NOISE IMPACT STUDY
ECO TREE CARE
479 HIGHWAY 2
GANANOGUE, ONTARIO

FOR

ECO TREE CARE

PREPARED BY

Howard Patlik
HOWARD R. PATLIK, C.E.T.

CHECKED BY

J. E. Coulter
JOHN E. COULTER, B.A.Sc., P.Eng.

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TORONTO, ONTARIO
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MAY 12, 2022

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INTRODUCTION

At the request of Eco Tree Care, J.E. COULTER ASSOCIATES LIMITED has prepared a noise impact study for a contractor's shop proposed at 479 Highway 2 in Gananogue, Ontario (see Appendix A, Figure 1). A Site Plan is provided in Appendix A, Figure 2.

The scope of the study is to determine the potential noise impact from the expanded building at the most sensitive receiver locations (R1 to R5 north, east and west of the proposed operation) and to recommend potential noise attenuation measures to comply with the noise objectives, as necessary.

DESCRIPTION OF THE SITE AND SURROUNDING AREAS

The proposed operation is to be located along the south side of Highway 2, approximately 1 km east of Hiscocks Road and approximately 600m north of Highway 401. For the purpose of this study, the hours of operation are assumed to be 0700 to 1900 hours as per the City of Kingston's Noise By-law, covering the daytime period. It has been confirmed there are no significant activities between 1900 hours and 0700 hours the next day.

The proponent is seeking to construct a new repair facility on the property. The building includes 3 service bay doors facing to the west (see Appendix A, Figures 3 to 5).

According to the proponent, the proposed development is to operate as follows:

1. Hours of operations: Monday to Friday, 7 a.m. – 5 p.m.
2. Repair Bays: 3
3. Repairs of trucks and chippers, etc. (including banging activities)
4. Repair of motors
5. Running of machinery (5 to 30 minutes), infrequent
6. Changing of tires is outsourced.

NOISE CRITERIA

MECP recommends the guidelines found in *NPC-300* as the current noise criteria for non-transportation sources (service equipment and service activity noise). The MECP noise guideline states that the average sound level of the stationary source (mechanically generated noise or impulse noise such as banging) should not exceed the average sound level of the roadway traffic during the same hourly period. The sound level limit at a point of reception is set as the higher of either the applicable exclusion limit, or the minimum average background sound level that occurs or is likely to occur during the time period corresponding to the operation of the stationary source under impact assessment.

EXISTING AMBIENT SOUND LEVELS

For the stationary noise sources, the criteria have been developed in accordance with the Ministry of the Environment, Conservation and Parks' noise guidelines. The guidelines state the sound levels due to a stationary source, including Quasi-Steady Impulsive Sound but not including other impulsive sound, if the sound level is expressed in terms of the One Hour Equivalent Sound Level (L_{eq}), should not, in any hour of the day, exceed the one hour equivalent sound level (L_{eq}) of the existing road traffic or MECP's minimum limits, noted in Table 1, below.

The assessment identified three noise sensitive receivers in the area of the proposed development. Table 1, below, provides the quietest daytime hourly sound level considered by MECP.

The most prominent transportation sources are Highways 2 and 401. The most current traffic data available from United Counties of Leeds and Grenville (UCLG) indicates Highway 2 carried 3,429 vehicles Average Daily Traffic (ADT) in the year 2018 with an estimated 6% trucks (split 3% heavy and 3% medium) with a posted speed limit of 80 kph. Extrapolating the traffic data to the year 2023 (opening year of operation) based on a historical growth rate of 2% annual growth (compounded), the traffic volume on Highway 2 is projected to be 3,786 vehicles ADT.

The most current traffic data available from MTO indicates Highway 401 carried 38,100 vehicles Summer Average Weekday Daily Traffic (SWADT) in the year 2019 with 27% trucks (split 20.25% heavy and 6.75% medium) with a posted speed limit of 100 kph. Extrapolating the traffic data to the year 2023 (projected opening year of operation) based on a historical growth rate of 2% annual growth (compounded), the traffic volume on Highway 401 is projected to be 30,849 vehicles ADT.

Five points of reception were considered:

1. R1: 480 Highway 2, single-family dwelling, 2-Storey
2. R2: 486 Highway 2, single-family dwelling, 2-Storey
3. R3: 487 Highway 2, single-family dwelling, Bungalow
4. R4: 485 Highway 2, single-family dwelling, Bungalow
5. R5: 465 Highway 2, single-family dwelling, 2-Storey.

For MECP classification, the area is considered a Class II area (Urban/Rural mix).

Based on the project traffic, the ambient sound levels were calculated for the sensitive points of reception. The sound level limit at a point of reception applies anywhere within 30m of a dwelling. The receiver locations are shown in Appendix A, Figures 6 and 7.

Table 1: Lowest Ambient Sound Levels at Points of Reception (MECP Criteria, dB L_{eq}, 1 Hour)		
Time Period	**Calculated Quietest Hourly Sound Level (dB L_{eq}, 1 Hour)**	**MECP Daytime (0700–1900 Hours) Exclusion Sound Level Limit (dB L_{eq}, 1 Hour)**
R1: Front yard, 30m from dwelling, 0700–1900 hours, (dB L_{eq}, 1 Hour)	**55**	50
R1: South Façade of dwelling, 0700–1900 hours, (dB L_{eq}, 1 Hour)	**58**	50
R2: South Façade of dwelling, 0700–1900 hours, (dB L_{eq}, 1 Hour)	**56**	50
R3: Rear yard, 0700–1900 hours, (dB L_{eq}, 1 Hour)	**53**	50
R3: South Façade of dwelling, 0700–1900 hours, (dB L_{eq}, 1 Hour)	**53**	50
R4: Rear yard, 30m from dwelling, 0700–1900 hours, (dB L_{eq}, 1 Hour)	**53**	50
R4: South Façade of dwelling, 0700–1900 hours, (dB L_{eq}, 1 Hour)	**53**	50
R5: Rear yard, 30m from dwelling, 0700–1900 hours, (dB L_{eq}, 1 Hour)	**53**	50
R5: West Façade of dwelling, 0700–1900 hours, (dB L_{eq}, 1 Hour)	**56**	50

Note: The higher (bolded) of the Calculated Quietest Hourly Sound Level or MECP Exclusion Sound Level Limit determines the noise criteria. The quietest hour is considered to be 7 a.m.

SOURCE SOUND LEVELS

The following table summarizes the estimated sound power levels of the main sources of potential equipment (see Appendix A, Figures 3 and 4)s

Table 2: Noise Source Summary					
Source ID	**Source Description**	**Sound Power Level**	**Source Location[1]**	**Sound Characteristics[2]**	**Noise Control Measures[3]**
S1	Vehicle/Equipment Repairs (Pneumatic Wrenches)	107 dBA	O	Q	U
S2	General Repairs in Garage	90 dBA	O	S	U
S3	Impulse Noise (Banging from repairs)	100 dBAI	O	I	U
S4	Wood Chipper Motor	106 dBA	O	S	U
S5	HVAC (Office)	82	O	S	U

[1] Source Location:
O - located/installed outside the building, including roof
I - located/installed inside building

[2] Sound Characteristics:
S: Steady
Q: Quasi-Steady Impulsive
I: Impulsive
A: Buzzing
T: Tonal (+5 dB included in PWL value)
C: Cyclic

[3] Noise Control Measures
S: Silencer, acoustic louvre, muffler
A: Acoustic lining, plenum
B: Barrier, berm, screening
L: Lagging
E: Acoustic Enclosure
O: Other
U: Uncontrolled

PROPOSED EQUIPMENT AND OPERATION

The equipment anticipated to be on-site is as follows:

Vehicle/Equipment Repairs (S1)

There are three access doors on the west façade of the building. It is assumed each bay would use a pneumatic wrench, and that the doors would typically be open during the warm weather. The main source of noise from repair garages is typically the pneumatic wrenches used to remove and remount the nuts from the vehicles. For the analysis, it was assumed the pneumatic tools in each bay are operated for an equivalent time of 10 minutes per hour per bay. This is a significant amount of time per hour for the use of pneumatic tools, considered to be a worst-case scenario.

General Repairs in Garage (S2)

This includes all other sounds (i.e., such as drills or compressors) generated in the repair bays, excluding pneumatic tools.

Impulse Noise (Banging) (S3)

Impulse noise generate by activities in the outdoor storage are based on the banging sounds that are generated when using hammers, mallets, or other similar tools. It has been assumed 9 or more bangs occur during any one-hour period. With this number of impulses, MECP's minimum noise criteria (the quietest ambient traffic sound levels noted above) are applicable, considered to be a worst-case scenario.

HVAC (S4)

It is assumed a single HVAC unit is to be installed for the office area. For this review, it was assumed the unit is rated at 82 dBA Sound Power for a rooftop mounted unit. The installation of a split system with a through-the-wall unit is generally much quieter than the standard rooftop HVAC units. The rooftop unit represents a worst-case scenario.

PREDICTED SOUND LEVELS

The sound levels generated by the above-noted equipment were calculated in order to determine the required noise control measures to meet MECP's *NPC-300* noise criteria. The sound data were projected back to the residences, with appropriate adjustments for shielding, ground effect, building reflections, and atmospheric conditions. All sound level predictions were calculated using CadnaA v.2021 MR2 based on the formulae in *ISO-9613-2.* Detailed calculations of each source were calculated for each receptor and are summarized in Appendix B.

Three types of sounds were considered:

1. Steady (non-impulsive)
2. Quasi-steady impulse (pneumatic tools)
3. Impulsive (banging).

The sound levels of the proposed development were modelled assuming continuous operation (100% duty cycle) between 0700 and 1900 hours, to determine if a noise impact would occur over the criterion, a one-hour period.

Tables 3 and 4 below, summarize the impulse (banging) and non-impulse (repairs, chipper, mechanical) sound levels of each source, unmitigated, at each Point of Reception (POR) based on the quietest ambient sound levels generated from the combination of Highways 2 and 401.

Table 3: Acoustic Assessment Summary – Impulse Noise (Outdoor Banging) – Unmitigated Daytime (0700–1900 Hours)									
Source ID	**POR R1F**	**POR R1R**	**POR R2F**	**POR R3F**	**POR R3R**	**POR R4F**	**POR R4R**	**POR R5F**	**POR R5R**
	Sound Level (L_{eq})	**Sound Level (L_{eq})**	**Sound Level (L_{eq})**	**Sound Level (L_{eq})**	**Sound Level (L_{eq})**	**Sound Level (L_{eq})**	**Sound Level (L_{eq})**	**Sound Level (L_{eq})**	**Sound Level (L_{eq})**
Impulse Sound Levels (S3) (L_{eq} dBAI)	44	43	42	32	29	41	40	32	31
Noise Criteria (L_{eq} dB, 1 hr.)	55	58	56	53	53	53	53	53	56
Noise Impact (dB)	**-11**	**-15**	**-14**	**-21**	**-24**	**-12**	**-13**	**-21**	**-25**
Meets Criteria?	**YES**	**YES**	**YES**	**YES**	**YES**	**YES**	**YES**	**YES**	**YES**

As summarized in Table 3, the sound levels generated by the proposed operation for impulsive (banging) sounds do not create a noise impact at R1 to R5, meeting MECP's *NPC-300* noise criteria from 0700 to 1900 hours. The sound levels generated from banging activities are expected to be well below the quietest ambient traffic sound levels by 11 to 25 dB at R1 to R5 during the quietest hour of the day.

Table 4: Mechanical Noise (Unmitigated) Daytime (0700–1900 Hours)									
Source ID	**POR R1F**	**POR R1R**	**POR R2F**	**POR R3F**	**POR R3R**	**POR R4F**	**POR R4R**	**POR R5F**	**POR R5R**
	Sound Level (L_{eq})	**Sound Level (L_{eq})**	**Sound Level (L_{eq})**	**Sound Level (L_{eq})**	**Sound Level (L_{eq})**	**Sound Level (L_{eq})**	**Sound Level (L_{eq})**	**Sound Level (L_{eq})**	**Sound Level (L_{eq})**
Repairs (Pneumatic Tools) S1	48.2	47.0	45.8	27.9	27.5	35.7	37.6	40.8	36.6
General Garage Activities S2	38.8	37.6	36.4	18.5	18.0	26.2	28.1	31.3	27.2
Chipper Motor (30 minutes/hr) S4	48.5	47.9	45.0	33.3	31.5	42.9	42.2	41.6	38.1
HVAC S5	25.6	23.3	25.6	25.3	24.3	32.8	36.5	18.7	14.2
Total Sound Level (L_{eq} dB, 1 hr.)	**52**	**51**	**49**	**35**	**34**	**44**	**44**	**44**	**41**
Noise Criteria (L_{eq} dB, 1 hr.)	58	55	56	53	53	53	53	56	53
Noise Impact (dB)	**-6**	**-4**	**-7**	**-18**	**-19**	**-9**	**-9**	**-12**	**-12**
Meets Criteria?	**YES**	**YES**	**YES**	**YES**	**YES**	**YES**	**YES**	**YES**	**YES**

As summarized in Table 4, the sound levels generated by the proposed operation for non-impulsive sounds do not create a noise impact at R1 to R5, meeting MECP's *NPC-300* noise criteria from 0700 to 1900 hours. The combined sound levels generated from all mechanical sources are expected to be 4 to 19 dB below the quietest ambient traffic sound levels at R1 to R5 during the quietest hour of the day. Even when one considered MECP's exclusion limit of 50 dB L_{eq} (1 hour), the site still meets the noise criteria as all sounds are less than 50 dB L_{eq} (1 hour).

If the proponent decides to include an HVAC unit, there are no noise control requirements as the sound levels are very low at any point of reception.

NOISE CONTROL MEASURES

The analysis found the proposed operation meets all MECP's noise criteria and there are no noise control measures required.

CONCLUSIONS

Based on the proposed operation of Eco Tree Care, it is feasible to meet MECP's *NPC-300* noise criteria. The analysis found that the projected sound level will not generate any noise impacts at the noise sensitive point of reception as a result of the operation (vehicle repair, impulse noise from banging). The sound levels are expected to be less than the quietest ambient traffic sound levels during the daytime period. There were no noise control measures required.

RECOMMENDATIONS

The following measures are recommended:

1. Based on the anticipated activities from Eco Tree Care, the proposed development can operate between 0700 and 1900 hours (daytime) and meet MECP's *NPC-300* noise criteria at all sensitive points of reception without any need for additional noise control measures.

2. If operations (primarily repairs of trucks and equipment) occur after 1900 hours, additional noise control measures may need to be considered.

/hp/pt

APPENDIX A: FIGURES

FIGURE 1

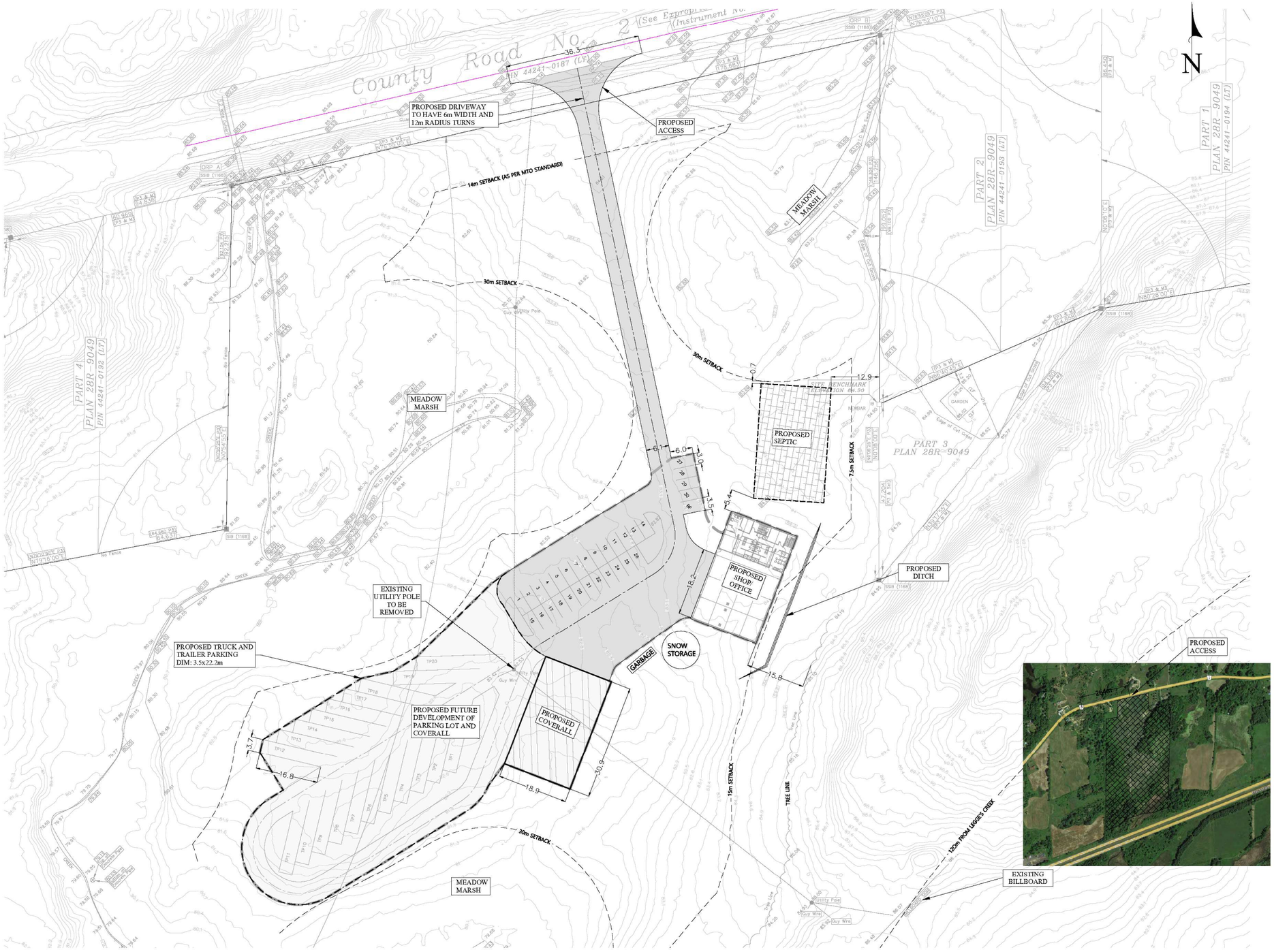


FIGURE 2

ECO TREE CARE

479 Hwy 2,
Gananoque, ON

Client:

John Madden

ASTERISK ENGINEERING CORPORATION
1480 Bath Road
Kingston, ON.
K7M 0X6
(613) 542-2040 fax 1 613 280-1335
www.asteriskengineering.com

ISSUED FOR	REV	DATE

Do not scale drawings. Refer to Architectural drawings for dimensions. All elevations/dimensions shall be verified with Architectural drawings and any discrepancy shall be reported immediately to consultant.
Read this drawing in conjunction with ALL applicable Architectural, Mechanical, electrical and other disciplines involved.
This drawings are "design drawings" only and are not intended to be used as shop drawings.

SCALE: 1:500	UNITS: m	
DESIGNED: TC	CHECKED: TC	DRAWN: MT/PM

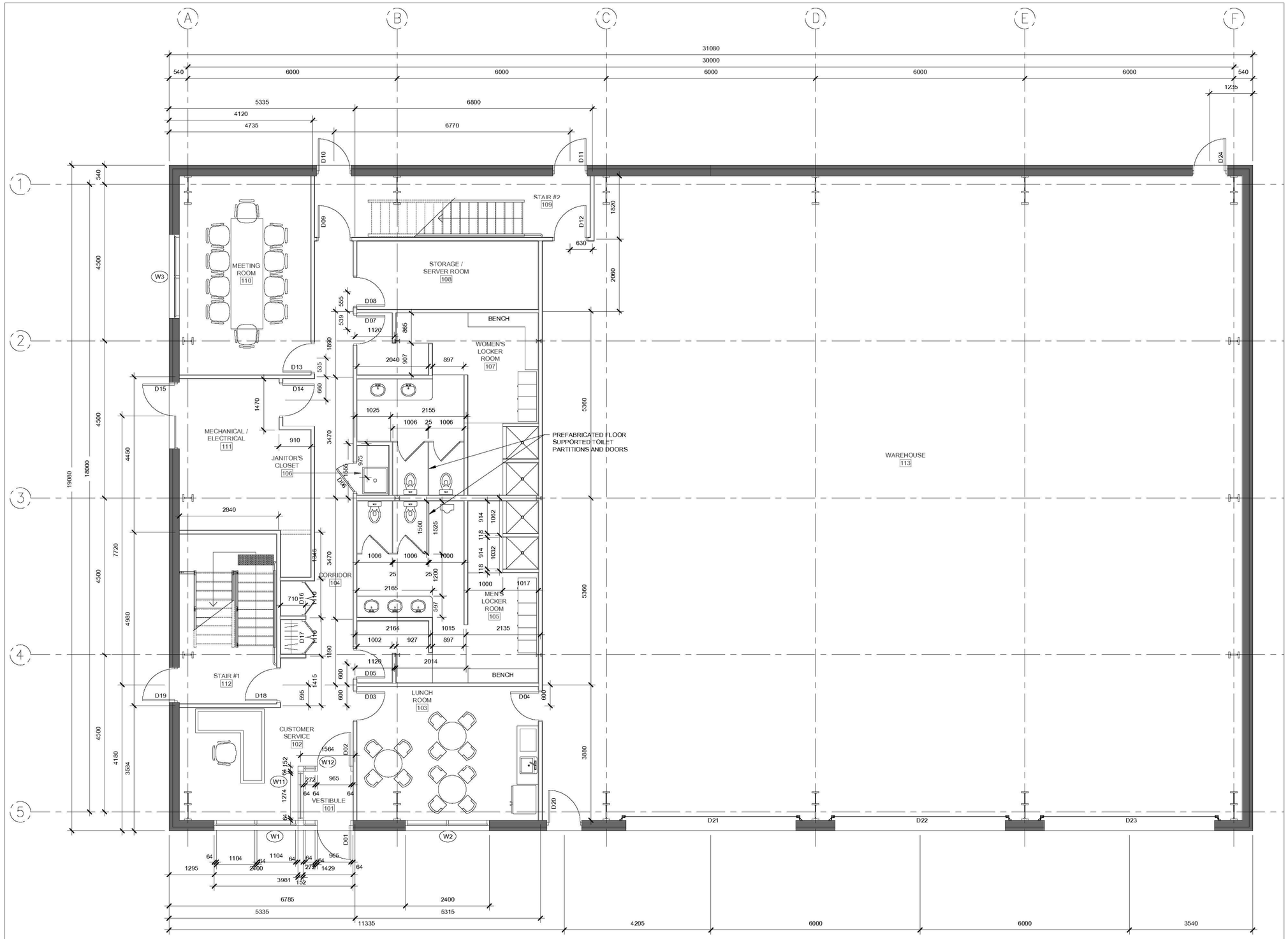
DRAWING TITLE:

Site Plan

DRAWING NO.: C-1

PROJECT NO.: 21-109

DATE: Dec 15, 2021



1 / A1 GROUND FLOOR PLAN
SCALE: 1 : 50

FIGURE 3

OFFICE & WAREHOUSE

479 Highway 2,
Gananoque, ON

CLIENT:

ECO TREE CARE

ASTERISK ENGINEERING CORPORATION
1480 Bath Road, Suite # 201.
Kingston, ON.
K7M 4X6
(613) 542-2040 fax 1 613 280-1335
www.asteriskengineering.com

ISSUED FOR	REV	DATE
For Review	-	Aug 12, 2021

Do not scale drawings. Refer to Architectural drawings for dimensions. All elevations/dimensions shall be verified with Architectural drawings and any discrepancy shall be reported immediately to consultant.
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This drawings are "design drawings" only and are not intended to be used as shop drawings.

LEGEND:

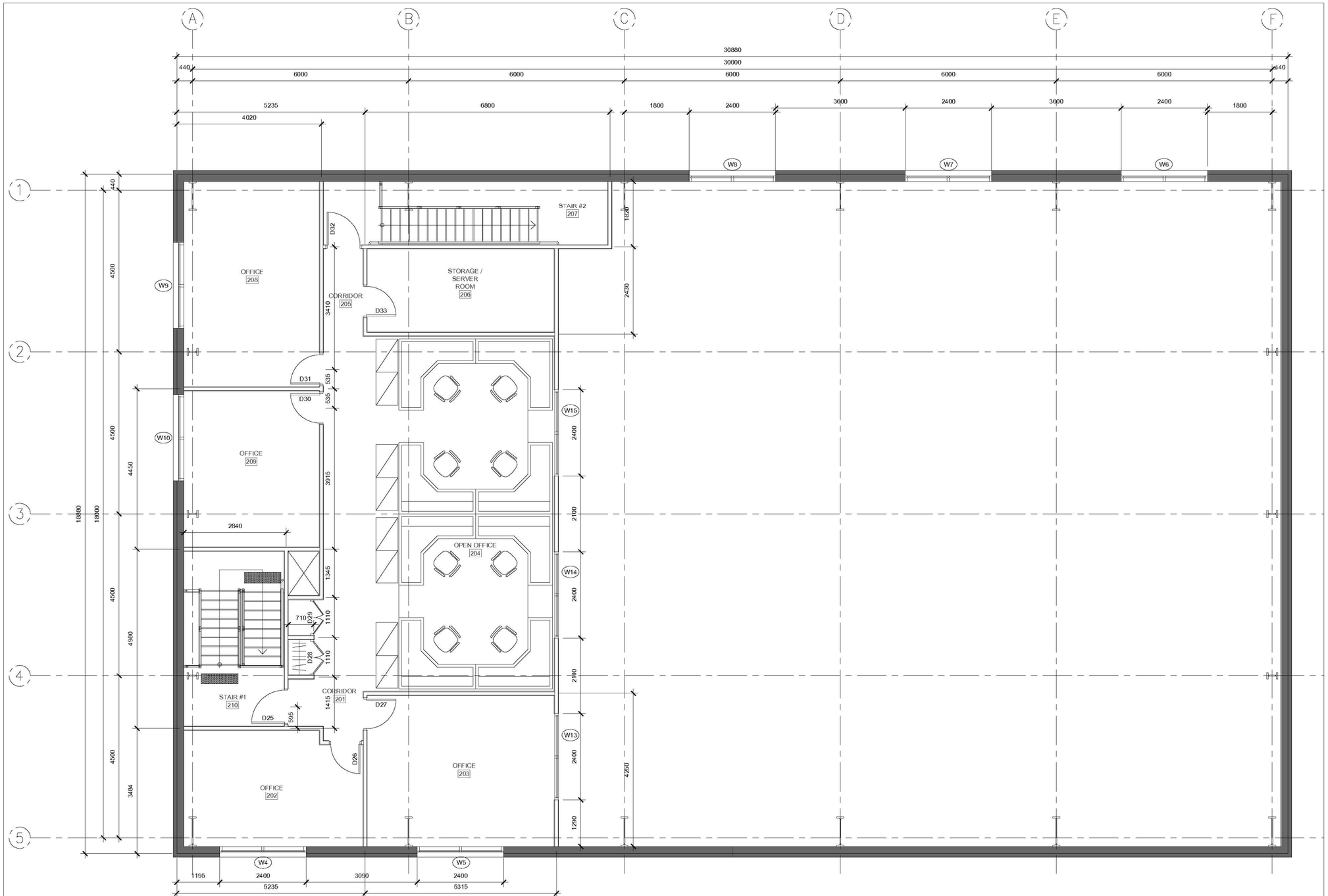
LICENCED PROFESSIONAL ENGINEER
T. AVILAR PEREIRA CALDAS
100074114
JAN 25, 2022
PROVINCE OF ONTARIO

SCALE: AS NOTED	UNITS: mm, UNO	
DESIGNED: TC	CHECKED: TC	DRAWN: PM\JC

DRAWING TITLE:

GROUND FLOOR PLAN

DRAWING No.:	A1
PROJECT No.:	21-109
DATE:	JAN 25, 2022



1 / A2 SECOND FLOOR PLAN
SCALE: 1 : 50

FIGURE 4

OFFICE & WAREHOUSE

479 Highway 2,
Gananoque, ON

CLIENT:

ECO TREE CARE

ASTERISK ENGINEERING CORPORATION
1480 Bath Road, Suite # 201.
Kingston, ON.
K7M 4X6
(613) 542-2040 fax 1 613 280-1335
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ISSUED FOR	REV	DATE
For Review	-	Aug 12, 2021

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LEGEND:

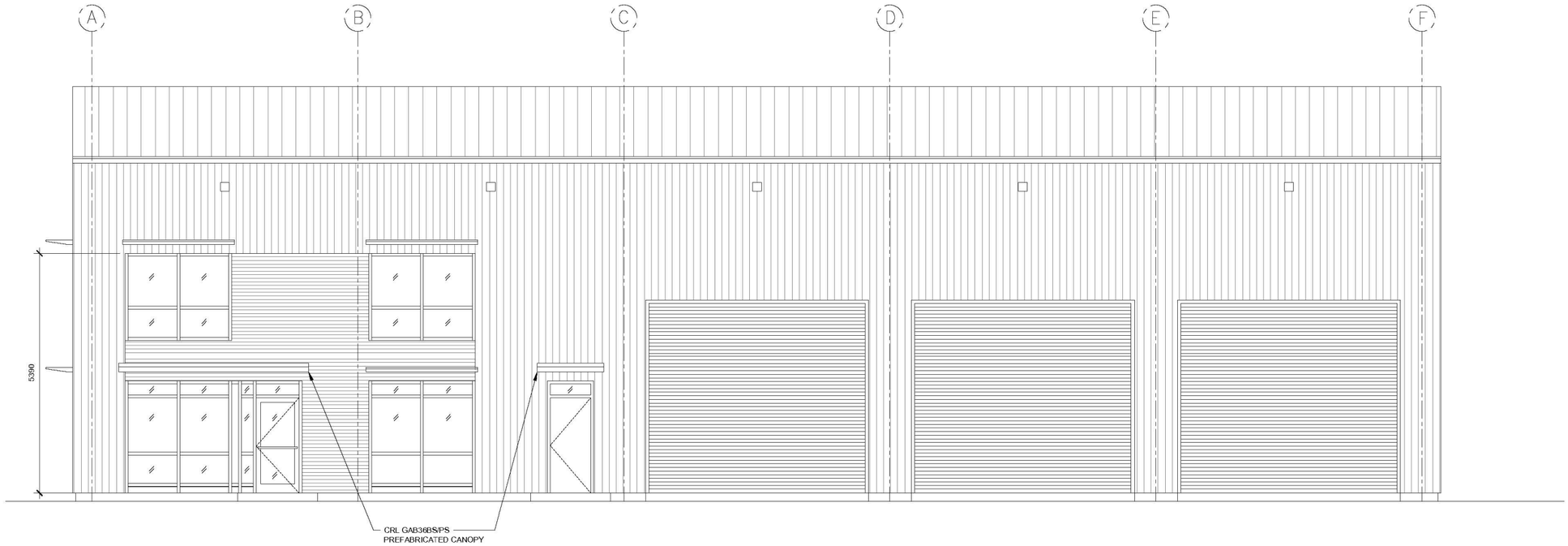
LICENCED PROFESSIONAL ENGINEER
T. AVILAR PEREIRA CALDAS
100074114
JAN 25, 2022
PROVINCE OF ONTARIO

SCALE: AS NOTED	UNITS: mm, UNO	
DESIGNED: TC	CHECKED: TC	DRAWN: PM\JC

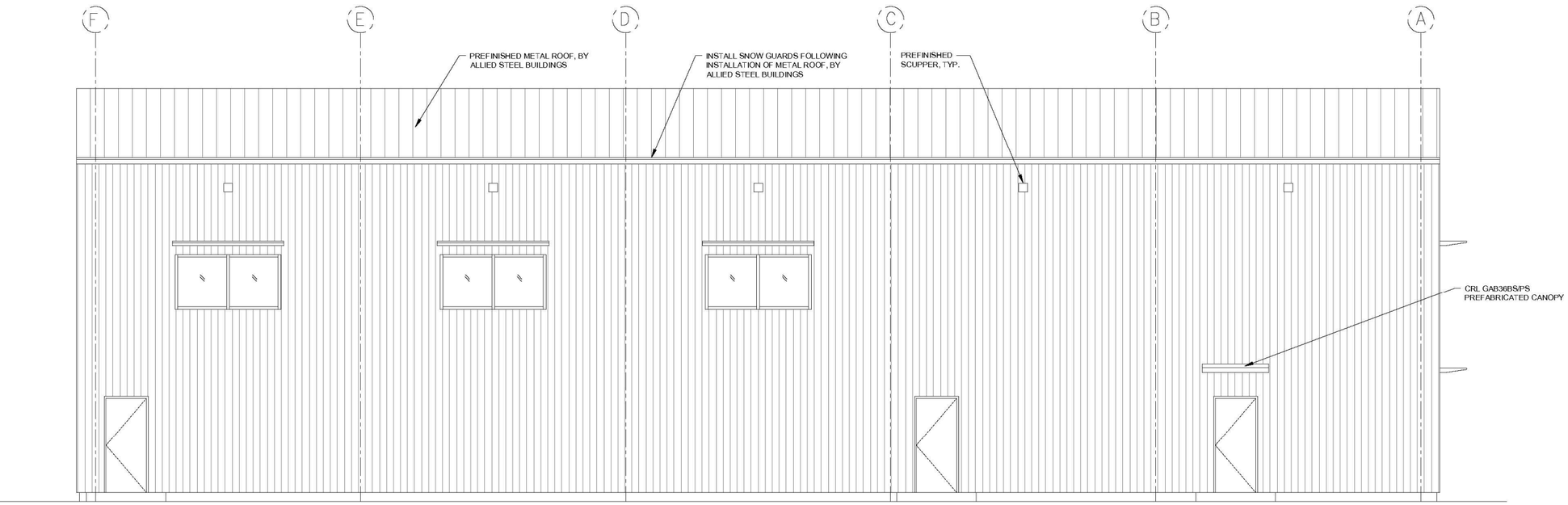
DRAWING TITLE:

SECOND FLOOR PLAN

DRAWING No.:	A2
PROJECT No.:	21-109
DATE:	JAN 25, 2022



1 / A3 WEST ELEVATION
SCALE: 1 : 50



2 / A3 EAST ELEVATION
SCALE: 1 : 50

FIGURE 5

OFFICE & WAREHOUSE

479 Highway 2,
Gananoque, ON

CLIENT:

ECO TREE CARE

ASTERISK ENGINEERING CORPORATION
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K7M 4X6
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ISSUED FOR	REV	DATE
For Review	-	Aug 12, 2021

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This drawings are "design drawings" only and are not intended to be used as shop drawings.

LEGEND:

LICENCED PROFESSIONAL ENGINEER
T. AVILAR PEREIRA GALDAS
100074114
JAN 25, 2022
PROVINCE OF ONTARIO

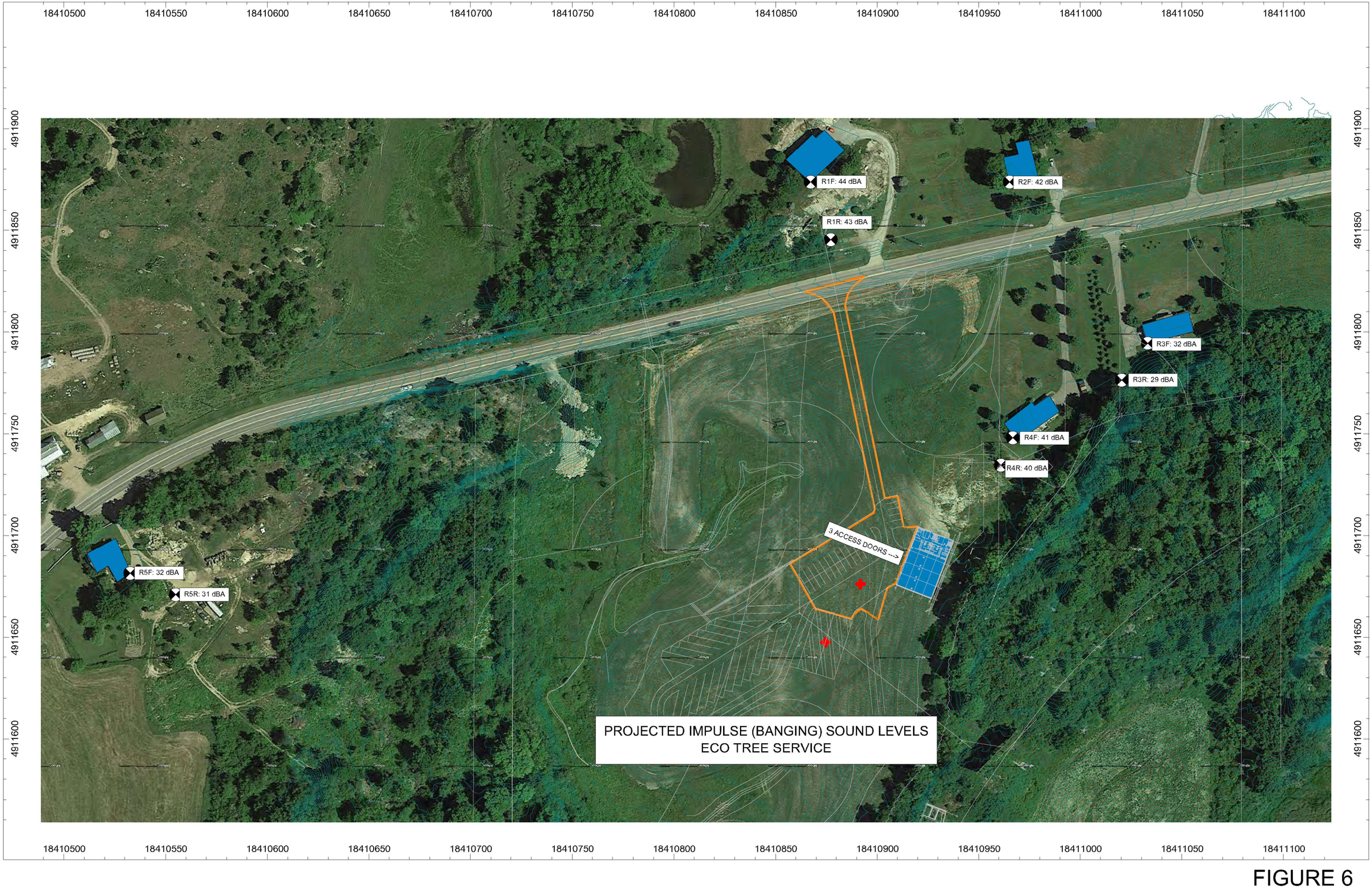
SCALE: AS NOTED	UNITS: mm, UNO

DESIGNED:	CHECKED:	DRAWN:
TC	TC	PM\JC

DRAWING TITLE:

WEST AND EAST ELEVATIONS

DRAWING No.:	A3
PROJECT No.:	21-109
DATE:	JAN 25, 2022


18410500
18410550
18410600
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18410700
18410750
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18410900
18410950
18411000
18411050
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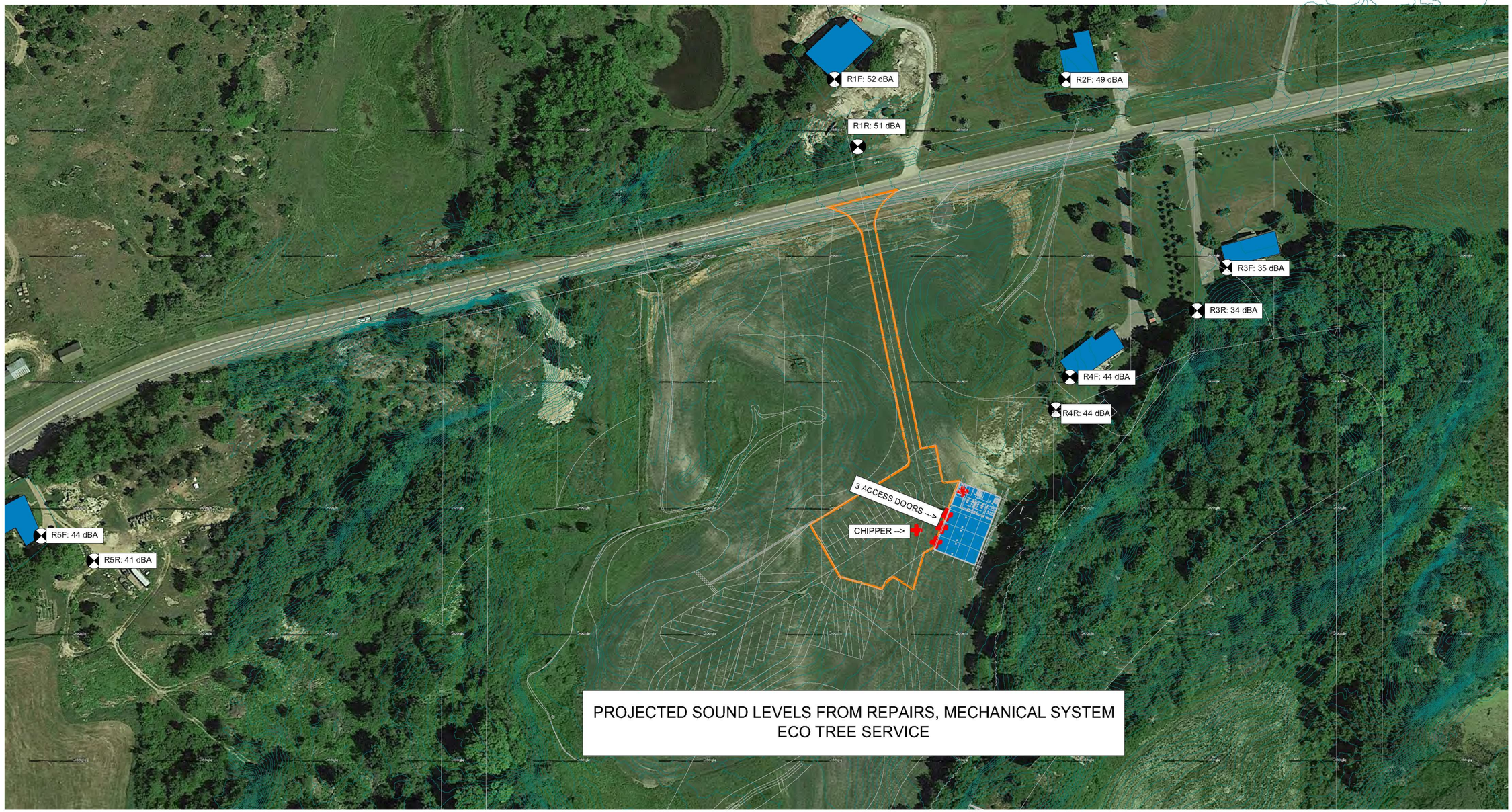
4911900
4911850
4911800
4911750
4911700
4911650
4911600
R1F: 44 dBA
R1R: 43 dBA
R2F: 42 dBA
R3F: 32 dBA
R3R: 29 dBA
R4F: 41 dBA
R4R: 40 dBA
R5F: 32 dBA
R5R: 31 dBA
3 ACCESS DOORS --->
PROJECTED IMPULSE (BANGING) SOUND LEVELS
ECO TREE SERVICE

FIGURE 6

18410550 18410600 18410650 18410700 18410750 18410800 18410850 18410900 18410950 18411000 18411050 18411100

4911900 4911850 4911800 4911750 4911700 4911650 4911600



PROJECTED SOUND LEVELS FROM REPAIRS, MECHANICAL SYSTEM
ECO TREE SERVICE

18410550 18410600 18410650 18410700 18410750 18410800 18410850 18410900 18410950 18411000 18411050 18411100

FIGURE 7

APPENDIX B: TRAFFIC DATA

Traffic Counts on County Roads

Visit the Map Gallery

Leeds Grenville

Leeds (2018) | Grenville (2019)

Background Information:

The values noted at each station represent the total volume of vehicles (in both directions) on the roadway for a 24-hour period, averaged over spring, summer and fall.

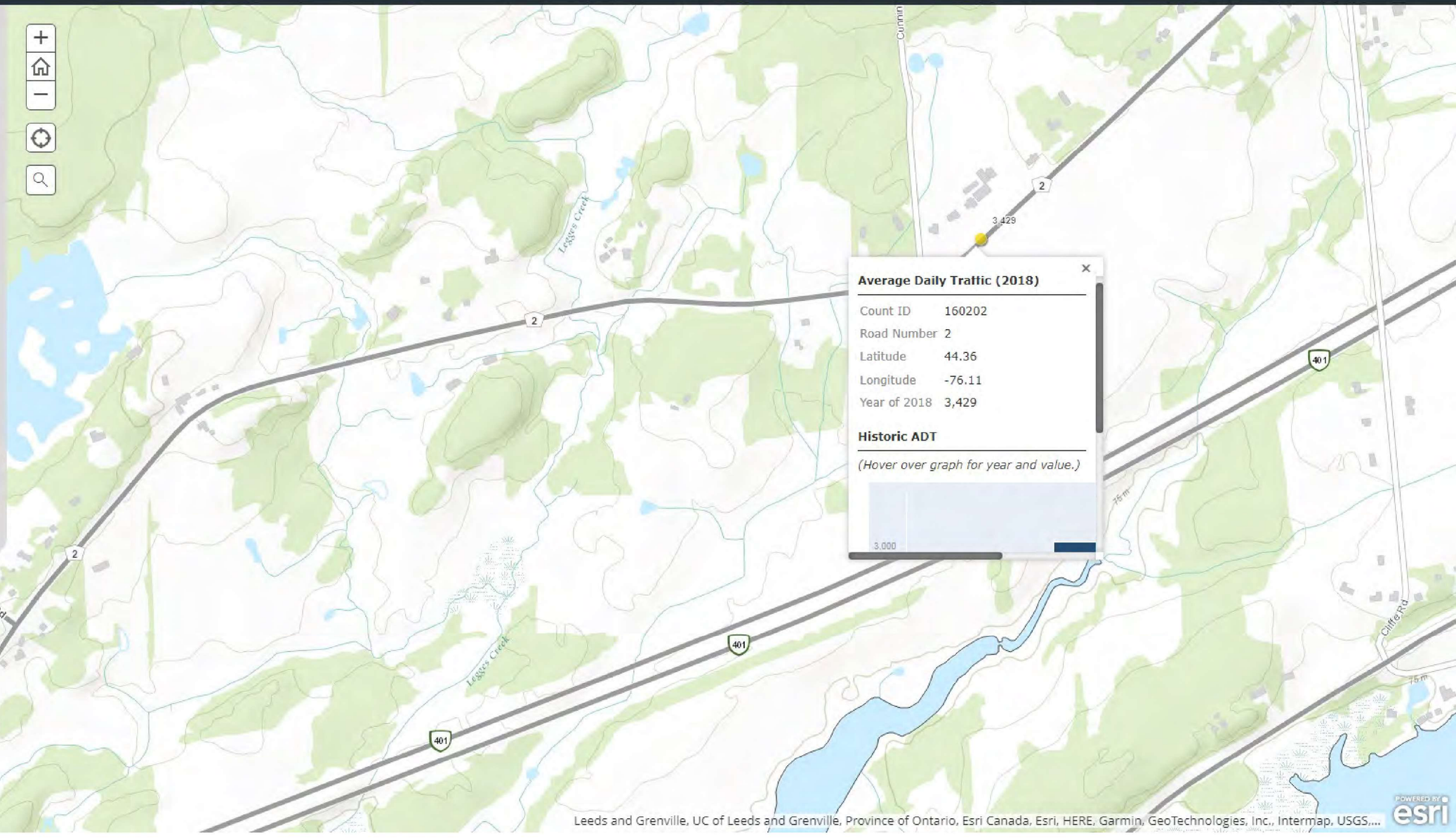
The most recent year is displayed on the map. If you are interested in historic values, select the location and hover your cursor over the graph to see values from previous years.

For more detailed information, please contact roads@uclg.on.ca.

Vehicles Per Day

Year of 2018

- 10,000 – 20,000
- 5,000 – 10,000
- 2,000 – 5,000
- 500 – 2,000
- 0 – 500



Subject: RE: Hwy 401 - Comm Truck %
From: "Boehmer, Cliff (MTO)" <Cliff.Boehmer@ontario.ca>
Date: 2022-02-01, 9:35 a.m.
To: Howard Patlik <hpatlik@jecoulterassoc.com>

Good morning Howard,

Here is the data as requested,

LHRS	Year	Description	AADT	SWADT	Truck %
47380	2019	Hwy 2 IC-648	28500	37800	27

Please do not hesitate to contact me should you require more information,

Cliff Boehmer, Traffic Analyst
Traffic Engineering East, Design and Engineering Branch
Transportation Infrastructure Management Division
Ministry of Transportation
1355 John Counter Blvd, PO Box 4000
Kingston ON K7L 5A3
Cell: 613-483-2189
Fax: 613-540-5106
Email: Cliff.Boehmer@ontario.ca

From: Howard Patlik <hpatlik@jecoulterassoc.com>
Sent: January 27, 2022 4:13 PM
To: Boehmer, Cliff (MTO) <Cliff.Boehmer@ontario.ca>
Subject: Re: Hwy 401 - Comm Truck %

Hi,

It is highway 401 just east of Hwy 2 (IC 687) at east of Hiscocks Rd. Site is east of Gananogue. See pic at bottom

Regards,

Howard Patlik

On 2022-01-27 12:46 p.m., Boehmer, Cliff (MTO) wrote:

> Hello Howard,
>
> Thank you for your request, I would be happy to assist you in providing the informat
>
> Please do not hesitate to contact me should you require more information,
>
> Cliff Boehmer, Traffic Analyst
> Traffic Engineering East, Design and Engineering Branch
> Transportation Infrastructure Management Division
> Ministry of Transportation
> 1355 John Counter Blvd, PO Box 4000
> Kingston ON K7L 5A3
> Cell: 613-483-2189

APPENDIX C: SOUND LEVEL CALCULATIONS

CADNAA – IMPULSE SOUNDS – DAYTIME

DAYTIME - PROJECTED IMPULSE SOUND LEVELS FROM BANGING

Receiver
Name: R1F
ID: R1F
X: 18410867.43 m
Y: 4911873.74 m
Z: 93.50 m

Point Source, ISO 9613, Name: "Banging", ID: "IMP"																			
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
1	18410891.96	4911676.00	83.50	0	DEN	500	97.0	0.0	0.0	0.0	0.0	57.0	0.4	-1.3	0.0	0.0	0.0	0.0	0.0	40.9
4	18410891.96	4911676.00	83.50	1	DEN	500	97.0	0.0	0.0	0.0	0.0	57.7	0.4	-1.8	0.0	0.0	0.0	0.0	1.0	39.6

Point Source, ISO 9613, Name: "Banging", ID: "IMP"																			
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
7	18410874.67	4911647.63	82.84	0	DEN	500	97.0	0.0	0.0	0.0	0.0	58.1	0.4	3.4	0.0	0.0	0.0	0.0	0.0	35.1

9+ BANGS PER HOUR

DAYTIME - PROJECTED IMPULSE SOUND LEVELS FROM BANGING

Receiver
Name: R1R
ID: R1R
X: 18410877.30 m
Y: 4911845.43 m
Z: 89.64 m

Point Source, ISO 9613, Name: "Banging", ID: "IMP"																			
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
2	18410891.96	4911676.00	83.50	0	DEN	500	97.0	0.0	0.0	0.0	0.0	55.6	0.3	0.1	0.0	0.0	0.0	0.0	0.0	40.9
5	18410891.96	4911676.00	83.50	1	DEN	500	97.0	0.0	0.0	0.0	0.0	56.4	0.4	2.0	0.0	0.0	0.0	0.0	1.0	37.2

Point Source, ISO 9613, Name: "Banging", ID: "IMP"																			
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
8	18410874.67	4911647.63	82.84	0	DEN	500	97.0	0.0	0.0	0.0	0.0	56.9	0.4	6.6	0.0	0.0	0.0	0.0	0.0	33.1

9+ BANGS PER HOUR

DAYTIME - PROJECTED IMPULSE SOUND LEVELS FROM BANGING

Receiver
Name: R2F
ID: R2F
X: 18410965.22 m
Y: 4911873.74 m
Z: 92.12 m

Point Source, ISO 9613, Name: "Banging", ID: "IMP"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
3	18410891.96	4911676.00	83.50	0	DEN	500	97.0	0.0	0.0	0.0	0.0	57.5	0.4	-1.7	0.0	0.0	0.0	0.0	0.0	40.8

Point Source, ISO 9613, Name: "Banging", ID: "IMP"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
6	18410874.67	4911647.63	82.84	0	DEN	500	97.0	0.0	0.0	0.0	0.0	58.7	0.5	2.9	0.0	0.0	0.0	0.0	0.0	34.9

9+ BANGS PER HOUR

DAYTIME - PROJECTED IMPULSE SOUND LEVELS FROM BANGING

Receiver
Name: R3F
ID: R3F
X: 18411033.19 m
Y: 4911794.40 m
Z: 87.69 m

Point Source, ISO 9613, Name: "Banging", ID: "IMP"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
9	18410891.96	4911676.00	83.50	0	DEN	500	97.0	0.0	0.0	0.0	0.0	56.3	0.4	0.6	0.0	0.0	8.6	0.0	0.0	31.1

Point Source, ISO 9613, Name: "Banging", ID: "IMP"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
13	18410874.67	4911647.63	82.84	0	DEN	500	97.0	0.0	0.0	0.0	0.0	57.7	0.4	8.1	0.0	0.0	7.5	0.0	0.0	23.3

9+ BANGS PER HOUR

DAYTIME - PROJECTED IMPULSE SOUND LEVELS FROM BANGING

Receiver
Name: R3R
ID: R3R
X: 18411020.46 m
Y: 4911776.26 m
Z: 87.38 m

Point Source, ISO 9613, Name: "Banging", ID: "IMP"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
12	18410891.96	4911676.00	83.50	0	DEN	500	97.0	0.0	0.0	0.0	0.0	55.2	0.3	3.3	0.0	0.0	9.9	0.0	0.0	28.3

Point Source, ISO 9613, Name: "Banging", ID: "IMP"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
16	18410874.67	4911647.63	82.84	0	DEN	500	97.0	0.0	0.0	0.0	0.0	56.8	0.4	11.3	0.0	0.0	5.5	0.0	0.0	23.1

9+ BANGS PER HOUR

DAYTIME - PROJECTED IMPULSE SOUND LEVELS FROM BANGING

Receiver
Name: R4F
ID: R4F
X: 18410966.87 m
Y: 4911748.07 m
Z: 86.61 m

Point Source, ISO 9613, Name: "Banging", ID: "IMP"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
10	18410891.96	4911676.00	83.50	0	DEN	500	97.0	0.0	0.0	0.0	0.0	51.3	0.2	0.2	0.0	0.0	4.8	0.0	0.0	40.4

Point Source, ISO 9613, Name: "Banging", ID: "IMP"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
15	18410874.67	4911647.63	82.84	0	DEN	500	97.0	0.0	0.0	0.0	0.0	53.7	0.3	5.2	0.0	0.0	8.4	0.0	0.0	29.5

9+ BANGS PER HOUR

DAYTIME - PROJECTED IMPULSE SOUND LEVELS FROM BANGING

Receiver
Name: R4R
ID: R4R
X: 18410960.98 m
Y: 4911734.39 m
Z: 88.81 m

Point Source, ISO 9613, Name: "Banging", ID: "IMP"																			
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
11	18410891.96	4911676.00	83.50	0	DEN	500	97.0	0.0	0.0	0.0	0.0	50.1	0.2	-2.0	0.0	0.0	9.3	0.0	0.0	39.4

Point Source, ISO 9613, Name: "Banging", ID: "IMP"																			
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
14	18410874.67	4911647.63	82.84	0	DEN	500	97.0	0.0	0.0	0.0	0.0	52.8	0.2	3.3	0.0	0.0	10.9	0.0	0.0	29.8

9+ BANGS PER HOUR

DAYTIME - PROJECTED IMPULSE SOUND LEVELS FROM BANGING

Receiver
Name: R5F
ID: R5F
X: 18410532.70 m
Y: 4911681.31 m
Z: 98.50 m

Point Source, ISO 9613, Name: "Banging", ID: "IMP"																			
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
18	18410874.67	4911647.63	82.84	0	DEN	500	97.0	0.0	0.0	0.0	0.0	61.7	0.7	8.8	0.0	0.0	0.0	0.0	0.0	25.8

Point Source, ISO 9613, Name: "Banging", ID: "IMP"																			
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
20	18410891.96	4911676.00	83.50	0	DEN	500	97.0	0.0	0.0	0.0	0.0	62.1	0.7	-1.3	0.0	0.0	4.8	0.0	0.0	30.7

9+ BANGS PER HOUR

DAYTIME - PROJECTED IMPULSE SOUND LEVELS FROM BANGING

Receiver
Name: R5R
ID: R5R
X: 18410554.97 m
Y: 4911670.81 m
Z: 94.53 m

Point Source, ISO 9613, Name: "Banging", ID: "IMP"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
17	18410874.67	4911647.63	82.84	0	DEN	500	97.0	0.0	0.0	0.0	0.0	61.1	0.6	13.8	0.0	0.0	0.0	0.0	0.0	21.5

Point Source, ISO 9613, Name: "Banging", ID: "IMP"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
19	18410891.96	4911676.00	83.50	0	DEN	500	97.0	0.0	0.0	0.0	0.0	61.6	0.7	3.9	0.0	0.0	0.9	0.0	0.0	30.0

9+ BANGS PER HOUR

CADNAA – REPAIRS & HVAC SOUNDS – DAYTIME

Receiver
Name: R1F
ID: R1F
X: 18410867.43 m
Y: 4911873.74 m
Z: 93.50 m

Point Source, ISO 9613, Name: "Chipper", ID: "CHIPPER"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
1	18410901.98	4911683.71	84.60	0	DEN	500	103.0	0.0	0.0	0.0	0.0	56.7	0.4	0.8	0.0	0.0	0.0	0.0	0.0	45.1
5	18410901.98	4911683.71	84.60	1	DEN	500	103.0	0.0	0.0	0.0	0.0	57.2	0.4	-1.4	0.0	0.0	0.0	0.0	1.0	45.8

Point Source, ISO 9613, Name: "Pneumatic Tools", ID: "GAR"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
14	18410914.87	4911690.35	85.80	0	D	500	99.4	0.0	0.0	0.0	0.0	56.6	0.4	0.0	0.0	0.0	0.0	0.0	0.0	42.5

Point Source, ISO 9613, Name: "Pneumatic Tools", ID: "GAR"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
17	18410912.82	4911685.03	85.81	0	D	500	99.4	0.0	0.0	0.0	0.0	56.8	0.4	-0.7	0.0	0.0	0.0	0.0	0.0	43.0

Point Source, ISO 9613, Name: "Pneumatic Tools", ID: "GAR"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
21	18410910.44	4911678.84	85.70	0	D	500	99.4	0.0	0.0	0.0	0.0	57.0	0.4	-2.5	0.0	0.0	0.0	0.0	0.0	44.5

Point Source, ISO 9613, Name: "Gen Activity", ID: "GEN"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
25	18410914.72	4911689.96	85.80	0	DEN	500	90.0	0.0	0.0	0.0	0.0	56.6	0.4	-0.0	0.0	0.0	0.0	0.0	0.0	33.1

Point Source, ISO 9613, Name: "Gen Activity", ID: "GEN"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
28	18410912.64	4911684.59	85.80	0	DEN	500	90.0	0.0	0.0	0.0	0.0	56.8	0.4	-0.8	0.0	0.0	0.0	0.0	0.0	33.7

Point Source, ISO 9613, Name: "Gen Activity", ID: "GEN"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
31	18410910.29	4911678.46	85.68	0	DEN	500	90.0	0.0	0.0	0.0	0.0	57.0	0.4	-2.5	0.0	0.0	0.0	0.0	0.0	35.1

Point Source, ISO 9613, Name: "HVAC", ID: "HVAC"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
34	18410921.52	4911700.00	92.90	0	DEN	500	82.0	0.0	0.0	0.0	0.0	56.2	0.4	-0.2	0.0	0.0	0.0	0.0	0.0	25.6

Receiver
Name: R1R
ID: R1R
X: 18410877.30 m
Y: 4911845.43 m
Z: 89.64 m

Point Source, ISO 9613, Name: "Chipper", ID: "CHIPPER"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
2	18410901.98	4911683.71	84.60	0	DEN	500	103.0	0.0	0.0	0.0	0.0	55.3	0.3	1.3	0.0	0.0	0.0	0.0	0.0	46.0
6	18410901.98	4911683.71	84.60	1	DEN	500	103.0	0.0	0.0	0.0	0.0	55.8	0.3	2.4	0.0	0.0	0.0	0.0	1.0	43.4

Point Source, ISO 9613, Name: "Pneumatic Tools", ID: "GAR"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
9	18410914.87	4911690.35	85.80	0	D	500	99.4	0.0	0.0	0.0	0.0	55.1	0.3	3.8	0.0	0.0	0.0	0.0	0.0	40.2

Point Source, ISO 9613, Name: "Pneumatic Tools", ID: "GAR"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
12	18410912.82	4911685.03	85.81	0	D	500	99.4	0.0	0.0	0.0	0.0	55.3	0.3	3.4	0.0	0.0	0.0	0.0	0.0	40.4

Point Source, ISO 9613, Name: "Pneumatic Tools", ID: "GAR"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
13	18410910.44	4911678.84	85.70	0	D	500	99.4	0.0	0.0	0.0	0.0	55.6	0.3	-1.1	0.0	0.0	0.0	0.0	0.0	44.6

Point Source, ISO 9613, Name: "Gen Activity", ID: "GEN"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
16	18410914.72	4911689.96	85.80	0	DEN	500	90.0	0.0	0.0	0.0	0.0	55.1	0.3	3.8	0.0	0.0	0.0	0.0	0.0	30.8

Point Source, ISO 9613, Name: "Gen Activity", ID: "GEN"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
20	18410912.64	4911684.59	85.80	0	DEN	500	90.0	0.0	0.0	0.0	0.0	55.3	0.3	3.3	0.0	0.0	0.0	0.0	0.0	31.0

Point Source, ISO 9613, Name: "Gen Activity", ID: "GEN"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
23	18410910.29	4911678.46	85.68	0	DEN	500	90.0	0.0	0.0	0.0	0.0	55.6	0.3	-1.1	0.0	0.0	0.0	0.0	0.0	35.1

Point Source, ISO 9613, Name: "HVAC", ID: "HVAC"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
27	18410921.52	4911700.00	92.90	0	DEN	500	82.0	0.0	0.0	0.0	0.0	54.6	0.3	3.7	0.0	0.0	0.0	0.0	0.0	23.3

Receiver
Name: R2F
ID: R2F
X: 18410965.22 m
Y: 4911873.74 m
Z: 92.12 m

Point Source, ISO 9613, Name: "Chipper", ID: "CHIPPER"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
3	18410901.98	4911683.71	84.60	0	DEN	500	103.0	0.0	0.0	0.0	0.0	57.0	0.4	0.6	0.0	0.0	0.0	0.0	0.0	45.0

Point Source, ISO 9613, Name: "Pneumatic Tools", ID: "GAR"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
7	18410914.87	4911690.35	85.80	0	D	500	99.4	0.0	0.0	0.0	0.0	56.6	0.4	1.5	0.0	0.0	0.0	0.0	0.0	41.0

Point Source, ISO 9613, Name: "Pneumatic Tools", ID: "GAR"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
10	18410912.82	4911685.03	85.81	0	D	500	99.4	0.0	0.0	0.0	0.0	56.8	0.4	1.1	0.0	0.0	0.0	0.0	0.0	41.1

Point Source, ISO 9613, Name: "Pneumatic Tools", ID: "GAR"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
15	18410910.44	4911678.84	85.70	0	D	500	99.4	0.0	0.0	0.0	0.0	57.1	0.4	0.7	0.0	0.0	0.0	0.0	0.0	41.2

Point Source, ISO 9613, Name: "Gen Activity", ID: "GEN"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
19	18410914.72	4911689.96	85.80	0	DEN	500	90.0	0.0	0.0	0.0	0.0	56.6	0.4	1.4	0.0	0.0	0.0	0.0	0.0	31.6

Point Source, ISO 9613, Name: "Gen Activity", ID: "GEN"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
24	18410912.64	4911684.59	85.80	0	DEN	500	90.0	0.0	0.0	0.0	0.0	56.9	0.4	1.1	0.0	0.0	0.0	0.0	0.0	31.7

Point Source, ISO 9613, Name: "Gen Activity", ID: "GEN"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
29	18410910.29	4911678.46	85.68	0	DEN	500	90.0	0.0	0.0	0.0	0.0	57.1	0.4	0.7	0.0	0.0	0.0	0.0	0.0	31.7

Point Source, ISO 9613, Name: "HVAC", ID: "HVAC"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
32	18410921.52	4911700.00	92.90	0	DEN	500	82.0	0.0	0.0	0.0	0.0	56.1	0.3	0.0	0.0	0.0	0.0	0.0	0.0	25.6

Receiver
Name: R3F
ID: R3F
X: 18411033.19 m
Y: 4911794.40 m
Z: 87.69 m

Point Source, ISO 9613, Name: "Chipper", ID: "CHIPPER"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
4	18410901.98	4911683.71	84.60	0	DEN	500	103.0	0.0	0.0	0.0	0.0	55.7	0.3	4.3	0.0	0.0	9.5	0.0	0.0	33.3

Point Source, ISO 9613, Name: "Pneumatic Tools", ID: "GAR"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
8	18410914.87	4911690.35	85.80	0	D	500	99.4	0.0	0.0	0.0	0.0	54.9	0.3	4.3	0.0	0.0	15.8	0.0	0.0	24.1

Point Source, ISO 9613, Name: "Pneumatic Tools", ID: "GAR"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
11	18410912.82	4911685.03	85.81	0	D	500	99.4	0.0	0.0	0.0	0.0	55.2	0.3	4.3	0.0	0.0	16.6	0.0	0.0	23.0

Point Source, ISO 9613, Name: "Pneumatic Tools", ID: "GAR"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
18	18410910.44	4911678.84	85.70	0	D	500	99.4	0.0	0.0	0.0	0.0	55.5	0.3	4.3	0.0	0.0	17.1	0.0	0.0	22.2

Point Source, ISO 9613, Name: "Gen Activity", ID: "GEN"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
22	18410914.72	4911689.96	85.80	0	DEN	500	90.0	0.0	0.0	0.0	0.0	55.0	0.3	4.3	0.0	0.0	15.9	0.0	0.0	14.6

Point Source, ISO 9613, Name: "Gen Activity", ID: "GEN"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
26	18410912.64	4911684.59	85.80	0	DEN	500	90.0	0.0	0.0	0.0	0.0	55.2	0.3	4.3	0.0	0.0	16.6	0.0	0.0	13.6

Point Source, ISO 9613, Name: "Gen Activity", ID: "GEN"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
30	18410910.29	4911678.46	85.68	0	DEN	500	90.0	0.0	0.0	0.0	0.0	55.6	0.3	4.3	0.0	0.0	17.1	0.0	0.0	12.7

Point Source, ISO 9613, Name: "HVAC", ID: "HVAC"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
33	18410921.52	4911700.00	92.90	0	DEN	500	82.0	0.0	0.0	0.0	0.0	54.3	0.3	2.1	0.0	0.0	0.0	0.0	0.0	25.3

Receiver
Name: R3R
ID: R3R
X: 18411020.46 m
Y: 4911776.26 m
Z: 87.38 m

Point Source, ISO 9613, Name: "Chipper", ID: "CHIPPER"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
35	18410901.98	4911683.71	84.60	0	DEN	500	103.0	0.0	0.0	0.0	0.0	54.5	0.3	6.9	0.0	0.0	9.7	0.0	0.0	31.5

Point Source, ISO 9613, Name: "Pneumatic Tools", ID: "GAR"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
37	18410914.87	4911690.35	85.80	0	D	500	99.4	0.0	0.0	0.0	0.0	53.7	0.3	6.7	0.0	0.0	15.2	0.0	0.0	23.5

Point Source, ISO 9613, Name: "Pneumatic Tools", ID: "GAR"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
40	18410912.82	4911685.03	85.81	0	D	500	99.4	0.0	0.0	0.0	0.0	54.0	0.3	6.8	0.0	0.0	15.7	0.0	0.0	22.7

Point Source, ISO 9613, Name: "Pneumatic Tools", ID: "GAR"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
43	18410910.44	4911678.84	85.70	0	D	500	99.4	0.0	0.0	0.0	0.0	54.3	0.3	6.8	0.0	0.0	16.0	0.0	0.0	21.9

Point Source, ISO 9613, Name: "Gen Activity", ID: "GEN"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
48	18410914.72	4911689.96	85.80	0	DEN	500	90.0	0.0	0.0	0.0	0.0	53.7	0.3	6.7	0.0	0.0	15.3	0.0	0.0	14.0

Point Source, ISO 9613, Name: "Gen Activity", ID: "GEN"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
52	18410912.64	4911684.59	85.80	0	DEN	500	90.0	0.0	0.0	0.0	0.0	54.0	0.3	6.8	0.0	0.0	15.8	0.0	0.0	13.2

Point Source, ISO 9613, Name: "Gen Activity", ID: "GEN"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
55	18410910.29	4911678.46	85.68	0	DEN	500	90.0	0.0	0.0	0.0	0.0	54.4	0.3	6.8	0.0	0.0	16.1	0.0	0.0	12.5

Point Source, ISO 9613, Name: "HVAC", ID: "HVAC"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
59	18410921.52	4911700.00	92.90	0	DEN	500	82.0	0.0	0.0	0.0	0.0	52.9	0.2	4.6	0.0	0.0	0.0	0.0	0.0	24.3

Receiver
Name: R4F
ID: R4F
X: 18410966.87 m
Y: 4911748.07 m
Z: 86.61 m

Point Source, ISO 9613, Name: "Chipper", ID: "CHIPPER"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
36	18410901.98	4911683.71	84.60	0	DEN	500	103.0	0.0	0.0	0.0	0.0	50.2	0.2	3.2	0.0	0.0	6.5	0.0	0.0	42.9

Point Source, ISO 9613, Name: "Pneumatic Tools", ID: "GAR"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
38	18410914.87	4911690.35	85.80	0	D	500	99.4	0.0	0.0	0.0	0.0	48.8	0.1	3.5	0.0	0.0	14.7	0.0	0.0	32.2

Point Source, ISO 9613, Name: "Pneumatic Tools", ID: "GAR"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
41	18410912.82	4911685.03	85.81	0	D	500	99.4	0.0	0.0	0.0	0.0	49.4	0.2	3.6	0.0	0.0	15.5	0.0	0.0	30.8

Point Source, ISO 9613, Name: "Pneumatic Tools", ID: "GAR"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
44	18410910.44	4911678.84	85.70	0	D	500	99.4	0.0	0.0	0.0	0.0	50.0	0.2	3.7	0.0	0.0	16.0	0.0	0.0	29.5

Point Source, ISO 9613, Name: "Gen Activity", ID: "GEN"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
46	18410914.72	4911689.96	85.80	0	DEN	500	90.0	0.0	0.0	0.0	0.0	48.9	0.2	3.5	0.0	0.0	14.8	0.0	0.0	22.7

Point Source, ISO 9613, Name: "Gen Activity", ID: "GEN"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
51	18410912.64	4911684.59	85.80	0	DEN	500	90.0	0.0	0.0	0.0	0.0	49.4	0.2	3.6	0.0	0.0	15.5	0.0	0.0	21.3

Point Source, ISO 9613, Name: "Gen Activity", ID: "GEN"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
54	18410910.29	4911678.46	85.68	0	DEN	500	90.0	0.0	0.0	0.0	0.0	50.1	0.2	3.7	0.0	0.0	16.1	0.0	0.0	20.0

Point Source, ISO 9613, Name: "HVAC", ID: "HVAC"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
57	18410921.52	4911700.00	92.90	0	DEN	500	82.0	0.0	0.0	0.0	0.0	47.4	0.1	1.6	0.0	0.0	0.0	0.0	0.0	32.8

Receiver
Name: R4R
ID: R4R
X: 18410960.98 m
Y: 4911734.39 m
Z: 88.81 m

Point Source, ISO 9613, Name: "Chipper", ID: "CHIPPER"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
39	18410901.98	4911683.71	84.60	0	DEN	500	103.0	0.0	0.0	0.0	0.0	48.8	0.2	1.2	0.0	0.0	10.6	0.0	0.0	42.2

Point Source, ISO 9613, Name: "Pneumatic Tools", ID: "GAR"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
42	18410914.87	4911690.35	85.80	0	D	500	99.4	0.0	0.0	0.0	0.0	47.1	0.1	1.6	0.0	0.0	16.4	0.0	0.0	34.1

Point Source, ISO 9613, Name: "Pneumatic Tools", ID: "GAR"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
45	18410912.82	4911685.03	85.81	0	D	500	99.4	0.0	0.0	0.0	0.0	47.8	0.1	1.7	0.0	0.0	17.2	0.0	0.0	32.6

Point Source, ISO 9613, Name: "Pneumatic Tools", ID: "GAR"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
47	18410910.44	4911678.84	85.70	0	D	500	99.4	0.0	0.0	0.0	0.0	48.5	0.1	1.7	0.0	0.0	17.7	0.0	0.0	31.3

Point Source, ISO 9613, Name: "Gen Activity", ID: "GEN"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
50	18410914.72	4911689.96	85.80	0	DEN	500	90.0	0.0	0.0	0.0	0.0	47.2	0.1	1.6	0.0	0.0	16.5	0.0	0.0	24.6

Point Source, ISO 9613, Name: "Gen Activity", ID: "GEN"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
53	18410912.64	4911684.59	85.80	0	DEN	500	90.0	0.0	0.0	0.0	0.0	47.8	0.1	1.7	0.0	0.0	17.2	0.0	0.0	23.1

Point Source, ISO 9613, Name: "Gen Activity", ID: "GEN"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
56	18410910.29	4911678.46	85.68	0	DEN	500	90.0	0.0	0.0	0.0	0.0	48.6	0.1	1.7	0.0	0.0	17.7	0.0	0.0	21.8

Point Source, ISO 9613, Name: "HVAC", ID: "HVAC"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
58	18410921.52	4911700.00	92.90	0	DEN	500	82.0	0.0	0.0	0.0	0.0	45.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	36.5

Receiver
Name: R5F
ID: R5F
X: 18410532.70 m
Y: 4911681.31 m
Z: 98.50 m

Point Source, ISO 9613, Name: "Chipper", ID: "CHIPPER"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
49	18410901.98	4911683.71	84.60	0	DEN	500	103.0	0.0	0.0	0.0	0.0	62.4	0.7	-1.3	0.0	0.0	4.8	0.0	0.0	36.4
60	18410901.98	4911683.71	84.60	1	DEN	500	103.0	0.0	0.0	0.0	0.0	62.8	0.7	-1.5	0.0	0.0	0.0	0.0	1.0	40.0

Point Source, ISO 9613, Name: "Pneumatic Tools", ID: "GAR"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
62	18410910.44	4911678.84	85.70	0	D	500	99.4	0.0	0.0	0.0	0.0	62.5	0.7	-0.8	0.0	0.0	0.0	0.0	0.0	37.0

Point Source, ISO 9613, Name: "Pneumatic Tools", ID: "GAR"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
65	18410912.82	4911685.03	85.81	0	D	500	99.4	0.0	0.0	0.0	0.0	62.6	0.7	-1.2	0.0	0.0	0.0	0.0	0.0	37.2

Point Source, ISO 9613, Name: "Pneumatic Tools", ID: "GAR"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
67	18410914.87	4911690.35	85.80	0	D	500	99.4	0.0	0.0	0.0	0.0	62.7	0.7	-1.0	0.0	0.0	4.8	0.0	0.0	32.3

Point Source, ISO 9613, Name: "Gen Activity", ID: "GEN"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
69	18410910.29	4911678.46	85.68	0	DEN	500	90.0	0.0	0.0	0.0	0.0	62.5	0.7	-0.8	0.0	0.0	0.0	0.0	0.0	27.5

Point Source, ISO 9613, Name: "Gen Activity", ID: "GEN"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
71	18410912.64	4911684.59	85.80	0	DEN	500	90.0	0.0	0.0	0.0	0.0	62.6	0.7	-1.1	0.0	0.0	0.0	0.0	0.0	27.8

Point Source, ISO 9613, Name: "Gen Activity", ID: "GEN"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
73	18410914.72	4911689.96	85.80	0	DEN	500	90.0	0.0	0.0	0.0	0.0	62.6	0.7	-1.1	0.0	0.0	4.8	0.0	0.0	22.9

Point Source, ISO 9613, Name: "HVAC", ID: "HVAC"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
75	18410921.52	4911700.00	92.90	0	DEN	500	82.0	0.0	0.0	0.0	0.0	62.8	0.8	-0.2	0.0	0.0	0.0	0.0	0.0	18.7

Receiver
Name: R5R
ID: R5R
X: 18410554.97 m
Y: 4911670.81 m
Z: 94.53 m

Point Source, ISO 9613, Name: "Chipper", ID: "CHIPPER"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
61	18410901.98	4911683.71	84.60	0	DEN	500	103.0	0.0	0.0	0.0	0.0	61.8	0.7	3.8	0.0	0.0	1.0	0.0	0.0	35.7
63	18410901.98	4911683.71	84.60	1	DEN	500	103.0	0.0	0.0	0.0	0.0	62.3	0.7	3.5	0.0	0.0	1.3	0.0	1.0	34.3

Point Source, ISO 9613, Name: "Pneumatic Tools", ID: "GAR"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
64	18410910.44	4911678.84	85.70	0	D	500	99.4	0.0	0.0	0.0	0.0	62.0	0.7	4.2	0.0	0.0	0.6	0.0	0.0	31.9

Point Source, ISO 9613, Name: "Pneumatic Tools", ID: "GAR"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
66	18410912.82	4911685.03	85.81	0	D	500	99.4	0.0	0.0	0.0	0.0	62.1	0.7	3.9	0.0	0.0	0.9	0.0	0.0	31.9

Point Source, ISO 9613, Name: "Pneumatic Tools", ID: "GAR"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
68	18410914.87	4911690.35	85.80	0	D	500	99.4	0.0	0.0	0.0	0.0	62.1	0.7	3.8	0.0	0.0	1.0	0.0	0.0	31.8

Point Source, ISO 9613, Name: "Gen Activity", ID: "GEN"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
70	18410910.29	4911678.46	85.68	0	DEN	500	90.0	0.0	0.0	0.0	0.0	62.0	0.7	4.2	0.0	0.0	0.6	0.0	0.0	22.5

Point Source, ISO 9613, Name: "Gen Activity", ID: "GEN"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
72	18410912.64	4911684.59	85.80	0	DEN	500	90.0	0.0	0.0	0.0	0.0	62.1	0.7	3.9	0.0	0.0	0.9	0.0	0.0	22.5

Point Source, ISO 9613, Name: "Gen Activity", ID: "GEN"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
74	18410914.72	4911689.96	85.80	0	DEN	500	90.0	0.0	0.0	0.0	0.0	62.1	0.7	3.7	0.0	0.0	1.0	0.0	0.0	22.4

Point Source, ISO 9613, Name: "HVAC", ID: "HVAC"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
76	18410921.52	4911700.00	92.90	0	DEN	500	82.0	0.0	0.0	0.0	0.0	62.3	0.7	4.7	0.0	0.0	0.1	0.0	0.0	14.2

APPENDIX D: REFERENCES

1. Ministry of Environment's *STAMSON* Computer Programme (Version 5.04) for the IBM PC.

2. Ministry of the Environment, “Publication NPC-300, Environmental Noise Guideline – Stationary and Transportation Sources – Approval and Planning”, August 2013.

3. Cadna/A Computer Aided Noise Abatement, Version 2021 MR 2.