



# Measurement of Environmental Noise

Report Reference Number: 11606-1

For:

Mark Hewett

Project/Site Address

45 Market Parade, Havant, Hampshire, PO9 1PY

Prepared by

John Ashe

Test Date

02<sup>nd</sup> March 2021

Report Date

05<sup>th</sup> March 2021

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Measurement Survey  
Undertaken By

Richard Stockdale



Report Completed By

John Ashe



## 2.0 – Objectives

E2 Consultants were instructed by Mark Hewitt to prepare a noise assessment. The application seeks to install a extraction unit to the rear of the property to serve the small kitchen area within the Café.

The unit being installed is as follows:

Compact TCBB Model 2-250/H – 76dB

The methodology used for the purpose of this assessment is BS 4142. In order to determine the existing background noise levels, measurements where carried out at the closest nearby noise-sensitive dwellings most likely to be affected by the noise levels.

The noise levels measured have been considered and assessed against this national guidance in order to establish the acceptability of the development.

Details regarding the assessment methodology used, together with the results of the survey undertaken and the conclusions and recommendations, are presented within this report.

### 3.0 – Site Description

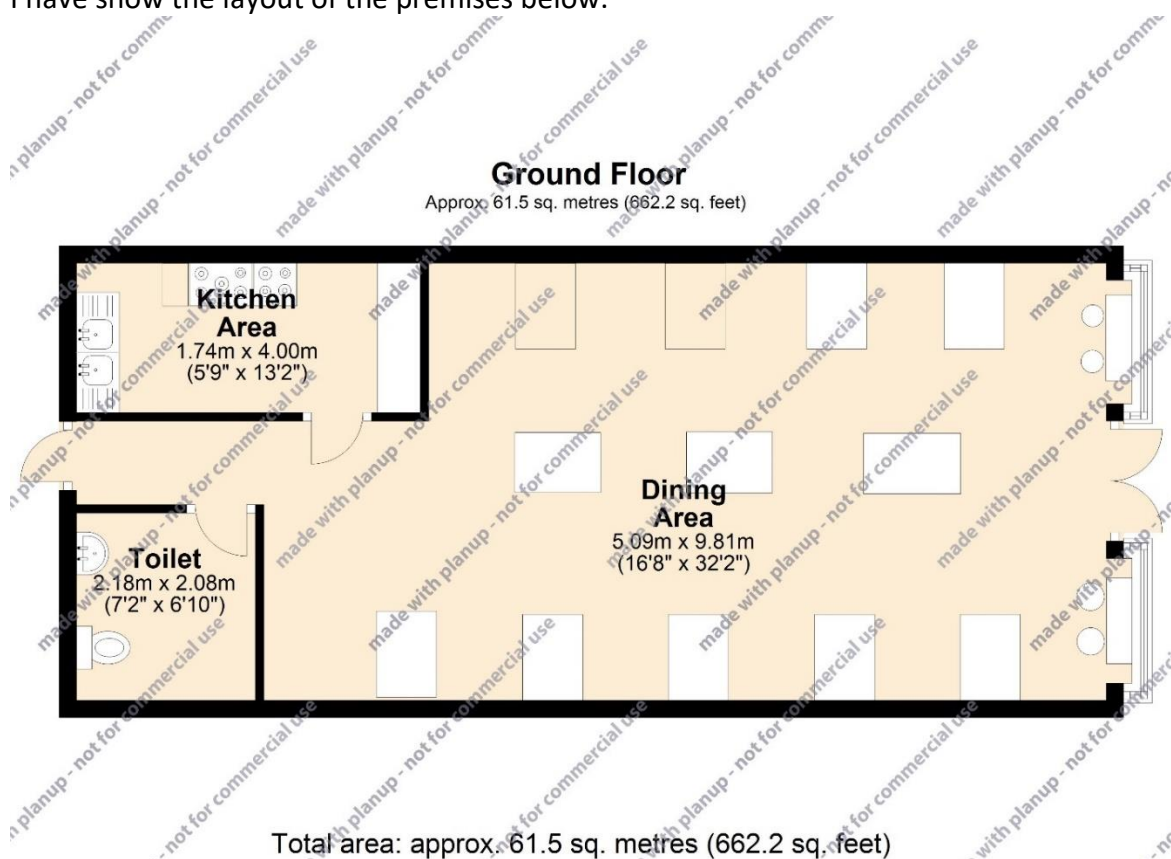
The site is an existing property which due to be used for a Café / restaurant business. It will have a small kitchen area in which food is prepared to order. The proposed business will only be in operation during normal day time hours and would not operate after 11pm at night. Thus a night time assessment has not been carried out.

As part of this, an extraction system will be installed in order to provide extraction for the cooking equipment.

The unit to be installed as above is the TCBB355 as below:

| Model    | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 | LwA |
|----------|----|-----|-----|-----|------|------|------|------|-----|
| /4-250/H | 24 | 37  | 41  | 47  | 52   | 52   | 47   | 41   | 57  |
| /4-315/H | 40 | 51  | 45  | 53  | 59   | 59   | 51   | 43   | 63  |
| /4-355/H | 24 | 40  | 45  | 55  | 58   | 58   | 49   | 42   | 62  |
| /4-400/H | 46 | 53  | 59  | 66  | 69   | 69   | 66   | 58   | 74  |
| /4-450/H | 46 | 58  | 65  | 71  | 73   | 71   | 67   | 59   | 77  |

I have show the layout of the premises below.



It is believed, that the extraction fan is to be fitted internally within the building and ducted externally using a wall vent.

#### 4.0 – Microphone Position

The microphone was placed externally within the existing rear yard in which the extraction will be installed. This is the proposed location of the unit and the area in which it is most likely to effect the nearby dwellings (above)

| Measurement Time                          | Location   | Duration | Reading Reference |
|-------------------------------------------|------------|----------|-------------------|
| <b>02/03/2021</b><br><b>11:30 – 14:30</b> | Externally | 3 Hour   | 240302_0001       |
|                                           |            |          |                   |

## 5.0 – Uncertainties

The following points are noted to allow for and minimise where possible any uncertainties in the measurements taken.

- 1) A class one microphone has been used for the purpose of the survey (**Norsonic 140 SLM – serial number 1405312**).
- 2) Weather conditions – 90% cloud cover.

|                      | Before Measurements | After Measurements |
|----------------------|---------------------|--------------------|
| Wind speed:          | 1m/s - NW           | 2m/s - NW          |
| Humidity:            | 52%                 | 52%                |
| Temperature:         | 14°C                | 20°C               |
| Barometric pressure: | 1013mb              | 1013mb             |

The weather during the day was noted as cloudy with winds of less than 5m/s with no prevailing directional component.

- 3) Noise levels at the time of the measurements were noted to be fairly constant with no sudden increases or decreases in noise levels.
- 4) All results seen in this report will be rounded, for example, 82.5 will be rounded up to 83.

## 6.0 – Recommendations & Results

The data taken from site is shown below:

| Measurement Time            | Location   | Laeq | La90 |
|-----------------------------|------------|------|------|
| 02/03/2021<br>11:30 – 14:30 | Externally | 56dB | 45dB |

### BS4142 Assessment

For the purpose of the assessment, the proposed units will be entered into a software model and predicted noise levels compared to the existing background (L90) Noise levels.

The proposed units sound data is shown in the above section of this report noting that the extraction system will be mounted internally and ducted externally through a silencer.

The data input into CadnA is shown below:

**Spectrum** [X]

ID:  [i]

Name:

Source:

Type:

Spectrum:  [calculator icon] Tot-A: 62.3 Tot-Lin: 64.1

☐ 1/3-Oktave Band Spectrum

|       |       |       |       |      |      |      |      |       |
|-------|-------|-------|-------|------|------|------|------|-------|
| 25    | 50    | 100   | 200   | 400  | 800  | 1600 | 3150 | 6300  |
| -44.7 | -30.2 | -19.1 | -10.9 | -4.8 | -0.8 | 1.0  | 1.2  | -0.1  |
| 31.5  | 63    | 125   | 250   | 500  | 1000 | 2000 | 4000 | 8000  |
|       | 24.0  | 40.0  | 45.0  | 55.0 | 58.0 | 58.0 | 49.0 | 42.0  |
| 40    | 80    | 160   | 315   | 630  | 1250 | 2500 | 5000 | 10000 |
| -34.6 | -22.5 | -13.4 | -6.6  | -1.9 | 0.6  | 1.3  | 0.5  | -2.5  |

[A-weighted spectrum graph icon]

[OK] [Cancel] [←] [→] [New] [Help]

**Spectrum** [X]

ID:  [i]

Name:

Source:

Spectrum:   $R_w (C; Ctr) = 20 (-2; -1)$

☐ 1/3-Oktave Band Spectrum

|      |     |     |     |      |      |      |      |       |
|------|-----|-----|-----|------|------|------|------|-------|
| 25   | 50  | 100 | 200 | 400  | 800  | 1600 | 3150 | 6300  |
| 0.0  | 0.0 | 0.0 | 0.0 | 0.0  | 0.0  | 0.0  | 0.0  | 0.0   |
| 31.5 | 63  | 125 | 250 | 500  | 1000 | 2000 | 4000 | 8000  |
| 0.0  | 0.0 | 4.0 | 9.0 | 16.0 | 22.0 | 17.0 | 13.0 | 14.0  |
| 40   | 80  | 160 | 315 | 630  | 1250 | 2500 | 5000 | 10000 |
| 0.0  | 0.0 | 0.0 | 0.0 | 0.0  | 0.0  | 0.0  | 0.0  | 0.0   |

**Point Source** [X]

Name:  [i]

☒ ID:  [i]

Type: Spectrum ▾

Frequency (Hz):  Source in Steady-State ▾

|             |      |         |       |
|-------------|------|---------|-------|
|             | Day  | Evening | Night |
| Result PWL: | 45.7 | 45.7    | 45.7  |

Day:   
 Recreation:   
 Night:

Res. PWL max:     $K_0$  w/o Ground (dB):

Correction:

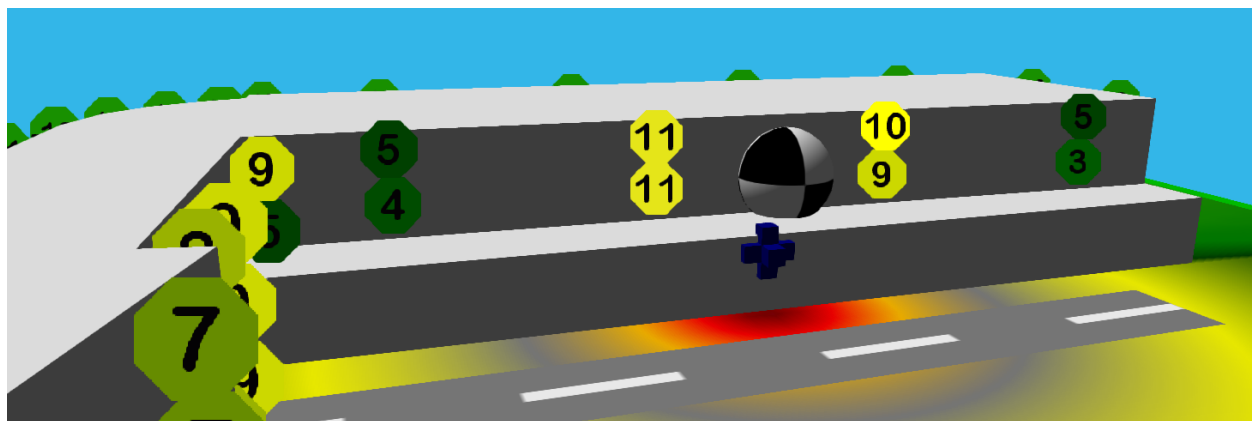
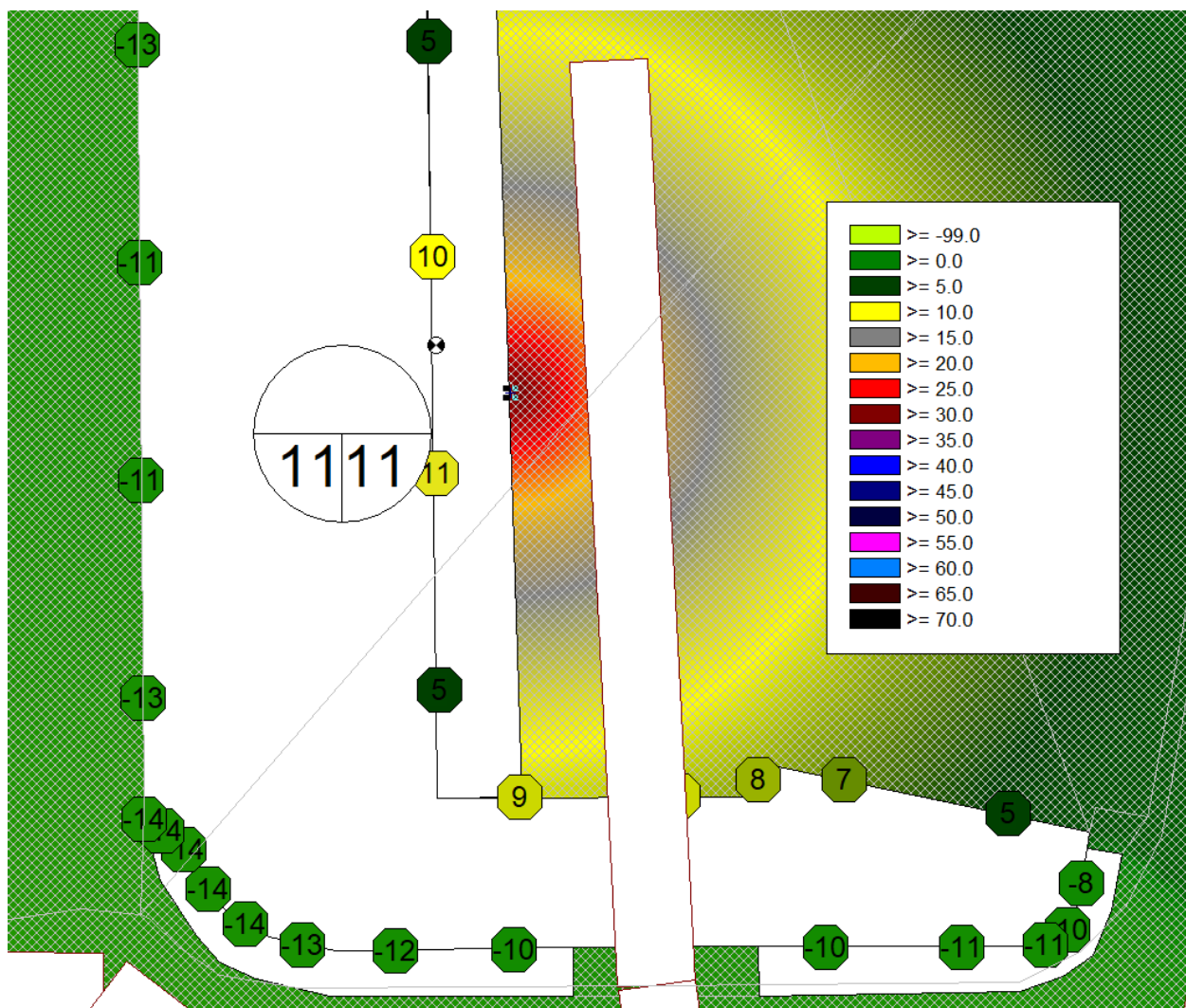
PWL ▾ Fan  ☐ normal. A:

☐ TransLoss:   Area (m²):

Attenuation: Silener 

A





As can be seen in the above simulations, the noise levels from the proposed extraction system venting to the rear of the property is very low in noise level at the nearest dwellings. This is due the design of the system. 1. Being mounted internally, 2. Having a silencer fitted and 3. Being set back from the dwelling which directs noise levels away from the building.

Therefore, in conclusion, the likeleyhood for complaints is extremely low as noise levels are way below that of the existing background noise levels.

Further for transmission through the structure of the building, the extraction fan will be mounted using a anti vibration mounting system.

The floor separating the commercial unit should be upgraded to a minimum reduction of 50dB DnTw + Ctr.

This should be done by using a suspended ceiling system

## 7.0 – On Site Microphone Calibration

Microphone calibration:                      114.0 dB                      113.9dB = Drift of -0.1dB

(The drift value is within acceptable limits of +/-0.3dB)

## 8.0 – Technical Appendix

|                                      |
|--------------------------------------|
| Class 1 Microphone: Norsonic 140 SLM |
|--------------------------------------|

|                           |
|---------------------------|
| Calibrator: Norsonic 1251 |
|---------------------------|

### **SITE DATA:**

**Please see attached sheets sent with this document.**

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Phone 01371 871030 Facsimile 01371879106



CALIBRATION



0789

Certificate number: U29823

## Certificate of Calibration and Conformance

Test object: Sound Calibrator  
Manufacturer: Norsonic  
Type: 1251  
Serial no: 33547

Customer: E2 Consultants  
Address: E2 HOUSE, South Park Way,  
Wakefield 41 Business Park,  
Wakefield. WF2 0XJ.  
Contact Person: John Ashe  
Order No: 97451

| Measurement Results:     | Level            | Level Stability | Frequency         | Frequency Stability | Distortion       |
|--------------------------|------------------|-----------------|-------------------|---------------------|------------------|
| 1:                       | 114.06 dB        | 0.06 dB         | 1000.45 Hz        | 0.00 %              | <0.3 %           |
| 2:                       | 114.07 dB        | 0.06 dB         | 1000.45 Hz        | 0.00 %              | <0.3 %           |
| 3:                       | 114.06 dB        | 0.06 dB         | 1000.45 Hz        | 0.00 %              | <0.3 %           |
| <b>Result (Average):</b> | <b>114.06 dB</b> | <b>0.06 dB</b>  | <b>1000.45 Hz</b> | <b>0.00 %</b>       | <b>&lt;0.3 %</b> |
| Expanded Uncertainty:    | 0.10 dB          | 0.02 dB         | 1.00 Hz           | 0.01 %              | 0.10 %           |
| Degree of Freedom:       | >100             | >100            | >100              | >100                | >100             |
| Coverage Factor:         | 2.00             | 2.00            | 2.00              | 2.00                | 2.00             |

The stated level is relative to 20 $\mu$ Pa. The level is traceable to National Standards.

The stated level is valid at reference conditions. The following correction factors have been applied during the measurement: Pressure: 0.0005 dB/kPa Temperature: 0.003 dB/°C Relative humidity: 0.000 dB/%RH Load volume : 0.0003 dB/mm<sup>3</sup>

The reported expanded uncertainty of measurements is based on a standard uncertainty multiplied by the coverage factor of k=2, providing a level of confidence of approximately 95%. The uncertainty has been determined in accordance with UKAS requirements.

Records: K:\C A\Calibration\Nor-1504\Nor-1018 CalCal\2018\NOR1251\_33547\_M1.nmf

|                           |                         |                   |                    |
|---------------------------|-------------------------|-------------------|--------------------|
| Environmental conditions: | Pressure:               | Temperature:      | Relative humidity: |
| Reference conditions:     | 101.325 kPa             | 23.0 °C           | 50 %RH             |
| Measurement conditions:   | 101.362 $\pm$ 0.042 kPa | 22.2 $\pm$ 0.1 °C | 39.9 $\pm$ 1.2 %RH |

Date received for calibration: 15/10/2018  
Date of calibration: 17/10/2018  
Date of issue: 17/10/2018  
Engineer

Supervisor

Palanivel Marappan B, Eng(Hons), M.Sc

Darren Batten TechIOA

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Phone 01371 871030 Facsimile 01371879106



**CALIBRATION**



**0789**

## **Certificate of Calibration and Conformance**

**Certificate No.: U25734**

**Test object:** Sound Level Meter, BS EN IEC 61672-1:2003 Class 1 (Precision) and associated Frequency Analyser BS EN IEC 61260, Class 1  
**Manufacturer:** Norsonic  
**Type:** 140  
**Serial no:** 1405312  
**Customer:** E2 Specialist Consultants Ltd  
**Address:** 3B South Park Way, Wakefield Junction 41 Business Park, Wakefield. WF2 0XJ.  
**Contact Person:** John Ashe.

### **Method :**

Calibration has been performed as set out in CA Technical Procedures TP01 & 02 as appropriate. These are based on the procedures for periodic verification of sound level meters as set out in BS EN IEC 61672-3:2006 and for electrical testing of frequency filters as set out in BS EN IEC 61260. Results and conformance statement are overleaf and detailed results are in the attached Test Report.

|              | Producer: | Type: | Serial No: | Certificate number |
|--------------|-----------|-------|------------|--------------------|
| Microphone   | Norsonic  | 1225  | 168187     | 25733              |
| Calibrator*  | Norsonic  | 1251  | 33547      | U25732             |
| Preamplifier | Norsonic  | 1209  | 15370      | Included           |

Additional items that also have been submitted for verification

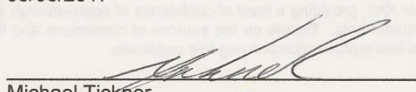
|                 |          |         |
|-----------------|----------|---------|
| Wind shield     | Norsonic | Nor1451 |
| Attenuator      | None     |         |
| Extension cable | None     |         |

These items have been taken into account wherever appropriate.

|                           |                |              |                    |
|---------------------------|----------------|--------------|--------------------|
| Environmental conditions: | Pressure:      | Temperature: | Relative humidity: |
| Reference conditions:     | 101.325 kPa    | 23.0 °C      | 50.0 %RH           |
| Measurement conditions:   | 99.95 ±0.01kPa | 22.4 ±0.2°C  | 48.5 ±2%RH         |

Date received : 24/05/2017  
Date of calibration: 05/06/2017  
Date of issue: 05/06/2017

Engineer

  
Michael Tickner

Supervisor

  
Darren Batten TechIOA

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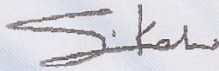
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# *Certificate of Competence in Environmental Noise Measurement*

*This is to certify that*

*John William Matthew Ashe*

*has completed a course of instruction approved by the  
Institute of Acoustics and designed to enable the candidate  
to undertake environmental noise measurements in a  
competent manner and has achieved a satisfactory  
performance in the written and practical examinations  
thereof and that this fact has been recorded in a  
Register kept by the Institute for this purpose.*



*Education Committee Chairman*



*Institute Secretary*

*Date 16 May 2014*

*Centre Leeds Metropolitan University*

*Reference Number EK161*

*For the purposes of Credit Transfer or Professional Development this Certificate  
may be considered to be equivalent to 25 points or hours*

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