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Environmental Noise Study

2495 SPRAGUES ROAD
North Dumfries, Ontario

Prepared for:

Shear Metal Products

June 19, 2025

JPE-1080

Consultant Statutory Declaration

CANADA	)	In the Matter of the
	)	Environmental Protection
PROVINCE OF ONTARIO	)	Act and the Planning Act
	)	
	)	And in the Matter of:
	)	ENVIRONMENTAL NOISE STUDY
	)	2495 SPRAGUES ROAD
	)	NORTH DUMFRIES, ONTARIO
	)	
	)	in the Township of North Dumfries
	)	in the Regional Municipality of Waterloo

I, JOHN PERKS, MBA, P.Eng., of the City of KITCHENER, in the Regional Municipality of Waterloo, SOLEMNLY DECLARE THAT:

1. I am a Professional Engineer employed by JPE ENGINEERING which holds a Certificate of Authorization) and have personal knowledge of the matters set out below.

2. I was retained or employed as the principal consultant to undertake the assessment of noise impacts and recommendation of noise mitigation measures for the property described as 2495 SPRAGUES ROAD, NORTH DUMFRIES, ONTARIO in the municipality of TOWNSHIP OF NORTH DUMFRIES, Ontario.

3. I had the expertise required to perform these services. Any assessment activities or recommendations requiring the application of engineering principles have been undertaken or supervised by an engineer qualified to perform such services.

4. The information used in the study entitled:

   ENVIRONMENTAL NOISE STUDY
   2495 SPRAGUES ROAD
   NORTH DUMFRIES, ONTARIO

   dated June 19, 2025 is the best available information as of the date of the study.

5. The noise level calculations, the interpretation of noise attenuation requirements, and the recommended measures are in accordance with Ministry of Environment, Conservation and Parks Guidelines, Region of Waterloo policies, and any applicable policy or guidelines of the Area Municipality, and any other applicable policy or guideline.

6. The physical noise attenuation measures proposed in this study are feasible to implement and will provide the level of attenuation indicated in the study.

7. I acknowledge that this study may be subject to a peer review conducted at my cost.

8. I acknowledge that public authorities and future owners, occupants and others may rely on this statement.

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

DECLARED before me at the City of)
of Waterloo, in the Regional)
Municipality of Waterloo)
)

this 20 day of June, 2025)

Rook Tenacity Ward, a Commissioner, etc.,
Province of Ontario, for
the Corporation of the City of Waterloo.
Expires August 14, 2027

Owner/Authorized Agent Statement

I am the Owner, and I understand and agree with the noise attenuation measures proposed in the study entitled:

ENVIRONMENTAL NOISE STUDY
2495 SPRAGUES ROAD
NORTH DUMFRIES, ONTARIO

Dated: June 19, 2025.

The application has been designed to avoid the use of berms or walls as noise attenuation features where feasible. Where berms or walls are recommended, the Noise Study provides economic, planning and engineering justification.

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

Name: Jeremy Hohl

Signature: 

Date: June 20/25

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1 Introduction

JPE Engineering (JPE) was retained to undertake an environmental noise study to examine the potential impacts of environmental noise resulting from a proposed Self Storage site at 2495 Sprague Road, North Dumfries, Ontario (henceforth the "Site"). In particular, the Township is concerned about noise generated from an outdoor storage area proposed at the rear of the Site.

Assuming Sprague Road runs north-south, the Site is bounded by Sprague Road to the west, agricultural lands to the north and east, and a residential property to the south. Refer to Plate 1.

PLATE 1: Site Location
(source: Region of Waterloo GIS)

The Site is currently partially developed with a barn and auxiliary buildings. It is proposed to construct an additional five (5) buildings to contain storage units. The proposed Site will also include auxiliary driveways, parking and storage areas, landscape spaces, a SWM pond, and a septic tile bed. For more information, refer to **Appendix A** for the site plan.

This report documents the environmental noise analysis and findings related to the feasibility of the development from an environmental noise perspective and recommends mitigation measures as required.

2 Noise Sources and Criteria

The Region of Waterloo has established environmental noise guidelines to govern development with sensitive noise receivers. The Region's guidelines generally mirror the Ministry of Environment, Conservation and Parks (MECP, formerly MOE and MOECC) NPC-300 guidelines entitled "Stationary and Transportation Sources – Approval and Planning" (August 2013). The Region and MECP guidelines were utilized to guide this environmental noise study.

On review of the project with the Site's Owner/Operator, the following potential environmental noise sources were identified:

- Diesel transport truck that would run for 10-15 minutes in the proposed outdoor storage area: Sound Power Level=90 dBA

Part C4 of MECP's NPC-300 guideline applies to Land Use Planning and stationary noise. The guideline specifies exclusionary noise limits below which the noise is considered acceptable for a sensitive use.

The sound level limit criteria for a point of reception (expressed as the one-hour Equivalent Sound Level) is the greater of the exclusionary limit or the quietest one-hour sound level (i.e., ambient noise) in each time period. **Table 1** summarizes the exclusionary limits.

Table 1 – Stationary Noise Level Exclusionary Limits (dBA)

LOCATION	TIME PERIOD	CLASS 1	CLASS 2	CLASS 3	CLASS 4
Outdoor Living Area	0700 – 1900	50	50	**45**	55
	1900 – 2300	50	45	**40**	55
Plane of Window	0700 – 1900	50	50	**45**	60
	1900 – 2300	50	50	**40**	60
	2300 – 0700	45	45	**40**	55

Notes:

1. *The Noise criteria for emergency generators that operate during non-emergency times (e.g., for testing and maintenance) is 5 dBA greater than listed.*
2. *Noise from emergency equipment is to be assessed independent of other stationary noise sources.*

With respect to stationary noise, a sensitive noise receptor can be located in one of four area classifications described as follows (refer to Section A5 of NPC 300):

a) **"Class 1 area"**: An area with an acoustical environment typical of a major population centre, where the background sound level is dominated by the activities of people, usually road traffic, often referred to as "urban hum."

b) **"Class 2 area"**: An area with an acoustical environment that has qualities representative of both Class 1 and Class 3 areas:

- Sound levels characteristic of Class 1 during daytime (07:00 to 19:00 or to 23:00 hours); and
- Low evening and night background sound level defined by natural environment and infrequent human activity starting as early as 19:00 hours (19:00 or 23:00 to 07:00 hours).

c) **"Class 3 area"**: A rural area with an acoustical environment that is dominated by natural sounds having little or no road traffic, such as:

- A small community;
- Agricultural area;
- A rural recreational area such as a cottage or a resort area; or
- A wilderness area.

d) **"Class 4 area"**: An area or specific site that would otherwise be defined as Class 1 or 2 and which:

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

On review of the subject development's environs, it is assumed that "**Class 3**" is appropriate given it is located in a rural area distant from any major urban areas or ambient noise sources.

Finally, while the ambient noise level may very well exceed the exclusionary limit (especially given the proximity to Spragues Road), for ease and conservativeness, the exclusionary limit will be assumed to govern, unless otherwise noted.

3 Sensitive Noise Receiver Locations

To facilitate analysis and description, sensitive noise Receiver locations were established at worst-case locations. These worst-case locations are assumed to represent the entire sensitive noise receiver area – for example, a receiver located in the "worst-case" corner of an Amenity Area is deemed to represent the entire Amenity Area (unless a separate Receiver is identified).

For the analysis of indoor noise, Receivers are assumed to be located flush with the outside of living room and bedroom windows.

In all cases, Receiver locations are assumed to be located 1.5m above ground or floor elevation to represent ear level.

On review of the subject Site's environs, the only sensitive receiver in close proximity to the Site was the residential property located at 2505 Spragues Road. The following two noise Receiver locations were identified to be worst-case receiver locations and represented the noise sensitive spaces on the property:

- Receiver 'A': Located at the exterior façade of the residential building closest to the noise source representing an interior receiver; and,
- Receiver 'B': Located at 30m distance from the residence closest to the noise source representing an outdoor receiver.

These receivers are closest and most exposed to the noise sources on the subject Site. All other locations would be more distant or have more protection from buildings acting as barriers to noise sources. Note, the Receiver locations represent the locations in plan view – where required, elevation descriptors will be included to represent the different floor elevations of the building.

Further, it is noted that the modelling for stationary noise produces a noise contour plan that shows noise levels throughout the study area at specified elevations (which are referenced).

4 Analysis and Results

The noise modelling software program DBMap (utilizing algorithms based on ISO 9613 and 17534) was used to model stationary noise.

As described previously, there are a number of stationary noise sources that may impact either onsite or offsite sensitive receivers. The following general assumptions were made and used in the model:

- Temperature: 15c
- Relative humidity: 70%
- Application of reflections: 1st and 2nd order of reflections
- ISO reflector size check: Yes
- Ground surface characteristics: G=0 (i.e., hard ground) – conservative assumption.

Note, the MECP exclusionary limit has been assumed for the noise level criteria. This is a conservative assumption as the ambient noise levels are likely higher given the urban environment, and especially given traffic noise from Ira Needles Boulevard.

The results of the modelling for the stationary equipment are shown graphically on **Drawing N2 through N7** in **Appendix C,** and sample model output is also included**.** **Table 2** shows the worst-case receptor.

Table 2 – Predicted Un-Attenuated Stationary Noise Levels (dBA)

RECEIVER	0700 – 1900		1900 – 0700	
	Level *	Threshold **	Level *	Threshold **
A @ 1.5m	22	45	22	40
A @ 4.5m	24	45	24	40
B @ 1.5m	31	45	31	40

* *Red numbers (if shown) indicate failure of the threshold criteria.*
** *Threshold = minimum criteria below which no requirements for warning clauses or protection.*

As will be observed in Table 2, and graphically in **Appendix B**, noise levels are well below criteria at all sensitive receiver locations. Accordingly, noise mitigation is not required for stationary noise sources.

5 Conclusions and Recommendations

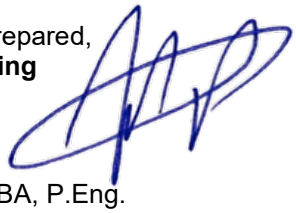
Given the results of the noise analysis presented herein, it is concluded that the proposed noise sources on the proposed Site will not exceed the noise level criteria and specific mitigation is not required.

If during final design of the Site any deviations are made from the assumptions made herein, the noise analysis should be updated to determine if any changes to this report's conclusions or recommendations are required.

Based on the preceding, we conclude that the subject Site can be developed in compliance with municipal environmental noise guidelines.

* * * * * * * * * * * * * * * *

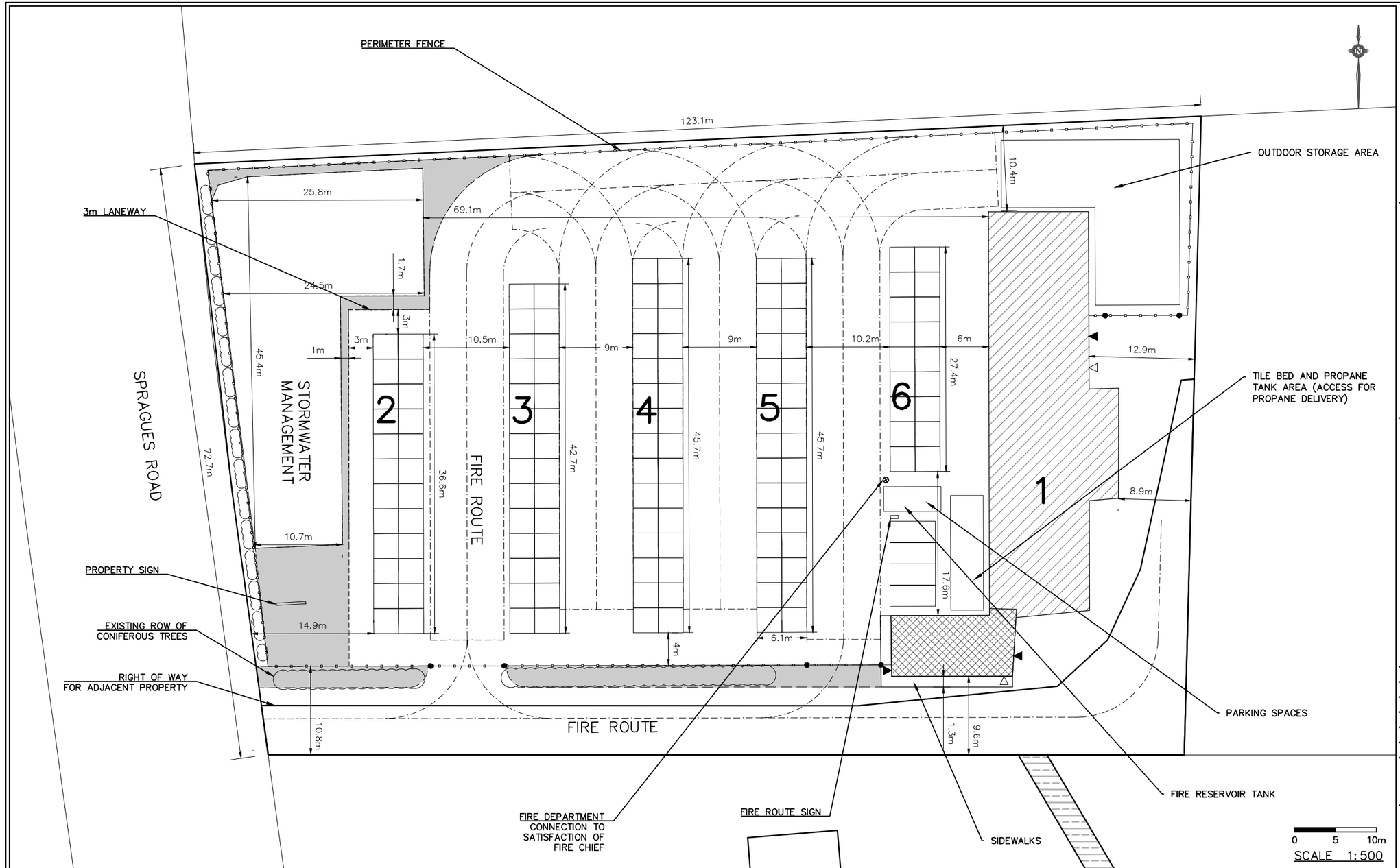
Respectfully prepared,
JPE Engineering



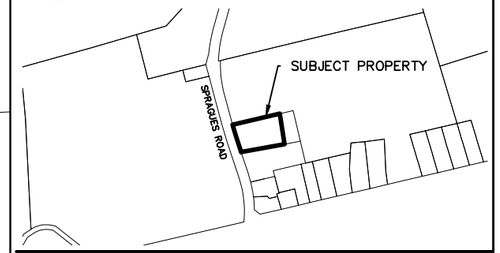
John Perks, MBA, P.Eng.
Senior Engineer, President

APPENDIX A:

Site Plan



KEY MAP



LEGEND

- EXISTING BUILDING
- ADMIN AREA
- GRASSED AREA

OUTSIDE OF GRASSED AREA, ASPHALT SHALL MAKE UP THE REMAINDER OF THE SURFACE AREA ON SITE.

ZONING MATRIX

ZONING MATRIX		
ZONING PROVISION	REQUIRED	PROVIDED
LOT AREA (MIN.)	0.8 ha	5183 sq.m.
LOT WIDTH (MIN.)	60m	72.7m
BUILDING HEIGHT (MAX.)	10.5m	
SIDE YARD (MIN.)	11.6m	9.6m
REAR YARD (MIN.)	7.5m	8.9m
FLOOR AREA (MAX.)	1,858 sq.m. (SITE-SPECIFIC)	1855.74 sq.m.

STORAGE BUILDING AREAS	
BUILDING NUMBER	AREA (SQ M)
1	648.04
2	222.96
3	260.12
4	278.70
5	278.70
6	167.22
TOTAL	1855.74

STORMWATER MANAGEMENT AREA = 757.8 sq.m.

REVISIONS

NO.	REVISED BY:	REASON:	DATE:
1	ZK	CLIENT FEEDBACK	27.6.2024
2	ZK	SWM CHANGES	12.8.2024
3	ZK	OUTDOOR STORAGE	26.9.2024
4	ZK	MISC. EDITS	07.11.2024

JOB NUMBER	DATE	FIGURE
22-304	13 JUNE 2024	1

SELF STORAGE UNITS
SITE PLAN

2495 SPRAGUES ROAD
TOWNSHIP OF NORTH DUMFRIES
PART LOTS 24 & 25, CONCESSION 7

K. SMART ASSOCIATES LIMITED
CONSULTING ENGINEERS AND PLANNERS
KITCHENER SUDBURY

APPENDIX B:

Stationary Noise Information

SCALE:

1:750

scale is approx. when plotted on 11x17 paper

N

#	REVISION	BY	DATE
1	First Submission	JRP	2025-06-19

LEGEND:

x R-A Noise Receiver A
x S-1 Noise Source 1

14 m — Worst case distance receiver to source

125° — Angle of exposure to line source

BASE MAPPING SOURCES:
- RofW GIS (imagery)
- K Smart (Site Plan)

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2495 SPRAGUES Road
North Dumfries, ON

STATIONARY NOISE
@ Ht = 1.5m

SHEET 1 of 2

DWG JPE-1080
N-1

SCALE:

1:750

scale is approx. when plotted on 11x17 paper

N

#	REVISION	BY	DATE
1	First Submission	JRP	2025-06-19

LEGEND:

x R-A Noise Receiver A
x S-1 Noise Source 1

14 m — Worst case distance receiver to source

125° — Angle of exposure to line source

BASE MAPPING SOURCES:
- RofW GIS (imagery)
- K Smart (Site Plan)

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2495 SPRAGUES Road
North Dumfries, ON

STATIONARY NOISE
@ Ht = 4.5m

SHEET 2 of 2

DWG JPE-1080
N-2