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ENVIRONMENTAL NOISE ASSESSMENT REPORT

**24605 SAXTON ROAD
STRATHROY, ONTARIO**

PROPOSED RESIDENTIAL DEVELOPMENT

2102603 ONTARIO INC.

OCTOBER 2024

SBM-17-0068

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October 9, 2024
SBM-17-0068

Attn: Tom Melanson

**Re: Environmental Noise Assessment Report
24605 Saxton Road
Strathroy, Ontario**

1 INTRODUCTION

This Noise Assessment Report (Report) has been prepared by Strik, Baldinelli, Moniz Ltd (SBM) to consider long-term traffic growth for the proposed residential development of 24605 Saxton Road in Strathroy, Ontario.

This site is located on the west side of Saxton Road, approximately 210m south of Carroll Street East, as shown in Figure 1 – Location Plan. The 3.14 ha subject site is bordered by Saxton Road Right-of-Way (ROW) to the east, existing residential lands to the south, commercial lands to the north, and vacant commercial lands to the west. It is our understanding that the proposed development is to include two (2) 8-storey apartment buildings with 92 residential units each, and 36 back-to-back townhouse units (220 units total).

This Report will serve the following purposes:

- To summarize the applicable noise criteria and guidelines from the Ministry of the Environment, Conservation, and Parks (MECP) for residential developments;
- To determine future noise levels and how they will affect the future residents using the MECP (formerly Ontario Ministry of the Environment) noise model, ORNAMENT, by utilizing the STAMSON V5.03 computer software;
- Recommend noise control measures (if applicable) to meet the MECP requirements prescribed in the publication *Environmental Noise Guideline NPC-300* (Ministry of the Environment, August 2013);
- Outline general methodology for providing acceptable noise levels for the proposed development.

2 NOISE STUDY CRITERIA

The MECP has compiled guidelines in regards to noise levels (NPC-300) which are used for land use planning and noise estimation. These guidelines, in regards to transportation noise sources, have been further classified with respect to indoor and outdoor locations and day and night time conditions.

2.1 DAYTIME OUTDOOR SOUND LEVEL LIMIT

Table 1: Sound Level Limit for Outdoor Living Areas Road and Rail

Time Period	L_{eq} (16hrs) (dBA)
16-hour (0700 – 2300)	55

As per NPC-300, this One-Hour Equivalent Sound Level (L_{eq}) limit applies to the entire daytime period. The Outdoor Living Area (OLA) should be assessed at a rear yard, patio/terrace, or amenity area. When the L_{eq} at the OLA is equal to 55 dBA or less, no noise control measurement are required per NPC-300 “C3.2.2 Daytime Outdoor Sound Level Limit.” If the L_{eq} at the OLA is greater than 55 dBA and less than or equal to 60 dBA, the purchasers or tenants should be provided a warning clause so that they may be made aware to the potential noise level issues. If the L_{eq} at the OLA is greater than 60 dBA, a warning clause is required and physical control measures must be implemented. It is noted that balconies and elevated terraces that are less than 4 metres in depth are not considered an OLA.

2.2 DAY AND NIGHT TIME INDOOR SOUND LEVEL LIMIT

Table 2: Indoor Sound Level Limits Road and Rail

Type of Space	Time Period	L_{eq} (dBA) - Road	L_{eq} (dBA) - Rail
Living/dining, den areas of residences, hospitals, nursing homes, schools, daycare centres, etc.	Day Time 16-hours (0700 – 2300)	45	40
Living/dining, den areas of residences, hospitals, nursing homes, etc. (except schools or daycare centres)	Day Time 8-hours (2300 – 0700)	45	40
Sleeping quarters	Day Time 16-hours (0700 – 2300)	45	40
Sleeping quarters	Night Time 8-hours (2300 – 0700)	40	35

The L_{eq} for maximum indoor road noise level is measured at the plane of the window (POW) of a living room or bedroom. These noise values are the maximum levels and are applied to the indoor spaces with windows and doors closed. Examples of noise mitigation for excessive indoor living areas include noise barriers, building envelope measures (i.e. windows, exterior walls, doors, insulation, drywall, etc.) with sound isolation performance upgrades and/or central air conditioning, site planning, and architectural design. When the indoor sound level is equal to 45 dBA or less between the hours of 0700 to 2300, no noise control measures are required. When the indoor sound level is equal to 40 dBA or less between the hours of 2300 to 0700, no noise control measures are required. If the noise levels are exceeded up to a

maximum of 10 dBA, the residence must be designed with the allowance for a central air conditioning system. This is traditionally done by installing heating ducts sized to properly convey a central air conditioning system. A warning clause must also be provided to inform prospective purchasers and tenants of potential road noise levels. When maximum noise levels exceed allowable values in excess of 10 dBA, central air conditioning system installation is mandatory as are noise isolation building components and a warning clause to future purchasers and tenants.

3 CALCULATIONS AND ANALYSIS

Following the MECP noise model, ORNAMENT, which is the basis for calculating anticipated noise levels, STAMSON noise software (v5.03) was used. The software can be used to model noise levels from roadways and railways. The program accepts input values related to noise sources, traffic volumes, and noise barriers.

3.1 NOISE SOURCES

The noise sources considered for this site were:

- Saxton Road (Primary Collector Road)

Other ROW's were not considered due to separation distance from the site and the limitations of ORNAMENT. Per the October, 1989 ORNAMENT report, "The prediction accuracy also decreases in cases of highly irregular topography and the method does not apply to traffic volume less than 40 vehicles per hour and to speeds less than 50km/h." Referencing Table 2: Adjustment to the Reference Hourly Sound Level for Traffic Volume of the "ORNAMENT Technical Document" illustrates the reason. When vehicles per hour are 40 or less, there is no substantial increase in reference sound levels. As the nearby local roads are assumed to average less than 40 vehicles per hour, they were not included in the analysis.

Railways were not considered as the nearest rail corridor is in excess of 900 m from the site.

3.2 ROAD TRAFFIC

Traffic forecasts were obtained from the Traffic Impact Study prepared for this development (prepared by SBM in September 2024), which included a 10-year forecast of AM and PM peak hour traffic along Saxton Road that accounted for other planned development in the area and development of the subject site. The peak hour volumes were converted to an average daily traffic volume based on an assumed k-factor of 8% (i.e. assumes peak hour traffic is 8% of daily traffic), which is a conservative estimate. The traffic forecast calculations are provided in Appendix A.

3.2.1 SAXTON ROAD

The 10-year forecast (2034) of Annual Average Daily Traffic (AADT) on Saxton Road is 5,750 vehicles per day with assumed 2% medium truck traffic and 2% heavy truck traffic. A 94/6 day/night split was used for all calculations. Saxton Road traffic information is summarized below in Table 3.

Table 3: Saxton Road - Road and Traffic Information (10-year Forecast)

Time Period	No. of Cars	No. of Medium Trucks	No. of Heavy Trucks	Posted Speed Limit (km/hr)
0700 – 2300	5,189	108	108	50
2300 – 0700	331	7	7	

Noise calculations are attached in Appendix B

3.3 PROJECTED NOISE LEVELS

Using STAMSON (v5.03) computer software, noise levels were predicted for day and night time conditions based on the MECP's noise model, ORNAMENT. The following assumptions were made for all calculations:

- Day time conditions comprise the time period 0700 to 2300
- Night time conditions comprise the time period of 2300 to 0700
- An average road gradient of 2% for Saxton Road
- **Receiver locations as per the attached Noise Study Plan (see Figure 2)**
- Indoor day time and night time receiver locations for the apartment buildings assumed to be at building face and at elevations of 1.5m (ground floor) and 22.5m (8th floor) above ground level (lowest and highest apartment levels for each building face)
- Indoor day time and night time receiver locations for the back-to-back townhouses assumed to be at building face and at an elevation of 4.5 m (highest level is most critical location)
- Outdoor day time receiver locations assumed to be at the centre of the central outdoor amenity space (located between the apartment proposed buildings) at an elevation of 1.5m above ground level and at the centre of rooftop amenity spaces at an elevation of 1.5m above floor level
- A standard wall construction provides a noise level attenuation of 10 dBA (i.e. if the outside POW calculated value was 65 dBA, the indoor value would be 55 dBA).

POW, indoor building, and OLA noise levels were calculated (see Appendix B for STAMSON reports) and have been summarized in Table 4 below.

Table 4: Noise Level Summary

Receiver Location	Outdoor Living Area (OLA)	Day Time Indoor Noise Level Limit (dBA)	Day Time Outdoor Noise Level Limit (dBA)	STAMSON Outdoor Calculated Noise Level (dBA)	STAMSON Indoor Calculated Noise Level (dBA)	Exceeds Noise Level Limit By (dBA)	Comment	Night Time Indoor Noise Level Limit (dBA)	STAMSON Outdoor Calculated Noise Level (dBA)	STAMSON Indoor Calculated Noise Level (dBA)	Exceeds Noise Level Limit By (dBA)	Comment
PoR-01 (1.5m HT)	N/A	45	55	59.5	49.5	4.5	WC 'C' (provisions for AC)	40	50.6	40.6	0.6	Day Leq Dictates
PoR-01 (22.5m HT)	N/A	45	55	61.2	51.2	6.2	WC 'C' (provisions for AC)	40	52.3	42.3	2.3	Day Leq Dictates
PoR-02 (1.5m HT)	N/A	45	55	51.1	41.1	0	None	40	42.2	32.2	0	Day Leq Dictates
PoR-02 (22.5m HT)	N/A	45	55	54.8	44.8	0	None	40	45.9	35.9	0	Day Leq Dictates
PoR-03 (1.5m HT)	N/A	45	55	51.1	41.1	0	None	40	42.2	32.2	0	Day Leq Dictates
PoR-03 (22.5m HT)	N/A	45	55	54.8	44.8	0	None	40	45.9	35.9	0	Day Leq Dictates
PoR-04* (25.5m HT)	Yes	N/A	55	54.2	N/A	0	None	N/A	N/A	N/A	N/A	Day Leq Dictates
PoR-05 (1.5m HT)	Yes	N/A	55	44.0	N/A	0	None	N/A	N/A	N/A	N/A	Day Leq Dictates

Receiver Location	Outdoor Living Area (OLA)	Day Time Indoor Noise Level Limit (dBA)	Day Time Outdoor Noise Level Limit (dBA)	STAMSON Outdoor Calculated Noise Level (dBA)	STAMSON Indoor Calculated Noise Level (dBA)	Exceeds Noise Level Limit By (dBA)	Comment	Night Time Indoor Noise Level Limit (dBA)	STAMSON Outdoor Calculated Noise Level (dBA)	STAMSON Indoor Calculated Noise Level (dBA)	Exceeds Noise Level Limit By (dBA)	Comment
PoR-06 (1.5m HT)	N/A	45	55	41.5	31.5	0	None	40	32.6	22.6	0	Day Leq Dictates
PoR-06 (22.5m HT)	N/A	45	55	49.8	39.8	0	None	40	40.9	30.9	0	Day Leq Dictates
PoR-07 (4.5m HT)	N/A	45	55	54.3	44.3	0	None	40	45.4	35.4	0	Day Leq Dictates

Table 4 Footnotes:

- *Includes 1.07m noise barrier at perimeter of building (e.g. solid parapet wall or equivalent barrier)
- Warning Clause (WC) may refer to WC Type A, Type B, Type D, or Type D as per “Noise Study Plan,” Figure 2 and the guidelines of Section C7 “Noise Control Measures” of the “Environmental Noise Guideline - Stationary and Transportation Sources - Approval and Planning (NPC-300).” August 2013. Ontario Ministry of Environment and Climate Change.
- Central Air Conditioning System (AC) installation should be designed by a Professional Engineer and adhere to the guidelines of the Ontario Building Code (OBC) and the following publications:
 - “Environmental Noise Guidelines for Installation of Residential Air Conditioning Devices.” September 1994. Ontario Ministry of Environment and Energy. ISBN 0-7778-1616-4. PIBS 2721e01.
 - “Residential Air Conditioning Devices - Publication NPC-216.” 1993. Ontario Ministry of Environment and Energy.
- For elevated OLAs, the point of assessment is located at the centre of the OLA at an elevation of 1.5m above the floor level.
- A standard wall construction provides a noise level attenuation of 10 dBA.

4 NOISE RECOMMENDATIONS

Based on the preceding analysis, the following recommendations can be put forth for this site:

- As per Table 4, the primary OLAs at PoR-04 and PoR-05 (rooftop terrace and central outdoor amenity area) are predicted to be below the outdoor noise level limit, therefore no noise control measures are required for the OLAs.
- Provisions for a central air conditioning system are required for units whose indoor noise levels exceed the guidelines by less than 10 dBA. Typically, this is achieved by sizing the heating ducts sufficiently to allow for a future installation of a central air conditioning system. Prospective residents will then have the option of closing their windows and doors to block bothersome noise levels. This requirement will apply to all units along the east side of the apartment building adjacent to Saxton Road (fronting Saxton Road), as identified in Figure 2, with the following warning clause given to prospective purchasers or tenants.

Warning Clause Type C:

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

Refer to "Environmental Noise Guideline - Stationary and Transportation Sources - Approval and Planning (NPC-300)," Section C8.1, Ontario Ministry of the Environment and Climate Change (MOECC), Aug. 2013 for clarification and additional measures. Refer to "Residential Air Conditioning Devices (NPC-216)," Ontario Ministry of the Environment and Energy (MOEE), 1993 for clarification and recommendation as to air conditioning system criteria, placement, installation, etc. Refer to "Model Municipal Noise Control By-law: Final Report," Ontario Ministry of the Environment (MOE), Aug. 1978 for clarification and recommendation as to air conditioning system criteria, placement, installation, etc. Central air conditioning systems are to be designed and constructed to the specifications of a registered professional engineer in accordance with the Ontario Building Code.

If air conditioning will be provided in these units, warning clause Type D should be used instead of warning clause Type C.

Warning Clause Type D:

"This dwelling unit has been supplied with a central air conditioning system which will allow windows and exterior doors to remain closed, thereby ensuring that the indoor sound levels are within the sound level limits of the Municipality and the Ministry of the Environment."

5 NOISE CONCLUSION

Proper execution of the above noise mitigation measures should produce noise levels within this development that will meet noise requirements of the MECP.

6 LIMITATIONS

This Report was prepared by SBM for Municipality of Strathroy-Caradoc, County of Middlesex, and 2102603 Ontario Inc. Use of this report by any third party, or any reliance upon its findings, is solely the responsibility of that party. SBM accepts no responsibility for damages, if any, suffered by a third party as a result of decisions made or actions undertaken as a result of this report. Third party use of this report, without the express written consent of the Consultant, denies any claims, whether in contract, tort, and/or any other cause of action in law, against the Consultant.

All findings and conclusions presented in this report are based on site conditions as they appeared during the period of the investigation. This report is not intended to be exhaustive in scope, or to imply a risk-free facility. It should be recognized that the passage of time may alter the opinions, conclusions, and recommendations provided herein.

The design was limited to the documents referenced herein and on the SBM drawings provided separately. SBM accepts no responsibility for the accuracy of the information provided by others. All designs and recommendations presented in this report are based on the information available at the time of the review.

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7 CLOSURE

We trust this Report meets your satisfaction. Should you have any questions or require further information, please do not hesitate to contact us.

Respectfully submitted,

Strik, Baldinelli, Moniz Ltd.

Planning • Civil • Structural • Mechanical • Electrical



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Appendix A – Traffic Data

Appendix B – Noise Calculations

Appendix C –

Appendix D -

Appendix E -

