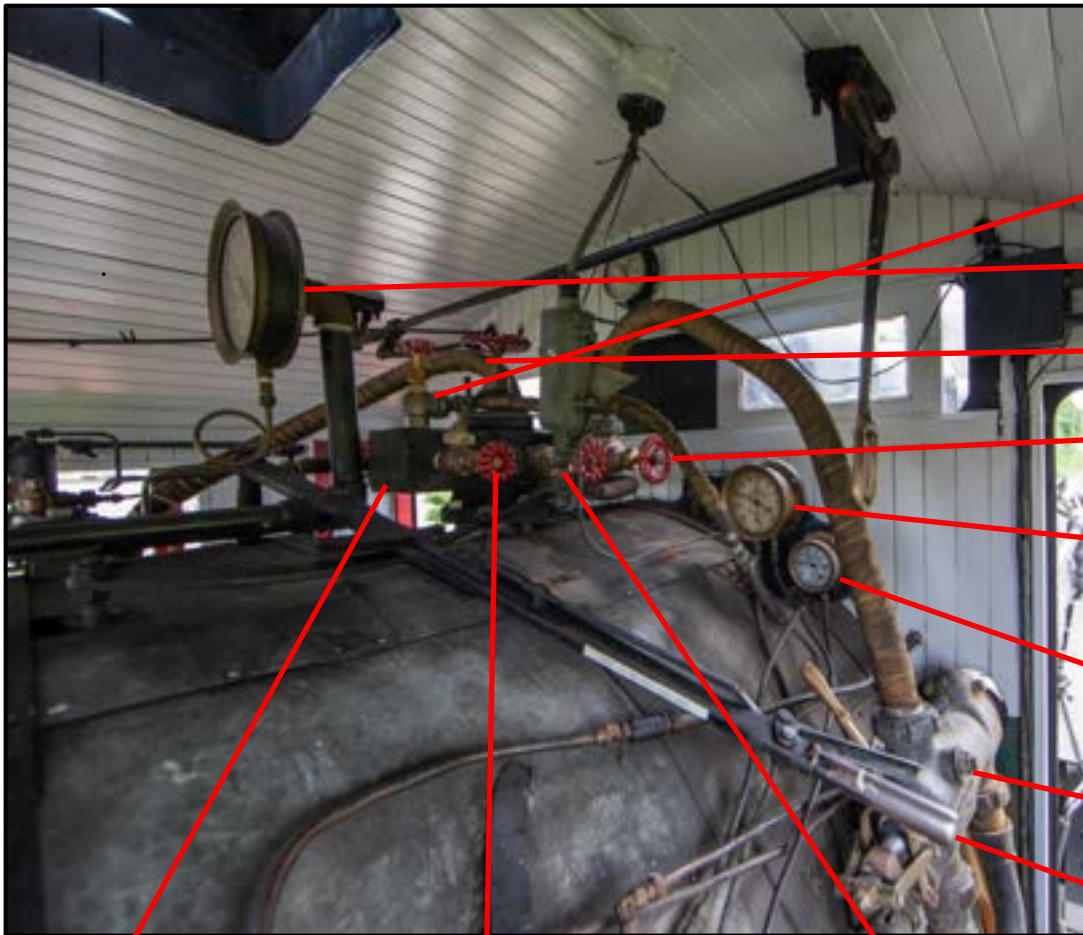
CTV News: <https://kitchener.ctvnews.ca/video?clipId=1947852>



Photo by Beverly Brenneman

Steam Locomotive No. 9 Cab Controls – Dave Banks

In this article I thought you might find it interesting to see what all the various valves and levers do in the cab of steam locomotive No. 9. These are all on the locomotive Engineer's side of the cab and what the Engineer will use to operate the locomotive.



Steam dyno

Pressure gauge

Main steam shut off

Injector steam valve

Main reservoir air
& train pipe

Independent brake
air gauge

Injector – puts
water into boiler

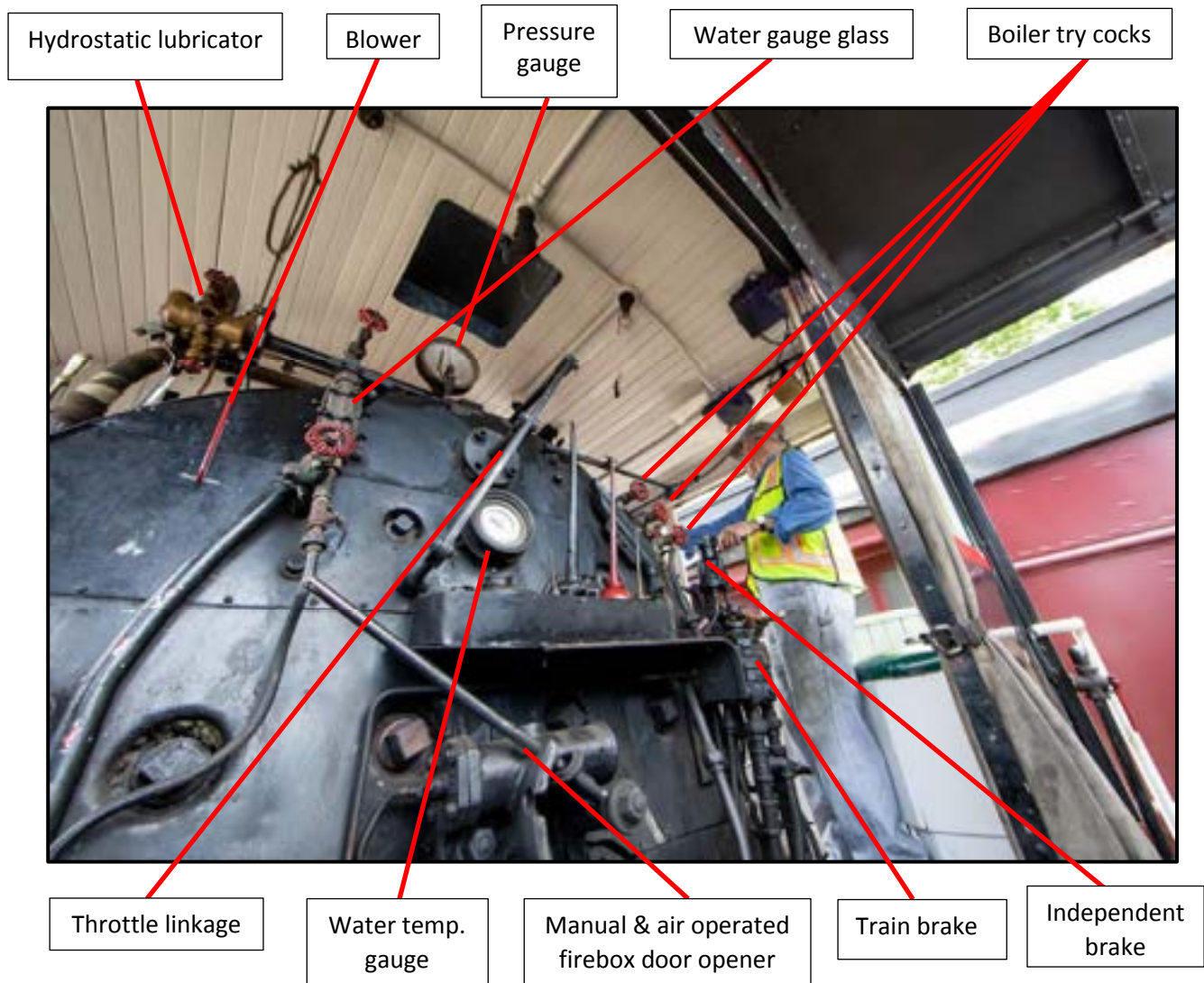
Throttle

Turret

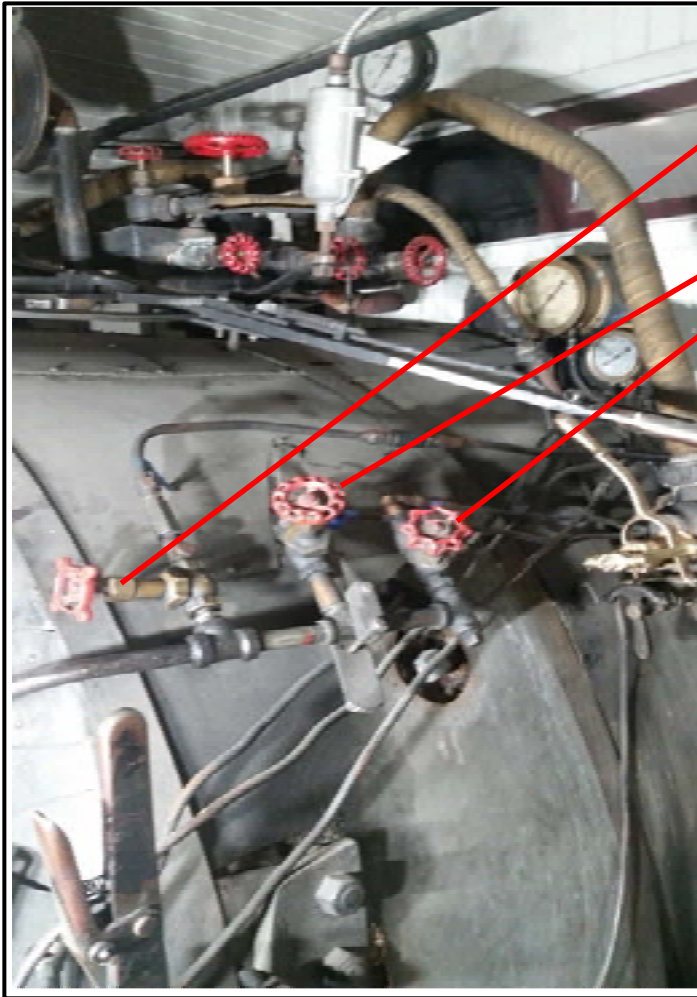
Mechanical lubricator
heater

Air compressor

- The steam dyno.
- The pressure gauge indicates the boiler pressure.
- The main shutoff valve closes all steam coming into the turret.
- The injector valve provides steam to the injector to put water into the boiler.
- The 2 gauges show air for the brakes in the main reservoir, train pipe and independent brake.
- The injector puts water into the boiler.
- The throttle provides steam to the cylinders to power the locomotive and control speed.
- The air compressor valve provides steam to the air compressor.
- The steam valve for the mechanical lubricator has a steam heater under the lubricator to heat the lubricant in the winter.
- The Turret is the main steam distribution block providing steam to all the other valves.



- Here we see the hydrostatic lubricator that provides lubricant to the air compressor.
- The operating lever for the blower, when the loco is stationary the blower ring is in the smokebox around the blast pipe, when opened it provides a draft to pull the gases through the boiler tubes.
- The water gauge glass shows the level of water in the boiler.
- The boiler try are another way to determine the water level in the boiler, and act as a backup if the gauge glass was inoperable.
- The independent brake provides brakes to locomotive and tender only.
- The train brake provides brakes to the locomotive, tender and all the rolling stock attached to the locomotive.
- The firebox can be opened manually or by an air operated cylinder controlled by a foot pedal allowing the fireman to put coal into the firebox.
- The water temperature indicates the boiler water temperature.
- The throttle linkage links the throttle handle to the actual throttle in the dome of the locomotive allowing steam to travel to the cylinders.



Bell

Sander valves

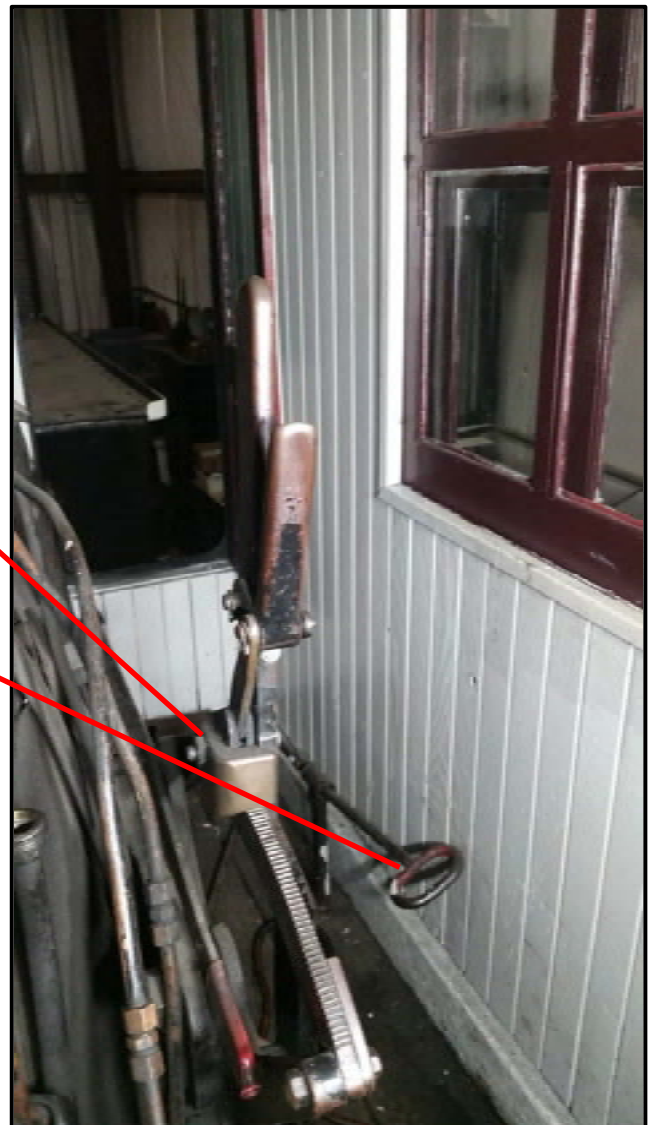
- The sanders provide sand to the main drivers when needed to provide traction in slippery conditions.
- The bell valve provides air to the operating cylinder on the bell.

Reversing quadrant

Cylinder cocks
operating control

- The reverser moves the valve gear into position to provide forward or reverse motion.
- The cylinders cocks are opened before the locomotive is moved to let out any condensation in the cylinders.

In the next article we will look at how we use all these controls to get the locomotive to move.



Partner Spotlight

Nick & Natalie Benninger, Owners and Co-founders of Fat Sparrow Group – Beverly Brenneman

Nick and Natalie Benninger are co-founders and owners of [Fat Sparrow Group](#) which is the parent company for several eateries in Waterloo Region. They have been wonderful partners for several events operated by the Waterloo Central Railway offering their unique local culinary flavours to our passengers.

They have also shown tremendous adaptability in responding to current events surrounding COVID19 by taking their businesses online and still providing our community with access to their amazing menu items.

Fat Sparrow has grown from a mom-and-pop shop that started 12 years ago, into an incredible hospitality network in our region. Some of their businesses include The Stone Crock, Jacob's Grill, Uptown 21, Taco Farm, Marbles Restaurant, stalls at the St. Jacobs Farmers' Market, Stone Crock Bakery Meats and Cheese, a commercial salad division, event space, and catering.



Nick and Natalie have partnered with us on several past events. In the summer of 2019, they provided the tapas for our Wine Pairing & Tapa On The Train to compliment each of the four wines chosen by the Sommelier, the Winey Somm on board.



You may be wondering where the name “Fat Sparrow” that has become so well known in this area comes from. Nick says it comes from Edna Staebler’s book *Food That Really Schmacks*. It’s a nod to the culinary history and traditions found in Waterloo Region. Fat sparrow is a translation of the phrase “fetschpatze” which is a little ball of dough fried in lard.





As fall approached, they where front and centre providing a delectable menu of local cider, wine, beer, and gin cocktails paired with local foods for our special dinner train aptly named Local Motives.

Looking ahead to the spring of 2021, they will be providing a traditional Santa Fe French toast breakfast on our Sugar Bush Breakfast train and tour of a local sugar bush and shack during our maple syrup season.

Recent events with COVID19 and social distancing provided a new challenge for Nick and Natalie. However, with their creative and adaptable business sense, they quickly made

their products available through the launch of their online [Marketplace](#). This platform combines the best of all they have to offer and is sure to satisfy every food lover's needs. You can now order items from their butcher shop, bakery, Stone Crock country salads, and even a selection from Taco Farm online. They also have pantry staples from local producers, prepared meals, [gift cards](#), and even special Mother's Day Brunch Family Meal Packages. Customers can order online and obtain their items with contactless curbside pickup.

We look forward to once again partnering with Nick and Nat on future projects and supporting our local partners. Be sure to visit their online [Marketplace](#) and support this dynamic local business in our community.

CN Operations on the Waterloo Spur – *Matthew Schilling*

As most of you know, the WCR shares the tracks of the Waterloo Spur with CN, which operates overnight freight service to Commonwealth Plywood in Waterloo, Fairway Lumber in St. Jacobs along with Sulco and Lanxess in Elmira. The WCR's operating agreement with the Region gives us operating rights from 0600 to 2200 hours each day with **CN operating between 2200 to 0600** hours daily. Normally CN will provide service Monday through Thursday nights but on occasion if warranted will go north on other evenings.



Unlike the WCR, CN must traverse the ION Light Rail Transit Territory (Joint Section) between Uptown Waterloo at Caroline and Erb Streets to Northfield Drive in the north end of the city. Freight trains are permitted only during the very late evening when ION service is limited, and overnight when ION services are stopped.

The Region of Waterloo first proposed Light Rail Transit in 2003, with the idea of connecting downtown Kitchener with Uptown Waterloo and a northern terminus at the St. Jacobs Farmers Market. In the final design, the northern terminus was established at Conestoga Mall. The final alignment was to run along the Waterloo Spur from King St. in downtown Waterloo to Northfield Drive, allowing for faster trip times, along the private right of way. After years of getting public support and government grants, the LRT was finally approved by regional councillors on June 15, 2011. Construction commenced on August 21, 2014, beginning with the LRT Maintenance Facility in Waterloo.





Freight operations continued throughout the construction period with only one week of shutdown to build all new trackage on the portion of the Waterloo Spur to be used by ION trains. By the end of 2016, the construction was mostly complete. After extensive testing ION opened for regular service on June 21, 2019.

Construction of the ION required the WCR to relocate its southern terminus from Uptown Waterloo to St. Jacobs. With the move, WCR expanded service to four stations commencing with Northfield Drive in Waterloo directly across from the ION Station, the St. Jacobs Farmers Market, the Village of St. Jacobs and the Town of Elmira.

We are fortunate that our Waterloo Station is directly across the street from the ION station and this will provide the first time in 80 years you can take a railed passenger vehicle from the City of Kitchener and Waterloo to Elmira.

For anyone getting off the ION at Northfield Drive in Waterloo and wanting to travel further to the Farmers Market, we provide a train trip with us at no charge to travel directly to and from the Farmers Market from the ION Northfield Drive station.

That brings us to today. With the ION operating between 0500 and 0100 hours daily, CN must squeeze through a narrow 2300- and 0400-hours operating window. The CN crew is called for 2100 hours at the Lancaster St. yard in Kitchener.



After putting together the paperwork for the overnight shift, the crew spends the next hour or two switching the yard and preparing their train for the run to Elmira. As they switch, the last GO train of the evening comes sailing through the Lancaster Street grade crossing, stopping at the Kitchener station. Then heading back east to park at the GO Transit Layover and Maintenance Facility in east Kitchener.



CN L566 with leased powers at Ahrens St. in Kitchener after leaving the Guelph Sub and heading north along the Spur Line Trail in February 2020. Photos by Jason Noe.

After the final VIA train of the night passes, the CN crew gets a yellow signal to proceed west, stopping short of the Waterloo Spur switch off the siding on the Guelph Sub. They must manually line the switch for the branch line and reset it for the mainline once they are clear.

They continue through the residential area of Kitchener and into Waterloo, over many small crossings, while most people are fast asleep. Approaching Roger Street in Waterloo they go through the High-Wide Detector which determines if the height and width of the train is safe and meets the clearance requirements to travel over the joint section. This information is transmitted to the ION KEOLIS Central Control Facility (CCF) in Waterloo.

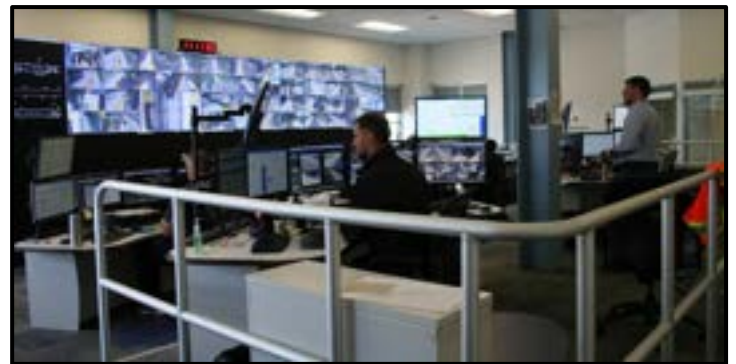


High-Wide Detector at Roger St.



A KEOLIS/Railterm worker updates the crew of CN L566 about the red signal that is delaying their journey north through Waterloo and to Elmira. March 12, 2020. Photo by Jason Noe

They then come to a red signal and an automatic derail just south of Willow Street in Waterloo. They must come to a stop until clearance is given by the ION CCF shown below.



The derail will not only prevent unauthorized trains from entering the IOLN system but will also trigger to prevent trains that the High-Wide Detector has determined are either too high or wide to safely travel over the ION Joint Section. If CN is lucky, this clearance is given as they arrive at the signal around 2330 hours. A similar signal and automatic derail configuration is located at the north end of the Joint Section just north of Northfield Drive to provide the same safeguards for trains approaching the ION system from that direction. Another High-Wide Detector is also located at Randal Drive in Waterloo for southbound trains.



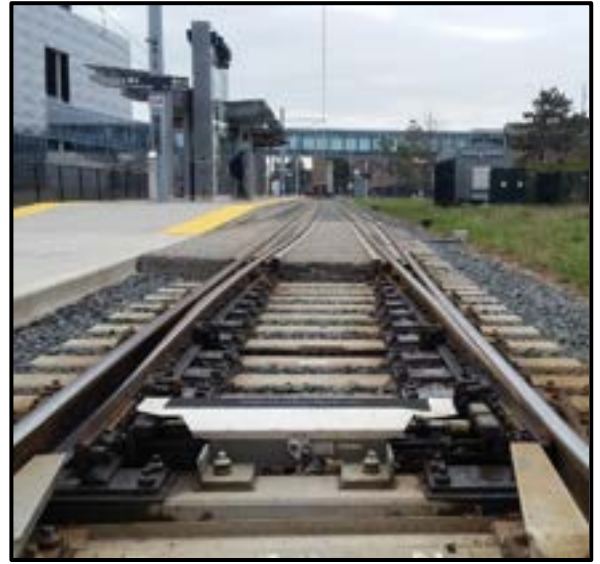
As the CCF pushes a button, the derails at both ends of the ION Joint Section clear, and 10 switches move simultaneously to allow the freight train through.

These switches include the gauntlet tracks at each of the ION stations along the Waterloo Spur. These gauntlet tracks route the freight train an extra foot away from the ION platform to avoid the possibility of heavy rail equipment from scraping and damaging the station platforms. Heavy rail equipment has different clearances than ION equipment.

The gauntlet tracks are only on the west track of the ION system in the Joint Section as that is the only one of the 2 ION tracks that are designed to support the travel of heavy rail equipment.

Willow Street Signal and Power Derail

CN then moves through uptown Waterloo and continues north. After the train clears all the public grade crossings, it powers up to track speed to get through the LRT area with the least disturbance possible to the system. As the last car of the freight passes by the WCR Northfield Station, the power derail flips back on.



These show how the gauntlet tracks shift the trains away from the station platforms through switches at each end of the station. The photo on the left shows the assembly under construction while the photo on the right shows the completed assembly.

CN then proceeds to service the Waterloo Spur, switching out the various customers with an expected arrival back at Northfield Dr. by 0400 hours. It takes several hours for them to finish their work switching out the customers primarily in Elmira and make up their train for the trip back to Kitchener.

If they miss this window, they are not permitted to enter the Joint Section as the ION system is commencing the days operations requiring them to “Tie Up” their train for the day. This requires the crew to secure the train for the day and take a cab back to the CN Yard in Kitchener. The train will stay there until that night at 2300 hours when they are permitted back on the Joint Section as the ION is winding down for the day. This happens usually north of Randall Drive in Waterloo or in Elmira by Lanxess.



*CN L566 tied up in Elmira during the winter of 2020.
Photo by Mark Paterson*



*CN L566 returning to Kitchener in the early morning hours
approaching Randall Drive in the winter of 2020.
Photo by Jason Noe*

The CN crew will return to their tied-up train and enter the Spur at approximately 2300 hours and head south to Kitchener with the prior days train. They will not return north to Elmira until the following day. When this occurs, it will mean that they lose a day's service to Elmira.

WCR History – Remembrance Days of the Past

In the early days of the Waterloo Central Railway in Uptown Waterloo we were privileged to take part in a very small way with the Remembrance Day Ceremonies at the Waterloo City Hall Cenotaph. Over several years we were able to move our passenger train on Remembrance Day morning over to the tracks adjacent to the Cenotaph providing a place for any veteran who might wish to take part in the ceremony to do so sitting in a warm passenger coach away from those usually cold and damp November mornings.



We are all familiar with the uncertainty of weather in early November and along with shelter and warmth, it provided an elevated position to watch and hear the ceremony. As time goes on it can become more difficult for our older veterans to take part in this solemn day recognizing not only their service to our country but those many before who served and made the supreme sacrifice.



The last year we were able to do this was prior to the opening of the ION system. With the commencement of ION service, it is not safe to operate a heavy rail train while the ION is operating. We have very fond memories of this past part of our operation as shown in these photos.

Over the years we had amazing cooperation from the City of Waterloo, the Region of Waterloo, KEOLIS, ION operations and Paul Puncher Men's Wear in making this happen.



Volunteer Updates

Our Volunteers are the backbone of the organization and without whom we could not operate. Each Edition will provide a few photos of our valued volunteers as an introduction.



Irvon Weber
Conductor & Locomotive Engineer
Steam Team Leader
Director – SOLRS Board



Russ (Buddy) Deacon
Conducator & Locomotive Engineer
Assistant Manager of Training



Dave Banks
Conductor & Locomotive Engineer
Assistant Steam Team Leader
Manager of Training
Vice-President – SOLRS Board

Our Christmas Store – Anna Schnarr

From the greasy depths of a train restoration facility, a workable retail store was born.

We ordered the walls and had them installed by Hahn Rentals of Waterloo. The tables, shelving, tablecloths and decorations came from existing resources. With the help of volunteers - Grant S., Brian R., Stephen E., June & Victor M., Norm & Donna G., Russ D., John V., Maria, Shane, Jocelyn & Ephraim, Robert C. and Gerry S. (I apologise to those I missed!), we were able to construct a very eye pleasing store in the middle of an operating railway shop. Donna Gelanis, with her extensive knowledge of setting up a retail store, saved me when I thought I was "done." The point of sale hardware to run the store was set up and installed by Russ D., John V. and Matt S. June M. did a great job decorating the store with a Polar Event Christmas theme.

An extensive array of Polar Express licensed stock lined the shelves. The most popular items Polar Bears, Conductor Hats, Pocket Watches, Light Up Spinning Discs, Light Up Swords & Polar Express Mugs - flew off the shelves.

If all goes well and we recover from the COVID19 Pandemic in time for this season, 2020 will see our shelves stocked with new and interesting items in addition to the popular items listed above. Bev B. was a huge help in choosing items for this year. She also hopes to add more items specific to for our Santa Train patrons as well.

Many thanks to our temporary staff - Leslie S., Lori R., Sue O., Kim G., Marion B., Alicia S., Terri & Chris R., Jaime F., Karen R. & daughter, Lovejee J., Laureen G., Dragana K. and Abby M. for helping stock shelves in the store and scan tickets. My niece, Cheri O. provided the names of many of these people. Again, I apologise if I missed anyone. Many thanks to the staff and the Board of Directors for making 2019 a successful year and for having faith in my abilities to run the store. We are fortunate to have an amazing team!



On The Spur



On a dreary fall day in November of 1977, a sight not often seen on the Waterloo Spur, CN freight service F units. Extra 9179 East heads off the Guelph Sub mainline and goes north to St. Jacobs and Elmira. The two CN F units shown here are 9178 and 9179. Of interest is what can be seen in the background, the now gone Waterloo Park trail beside the tracks, industrial smokestacks in the background and a different U of W profile. Not to mention travelling on the old Waterloo Spur replaced by the ION double tracks.

Local Railway Retrospective



On a crisp winter day in the early 1970's, CN Extra 4593 East with GP9 4580 is about to cross the then grade crossing at Weber Street at the CNR Kitchener Station. Both GP9's were regulars out of Stratford.



On a summer evening in the early 1970's, CNR Train No. 649 from Toronto is at the Kitchener Station on its way to Sarnia. Tonight 649 is lead by No. 6110 which was the original Budd Company demonstrator unit.



Remembering February of 1971 when CNR – GTW cross border passenger train The Maple Leaf, No. 159 from Toronto to Chicago on its daily 0950 hours stop at the CNR station in Kitchener. This cold winter day reminds us that passenger trains were heated by steam heat by way of steam generators on diesel powered trains. These 2 photos show a red board on the train order semaphore for 159, the old baggage cart on the platform and a classic old Dodge truck for Overland Express.



In the early 1970's, CNR Train No. 151 from Toronto to Sarnia lead by CN FPA-4 No. 6763, accelerates west out of the Kitchener Station crossing the old grade crossing at Weber Street.



In the summer of 1971, the CPR (Grand River Railway) day job street runs down Victoria Street which ends at Duke Street. They are switching out Kaufman Footwear.

In each edition we plan on showcasing photographs of local railway activity from previous generations primarily on the Waterloo Spur during its original days with CN but also the main line where it connects with the Guelph Sub. Also included will be the Grand River Railway in Waterloo where Father David Bauer Drive is now along with their operations in Kitchener. If you have any photographs from this era you would like to share, please send them along.

COVID-19 Operational Update

We continue to monitor the Emergency Directives issued by the Province of Ontario and will remain temporarily closed until at least mid-May or as otherwise directed by the Province of Ontario and/or the Provincial and Regional Health Unit. It is in mid-May the Province will review the Emergency Directive, but they have said schools will remain closed until the end of May. It is reasonable to assume that regardless of the final determination regarding the Emergency Directive we will not be operating during the month of May in its entirety.

We are working on a plan for not only a Safe Seating Plan but also new and improved cleaning protocols during each train trip as well as before the next train day. We completely support all efforts to flatten the curve and anything that leads to a safer society for all of us.

On behalf of the Board of Directors of SOLRS and the WCR Management Team we hope you and your family's are safe and healthy during this time of uncertainty and thank you for your continuing interest. We look forward to the time when this is a memory and we are all doing again what we love and enjoy.

This issue compiled by Greg McDonnell, Dave Banks, Beverley Brenneman, Matthew Schilling, Anna Schnarr and Peter McGough with special assistance from Jason Noe and Mark Paterson.

Southern Ontario Locomotive Restoration Society

- President – Norm Etheridge
- Vice-President – Dave Banks
- Secretary – John Vieth
- Director – Aaron Schnarr
- Director – Irvon Weber
- Director – Chris Corrigan

Waterloo Central Railway

- General Manager – Peter McGough
- Assistant General Manager – Greg McDonnell
- Marketing & Communications Manager – Beverly Brenneman
- Shop Foreman, Scheduling & Volunteer Coordinator – Matthew Schilling
- Steam Team Manager – Irvon Weber
- Assistant Steam Team Manager – Dave Banks
- Manager of Safety Systems – Kim Martin
- Manager of Training – Dave Banks
- Assistant Manager of Training – Russ Deacon
- Ticketing & Customer Service – Anna Schnarr
- Accounts Payable & Bookkeeping – Claudia Dauria
- Systems Analysis – Ebu Siren
- Honourary Chief Mechanical Officer – Norm Gelinas
- Honourary Master Painter – Grant Scheifele
- Honourary Master Carpenter – Brian Ray



OUR ORGANIZATION

The Waterloo Central Railway is owned and operated by the Southern Ontario Locomotive Restoration Society; a non-profit charitable organization made up of largely volunteers dedicated to the preservation, restoration, and operation of vintage & historic railway equipment. The Waterloo Central Railway is a licensed shortline railway under Shortline Railway Act of Ontario.



Train Count Data

TRANSMITTAL

To: SLR Consulting
Destinataire : (Canada) Ltd.
150 Research Lane
Suite 105 Guelph ON
N1G 4T2

Project : Guelph-62.45(4.0)- Old Albert Street, ON

Att'n: Nghi Nguyen

Routing: nnguyen@slrconsulting.com

From: Michael Vallins
Expéditeur :

Date: 2020/02/12

Cc: Adjacent Development
CN via e-mail

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

**Re: Train Traffic Data – CN Guelph Subdivision- 509 Old Albert St in
Waterloo, ON**

name changed to 535 Quiet Place, same lot

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 905-669-3264.

Sincerely,
CN Design & Construction

Michael Vallins P.Eng
Manager of Public Works
permits.gld@cn.ca

Date: 2019/02/11

Project Number: Guelph-62.45(4.0)- 509 Old Albert Street, ON

Dear Victor:

Re: Train Traffic Data – CN Guelph Subdivision near 509 Old Albert Street, Waterloo, ON

The following is provided in response to Nghi's 2020/01/31 request for information regarding rail traffic in the vicinity of Old Albert Street in Waterloo at approximately Mile 62.45 (4.0) on CN's Guelph Subdivision- Waterloo Industrial Spur.

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	0	140	15	4
Way Freight	0	25	15	4
Passenger	0	10	15	2

	2300-0700			
Type of Train	Volumes	Max.Consist	Max. Speed	Max. Power
Freight	3	140	15	4
Way Freight	0	25	15	4
Passenger	0	10	15	2

The volumes recorded reflect westbound and eastbound freight and passenger operations on CN's Guelph Subdivision- Waterloo Industrial Spur.

Except where anti-whistling bylaws are in effect, engine-warning whistles and bells are normally sounded at all at-grade crossings. There are two (2) at-grade crossing in the immediate vicinity of the study area at Mile 62.45(3.90) Bearinger Rd Xing and Mile 62.45(4.0) Quiet Place Xing. Anti-whistling bylaws are not in effect at both crossings. 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 263,000 lbs.

The Double Industrial spur track is considered to be continuously welded rail throughout the study area. The presence of two (2) switches located at Mile 62.45(4.26),

and Mile 62.45(4.27) may exacerbate the noise and vibration caused by train movements. Typically, CN crews operate within these limits from Monday to Friday between 2300 and 0500 hrs.

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,

A handwritten signature in blue ink, appearing to read 'Michael Vallins', with a long horizontal flourish extending to the right.

Michael Vallins P.Eng
Manager of Public Works
permits.gld@cn.ca

Region of Waterloo AADT Forecast for Noise Studies

1. Development/Location 153 Union St E, Waterloo

Union St E	Dover St	Moore Ave S	Roger St
11,000	1,100	2,300	1,700

2. Current AADT (2025)

Union St E	Dover St	Moore Ave S	Roger St
12,200	1,500	2,500	1,900

3. Forecast AADT (2035)

Union St E	Dover St	Moore Ave S	Roger St
% Medium Trucks 1%	2%	2%	3%
% Heavy Trucks 1%	1%	1%	4%

4. Commercial Vehicle Rates

5. Posted Speed Limit

Union St E	Dover St	Moore Ave S	Roger St
50km/h	30 km/h	40 km/h	30 km/h

6. Day/Night Splits

Regional Standard 90/10 Day/Night Split

7. Expiry

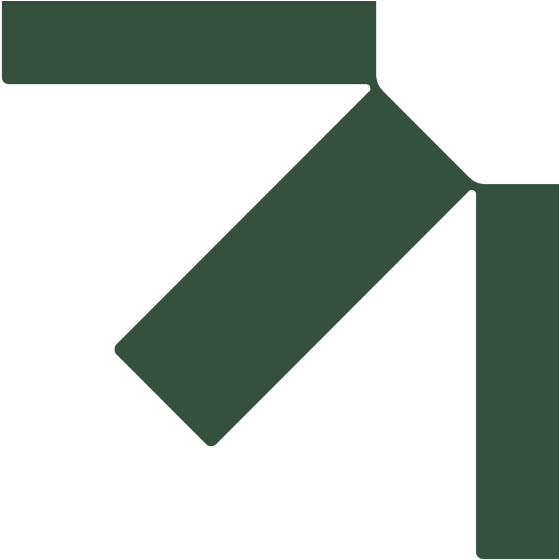
Dec 31 2027

8. Notes

This forecast is intended for the purpose of carrying out a noise study for the development at 153 Union St E, Waterloo only.

The above AADTs represents the traffic volumes of Union St E to the northwest of the property, Dover St to the northwest of the property, Moore Ave S to the southwest of the property, and Roger St to the southeast of the property. As these roads are under the jurisdiction of City of Waterloo, City of Waterloo should be contacted to verify the forecast.

This forecast remains valid up to the date indicated above. The Region of Waterloo should be contacted for an updated forecast if there are plans to use this forecast beyond the above validity period.



Appendix C STAMSON Validation

Environmental Noise and Vibration Assessment Report

153 Union Street East

Southside Group

SLR Project No.: 241.030933.00001

January 23, 2026



STAMSON 5.0 NORMAL REPORT Date: 14-01-2026 11:21:48
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 153union.te Time Period: Day/Night 16/8 hours
Description:

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

Car traffic volume : 11419/1269 veh/TimePeriod
Medium truck volume : 117/13 veh/TimePeriod
Heavy truck volume : 117/13 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: Union St (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 53.00 / 53.00 m
Receiver height : 4.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

↑

Results segment # 1: Union St (day)

Source height = 1.00 m

ROAD (0.00 + 57.69 + 0.00) = 57.69 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	63.17	0.00	-5.48	0.00	0.00	0.00	0.00	57.69

Segment Leq : 57.69 dBA

Total Leq All Segments: 57.69 dBA

↑

Results segment # 1: Union St (night)

Source height = 1.00 m

ROAD (0.00 + 51.16 + 0.00) = 51.16 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	56.64	0.00	-5.48	0.00	0.00	0.00	0.00	51.16

Segment Leq : 51.16 dBA

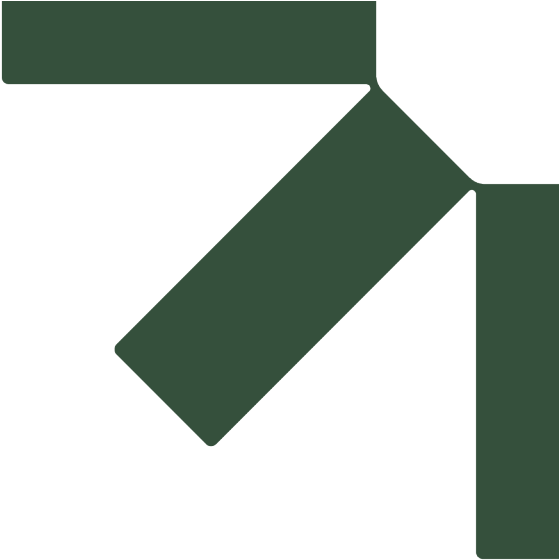
Total Leq All Segments: 51.16 dBA

↑

TOTAL Leq FROM ALL SOURCES (DAY): 57.69
(NIGHT): 51.16

↑

↑



Appendix D Noise Warning Clauses

Environmental Noise and Vibration Assessment Report

153 Union Street East

Southside Group

SLR Project No.: 241.030933.00001

January 23, 2026

Summary of Mitigation Measures and Warning Clauses

Warning Clauses

Warning Clauses may be used individually or in combination. The following 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:

Transportation Sources (Road and Rail)

MECP Type A Warning Clause

"Purchasers/tenants are advised that sound levels due to increasing road traffic 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 C Warning Clause

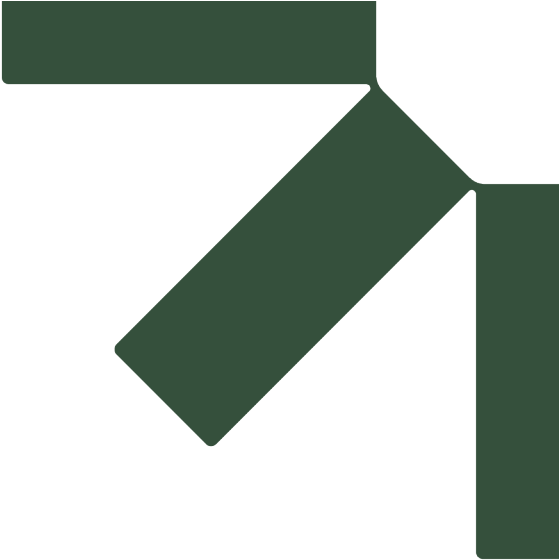
"This dwelling unit has been designed with the provision for adding central air conditioning at the occupant's discretion. Installation of central air conditioning by the occupant in low and medium density developments will allow windows and exterior doors to remain closed, thereby ensuring that the indoor sound levels are within the sound level limits of the Municipality and the Ministry of the Environment."

MECP Type D Warning Clause

"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."

Canadian National Railways Warning Clause

"Purchasers are advised that the Canadian National Railway Company (CNR) 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."



Appendix E Stationary Source Summary

Environmental Noise and Vibration Assessment Report

153 Union Street East

Southside Group

SLR Project No.: 241.030933.00001

January 23, 2026

STATIONARY SOURCE MODELLING DATA

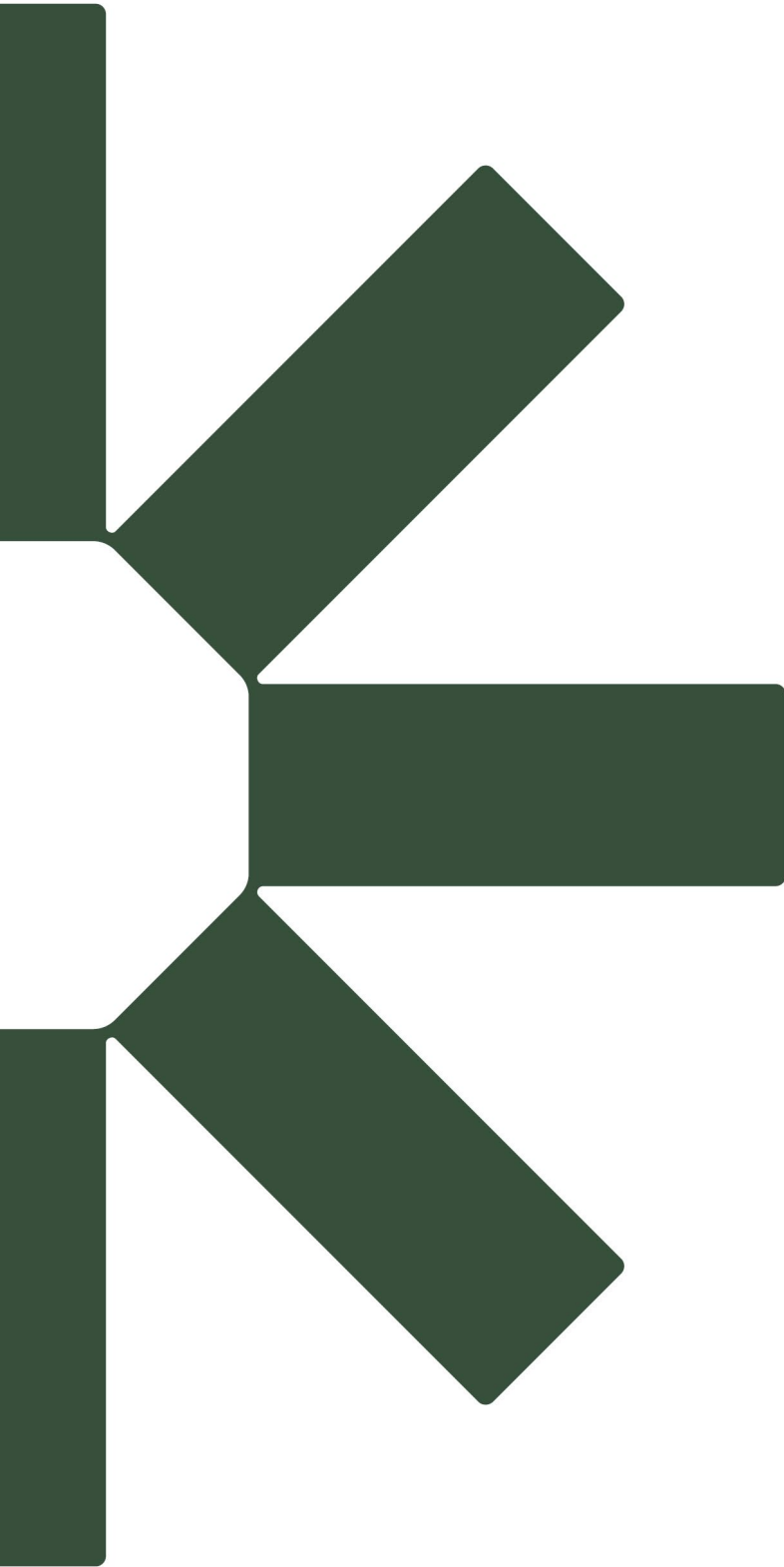
STATIONARY SOURCE MODELLING DATA											
Source Description	Maximum Sound Power Level (1/1 Octave Bands)									Modelled Sound Power Level (dBA)	Source Notes
	31.5	63	125	250	500	1000	2000	4000	8000		
Aura Dentistry at 131 Union Street East											
5x Rooftop 5-ton HVAC Units	77	80	81	81	80	78	74	70	64	83	Based on historical SLR data - Operates 60 minutes per hour during daytime/evening hours - Operates 15 minutes per hour during night-time (outside facility operating hours, unoccupied)
Alternative and Continuing Education Building at 151 Weber Street South											
3x Rooftop 5-ton HVAC Units	77	80	81	81	80	78	74	70	64	83	Based on historical SLR data - Operates 60 minutes per hour during daytime/evening hours - Operates 15 minutes per hour during night-time (outside facility operating hours, unoccupied)
7x Rooftop 10-ton HVAC Unit	80	83	84	84	83	81	77	73	67	86	Based on historical SLR data - Operates 60 minutes per hour during daytime/evening hours - Operates 15 minutes per hour during night-time (outside facility operating hours, unoccupied)
Commercial Medical Building at 139 Union Street East											
2x Rooftop 5-ton HVAC Units	77	80	81	81	80	78	74	70	64	83	Based on historical SLR data - Operates 60 minutes per hour during daytime/evening hours - Operates 15 minutes per hour during night-time (outside facility operating hours)
Commercial Medical building at 135 Union Street East											
2x Rooftop 5-ton HVAC Units	77	80	81	81	80	78	74	70	64	83	Based on historical SLR data - Operates 60 minutes per hour during daytime/evening hours - Operates 30 minutes per hour during night-time hours
1x Rooftop 10-ton HVAC Unit	80	83	84	84	83	81	77	73	67	86	Based on historical SLR data - Operates 60 minutes per hour during daytime/evening/night-time hours
EarlyON at 161 Roger Street East											
1x Rooftop 10-ton HVAC Units	80	83	84	84	83	81	77	73	67	86	Based on historical SLR data - Operates 60 minutes per hour during daytime/evening hours - Operates 15 minutes per hour during night-time (outside facility operating hours, unoccupied offices)
Forbes Motors Chevrolet Buick GMC at 165 Weber Street South											
10x Rooftop 5-ton HVAC Units	77	80	81	81	80	78	74	70	64	83	Based on historical SLR data - Operates 60 minutes per hour during daytime hour (typical testing schedule)
3x Rooftop 10-ton HVAC Unit	80	83	84	84	83	81	77	73	67	86	Based on historical SLR data - Operates 60 minutes per hour during daytime hours (facility operating period)
Forbes Motorsport at 156 Roger Street											
1 x Idling Heavy Truck	19	93	88	83	90	87	88	82	71	93	Based on historical SLR data - Operates 60 minutes per hour during daytime hour (typical testing schedule)
Up to 1 Truck Pass by	98	101	101	97	96	96	92	84	78	100	Based on historical SLR data - Operates 60 minutes per hour during daytime hours (facility operating period)



STATIONARY SOURCE MODELLING DATA

Source Description	Maximum Sound Power Level (1/1 Octave Bands)									Modelled Sound Power Level (dBA)	Source Notes
	31.5	63	125	250	500	1000	2000	4000	8000		
Public Storage at 409 Weber Street West											
7x Rooftop 5-ton HVAC Units	77	80	81	81	80	78	74	70	64	83	Based on historical SLR data - Operates 60 minutes per hour during daytime hour (typical testing schedule)
7x Rooftop 10-ton HVAC Unit	80	83	84	84	83	81	77	73	67	86	Based on historical SLR data - Operates 60 minutes per hour during daytime hours (facility operating period)
1x Rooftop 10-ton HVAC Unit	80	83	84	84	83	81	77	73	67	86	Based on historical SLR data - Operates 60 minutes per hour during daytime hours (facility operating period)
Petro-Pass Truck Stop at 155 Roger Street											
1x Rooftop 10-ton HVAC Unit	80	83	84	84	83	81	77	73	67	86	Based on historical SLR data - Operates 60 minutes per hour during daytime hour (typical testing schedule)
Up to 2 Truck Pass by	98	101	101	97	96	96	92	84	78	100	Based on historical SLR data - Operates 60 minutes per hour during daytime hours (facility operating period)
Ontario Health at Home at 141 Weber Street South											
15x Rooftop 5-ton HVAC Units	77	80	81	81	80	78	74	70	64	83	Based on historical SLR data - Operates 60 minutes per hour during daytime hour (typical testing schedule)
7x Rooftop 10-ton HVAC Unit	80	83	84	84	83	81	77	73	67	86	Based on historical SLR data - Operates 60 minutes per hour during daytime hours (facility operating period)
Otto Motors at 173 Roger Street											
8x Rooftop 5-ton HVAC Units	77	80	81	81	80	78	74	70	64	83	Based on historical SLR data - Operates 60 minutes per hour during daytime hour (typical testing schedule)
2x Rooftop 10-ton HVAC Unit	80	83	84	84	83	81	77	73	67	86	Based on historical SLR data - Operates 60 minutes per hour during daytime hours (facility operating period)
3x Rooftop 10-ton HVAC Unit	80	83	84	84	83	81	77	73	67	86	Based on historical SLR data - Operates 60 minutes per hour during daytime hours (facility operating period)





Making Sustainability Happen