

# Appendix D



1

Flat 10

2nd January 2023

## ACCESS REQUIRED FOR NOISE IMPACT ASSESMENT BY ACOUSTIC ENGINEER

Re: SKEWD, 113-115 Cockfosters Road, Barnet, London EN4 0DA

Dear Sir/Madam,

We have been instructed to address the noise concerns of the residents who live above the SKEWD restaurant.

The owner of SKEWD restaurant does take noise pollution and its effects on your home and your family very seriously. He recognises the necessary steps to limit the issue. One of the most effective ways to do this is to invest in a noise limiter device at the restaurant.

The assessment is a necessary step, and it's important to ensure that the right equipment is used to reduce noise pollution in your area. An acoustic engineer will be able to come to your property and assess the noise levels. By taking detailed measurements and readings, they will be able to recommend the best noise limiter device for the restaurant.

SKEWD restaurant has instructed and will pay all the cost of the noise survey and noise impact assesment to be done by Clement Acoustics. The survey will take about 5-10 minutes. We have following dates available:

10:30 to 11:00 on 10th January 2023 or

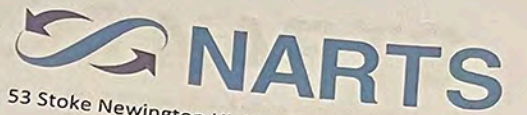
10:30 to 11:00 on 11th January 2023

Could you please send a text or WhatsApp message to 07940 414 890 or email [licensing@narts.org.uk](mailto:licensing@narts.org.uk) for your availability?

This assesment will be costing around about 4-5K with installation of noise limiter device. We look forward to hear back from you soon.

Kind Regards,  
Mahir Kilic

2



53 Stoke Newington High Street, London N16 8EL  
Tel: 020 7241 3636 | Mob: 07940 414890

[info@narts.org.uk](mailto:info@narts.org.uk)

2nd January 2023

Flat 15

Flat 10

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## ACCESS REQUIRED FOR NOISE IMPACT ASSESMENT BY ACOUSTIC ENGINEER

Re: SKE

Re: SKEWD, 113-115 Cockfosters Road, Barnet, London EN4 0DA

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Kind Regards,  
Mahir Kilic

Flat 17

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Re: SKEWD,

Dear Sir/Ma

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Mahir Kilic

Helping Turkis

/nartsbritain

Help



Helping Turkish speaking individuals in food & leisure businesses to protect themselves, their customers, and reputation of their business since 2006  
Registered in England & Wales Company No: 10041572  
Narts Food & Leisure Limited

119



**Caution**  
Floor slippery  
when wet

This property is protected by 24 hour CCTV surveillance

cal  
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re door  
p locked  
shut

# Untitled Map

Write a description for your map.

113-115 Cockfosters Rd



AVISTA EYECARE OPTICIAN



SIMMONS PHARMACY



5

1.78 m



12

Flat 12

Re: SKEW

ACCESS REQUIRED FOR NOISE IMPACT ASSESSMENT BY  
ACOUSTIC ENGINEER

113-115 Cockfosters Road, Barnet, London EN4 0DA

53 Stoke Newington High Street, London N16 8EL  
Tel: 020 7241 3636 | Mob: 07940 414890

 **NARTS**

[info@narts.org.uk](mailto:info@narts.org.uk)

2nd January 2023

Flat 13

ACCESS REQUIRED FOR  
ACOUSTIC ENGINEER

SKEW 113-115 Cockfosters Road, Barnet, London EN4 0DA

13

Flat 13

Re: SKEVD\_113-115 Cockfosters Ro

ACCESS REQUIRED FOR NOISE IMPACT ASSESMENT BY  
ACOUSTIC ENGINEER



53 Stoke Newington High Street, London N16 8EL  
Tel: 020 7241 3636 | Mob: 07940 414890  
[info@narts.org.uk](mailto:info@narts.org.uk)

2nd January 2023

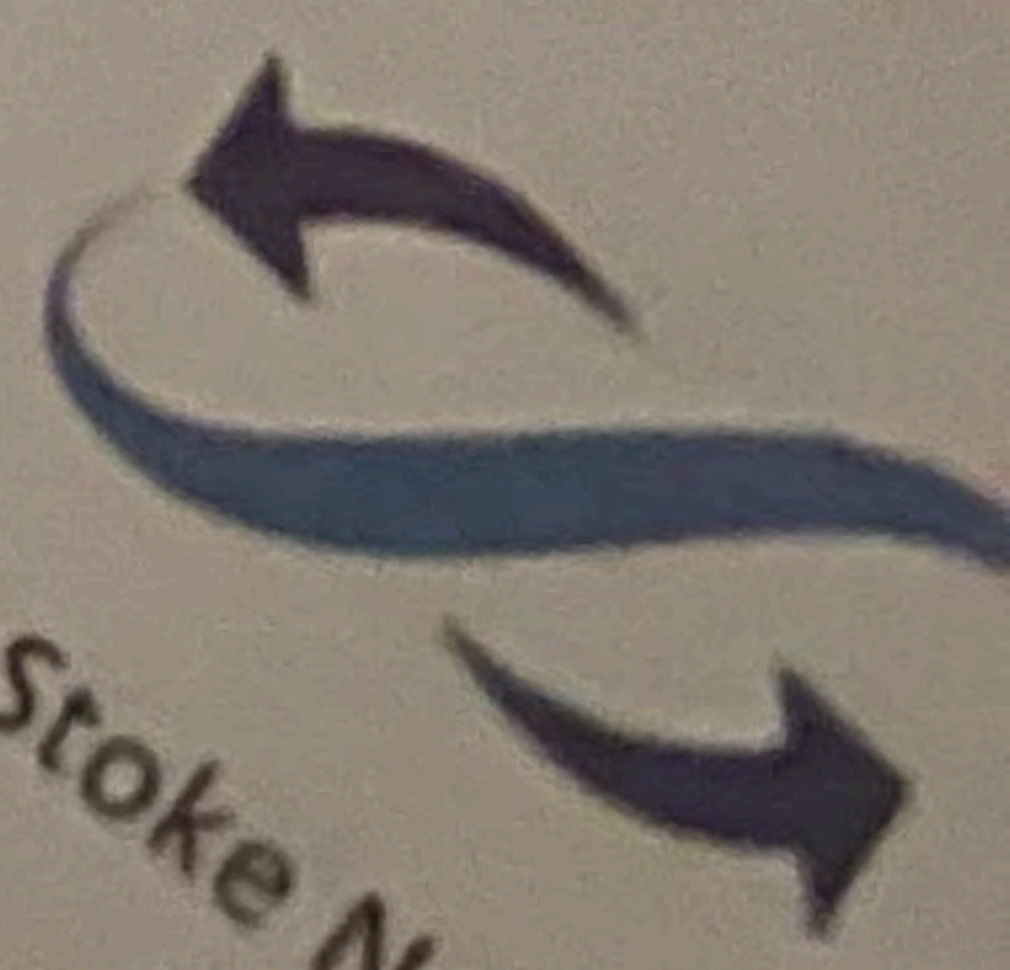


14

Flat 14

ACCESS REQUIRED FOR NOISE IMPACT ASSE  
ACOUSTIC ENGINEER

Re: SKEWD, 113-115 Cockfosters Road, Barn  
Dear Sir/Madam




53 Stoke Newington  
Tel: 020 7241 3

EN4 0D

Flat 15

**ACCESS REQUIRED FOR NOISE IMPACT  
ACOUSTIC ENGINEER**

Re: SKEWD, 113-115 Cockfosters Road.

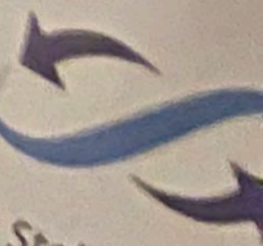
  
53 Stoke Newington  
Tel: 020 7353 1234

16

Flat 16

**ACCESS REQUIRED FOR NOISE IMPACT ASSESSMENT**  
**ACOUSTIC ENGINEER**

3-115 Cockfosters Road, Barnet, London EN4 0DA



53 Stoke Newington  
Tel: 020 7353 1234

10

17

Flat 17

**ACCESS REQUIRED FOR NOISE IMPACT AS  
ACOUSTIC ENGINEER**

Re: SKEWD, 113-115 Cockfosters Road, Enfield, London N4 1JL  
Dear Sir/Madam

arnet, London

53 St

11

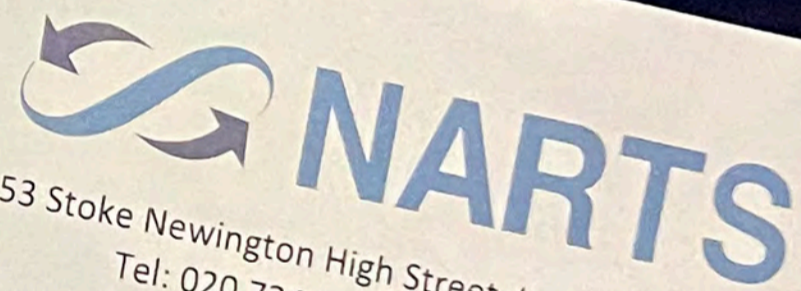
SmartWater<sup>®</sup>  
in use here.



MetTrace  
PROTECTING LONDON'S HOMES

18

Flat 18

 **NARTS**

53 Stoke Newington High Street, London N16 8EL  
Tel: 020 7241 3636 | Mob: 07940 414890

[info@narts.org.uk](mailto:info@narts.org.uk)

2nd January 2023

**ACCESS REQUIRED FOR NOISE IMPACT ASSESMENT BY  
ACOUSTIC ENGINEER**

Re: SKEWD, 113-115 Cockfosters Road, Barnet, London EN4 0DA



13





15



**London office**

1B(c) Yukon Road  
London  
SW12 9PZ

Tel: 0203 475 2280

**Manchester office**

105 Manchester Road  
Bury  
BL9 0TD

Tel: 0161 850 2280

# 113-115 COCKFOSTERS ROAD, COCKFOSTERS

## NOISE IMPACT ASSESSMENT

Report **18141-NIA-01**

Prepared on 17 January 2023



## Executive Summary

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This noise impact assessment has been undertaken in order to assess the impact of operational noise from an existing ground floor restaurant to residential flats above, in response to complaints from residents relating to noise disturbance due to amplified music playback.

The site comprises a parade of commercial units, including the Skewd Kitchen restaurant at 113-115, within a larger building of residential flats (Braemore Court) on the first and second floors above.

Sound insulation testing was undertaken to the floor separating the restaurant from the 2 flats directly above.

Calculations were undertaken in order to set appropriate noise limits for amplified music in order mitigate the complaints of noise in residential spaces above.

It has been demonstrated that compliance with the established criterion is feasible, dependant on the following material considerations:

- A suitable in-line cut-off or compression noise limiter is installed in the sound system
- The noise limiter is calibrated by a competent person to the required threshold level
- The noise management plan detailed herein is followed

If there is any deviation from the above, Clement Acoustics must be informed, in order to establish whether a reassessment is necessary.

Clement Acoustics has used all reasonable skill and professional judgement when preparing this report. The report relies on the information as provided to us at the time of writing and the assumptions as made in our assessment.




*This report is designed to address noise breakout from amplified music within the restaurant. The scope of this assessment does not extend to general operational noise such as that arising from customers interacting or noise generated by the kitchen, etc.*

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## List of Attachments

18141-SP1	Indicative Site Plan
Appendix A	Glossary of Acoustic Terminology

Issue	Date of Issue	Author	Reviewed	Authorised
0	17/01/23			
		<b>Matthew Markwick</b> Principal Consultant BSc (Hons) MSc MIOA	<b>John Smethurst</b> Director BSc (Hons) MIOA	<b>Duncan Martin</b> Director BSc (Hons) MIOA

Issue	Comment
0	First issue

## 1.0 INTRODUCTION

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Clement Acoustics has been commissioned by NARTS Food and Leisure Ltd to undertake sound insulation (breakout) testing at Skewd Kitchen, 113-115 Cockfosters Road, Cockfosters. The measured results, alongside a site inspection and consultation with the client and residents of flats above, have been used to determine maximum noise limits for amplified music playback within the ground floor restaurant.

This report presents the results of a break out assessment followed by an assessment of anticipated noise emission levels and outlines any necessary mitigation measures.

## 2.0 SITE DESCRIPTION

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The site comprises a parade of commercial units, including the Skewd Kitchen restaurant at 113-115, within a larger building of residential flats (Braemore Court) on the first and second floors above. The restaurant's front of house area is positioned directly below first floor flats 11 and 14.

The site and surroundings are shown in attached site plan 18141-SP1.

The restaurant dining room consists of a large open plan space with open kitchen and bar to one side, and storage/preparation areas to the rear. The dining room features an exposed concrete ceiling – partially hidden by decorative panels.

A hard-wired sound system has been installed with an array of small speakers hung from ceiling mounted rails, as well as 2 large speakers (also ceiling mounted) either side of the bar. It is understood that background music is typically played through the in-house sound system during operating hours via an I-pod (or similar) or by a DJ using a Pioneer XDJ-XZ digital DJ system, installed by the bar.

Complaints have been made regarding audible noise within the flats due to amplified music in the restaurant, particularly on Friday and Saturday nights when a DJ performs during dinner service but also in the mornings during kitchen preparation periods before the restaurant opens.

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### 3.0 PROCEDURE

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#### 3.1 Noise Breakout Measurements

High volume “white” noise was generated from two loudspeakers in the source room, positioned in order to obtain a diffuse sound field. A spatial average of the resulting one-third octave band noise levels between 100 Hz and 3150 Hz was obtained by using a moving microphone technique over a minimum period of 15 seconds at each of two positions.

The same measurement procedure was followed in the receiver room.

Reverberation time measurements were taken following the procedure described below in order to correct the receiver levels for room characteristics.

High volume “white noise” was generated in the receiver rooms and stopped instantaneously in order to measure the reverberation time in each of the one-third octave bands between 100 Hz and 3150 Hz. The internal programme of the sound level meter was used to measure the decay time of sound in the room. This was repeated nine times in each room in order to obtain an average result.

Background noise levels in the receiver rooms were measured during the tests.

The dominant source of background noise observed during the tests was road traffic noise from the surrounding roads.

### 4.0 EQUIPMENT

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#### 4.1 Noise Breakout Measurements

The equipment used during the noise breakout measurements is summarised in Table 4.1.

Instrument	Manufacturer and Type	Serial Number
Sound level meter	Norsonic Nor 145	14529093
Active Loudspeaker	RCF ART 310A	LKXN31648
Active Loudspeaker	RCF ART 310A	HAX20870
Calibrator	Svantek SV33B	33110

**Table 4.1 - Instrumentation used during testing**

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## 5.0 RESULTS

### 5.1 Noise Breakout Levels

The summarised results of the airborne tests are shown in Table 5.1.

The main parameter used to express airborne sound insulation of separating constructions is  $D_{n,T,w}+C_{tr}$ . This is an on-site measured value accounting for reverberation in the receiving space, a correction for background noise and a low frequency correction.

Test Location	Source	Element	Test Result
Flat 14 Living Room	Restaurant – Bar Area	Separating Floor to Flat Above – Concrete Slab + Floor Above <sup>[1]</sup>	$D_{n,T,w} + C_{tr}$ 49 dB
Flat 14 Bedroom	Restaurant – Bar Area	Separating Floor to Flat Above – Concrete Slab + Floor Above <sup>[1]</sup>	$D_{n,T,w} + C_{tr}$ 51 dB
Flat 11 Living Room	Restaurant – Front of House	Separating Floor to Flat Above – Concrete Slab + Floor Above <sup>[1]</sup>	$D_{n,T,w} + C_{tr}$ 54 dB
Flat 11 Bedroom	Ground floor – Front of House	Separating Floor to Flat Above – Concrete Slab + Floor Above <sup>[1]</sup>	$D_{n,T,w} + C_{tr}$ 53 dB

**Table 5.1: Breakout Measurement Results**

*[1] As described in Section 2.0, there is no ceiling to the restaurant dining room.*

## 6.0 NOISE CRITERIA

### 6.1 Internal Receivers

For noise breakout calculations to the flat above, it has been deemed appropriate to refer to BS 8233: 2014 “Guidance on *sound insulation and noise reduction for buildings*” [BS 8233]. BS 8233 describes recommended acceptable internal noise levels for residential spaces. These levels are shown in Table 6.1.

Activity	Location	Design range $L_{Aeq,T}$ dB	
		Daytime (07:00-23:00)	Night-time (23:00-07:00)
Resting	Living Room	35 dB(A)	-
Dining	Dining Room/Area	40 dB(A)	-
Sleeping	Bedroom	35 dB(A)	30 dB(A)

**Table 6.1: BS 8233 recommended internal background noise levels**

As the restaurant is operational during night time, we would recommend that achieving an internal ambient noise level of 30 dB(A) would be an appropriate design target for residual noise levels in general.

BS 8233 states that  $NR \approx dB(A) - 6$ . Therefore, a noise rating of NR 14 (targeting an ambient noise level due to restaurant activity 10 dB below the BS 8233 criteria for the operating hours) may be considered a reasonable indicator of inaudibility.

It is understood that no specific requirements have been imposed by the local authority, although it would be expected that they would require (as a minimum) suitable mitigation to avoid giving rise to a Statutory Nuisance.

It is understood that the premises are licenced to operate between 08:00 – 23:30 Sunday – Wednesday, and 08:00 - 00:30 Thursday - Saturday.

## 7.0 INTERNAL ACTIVITIES – BREAKOUT THROUGH SEPARATING FLOOR

### 7.1 Proposed Activity

Based on discussions with the client and an inspection of the installed sound system it is understood that the noise profile and levels in the restaurant are expected to be similar to that of a medium sized bar with amplified music played through the installed sound system and by a DJ on Friday/Saturday evenings. It is understood that the maximum occupancy is approximately 100 customers. Live music will not be played at any time.

Previous measurements of a similarly sized bar/restaurant have therefore been used to predict noise emissions to residential receivers.

The noise levels shown in Table 7.1 are considered representative of the expected worst-case ( $L_{max}$ ) noise levels for the restaurant during a DJ performance on a busy night.

In order to provide a robust assessment, the loudest measured noise levels in a similar sized bar/restaurant have been used.

<i>Sound Pressure Level (dB) in each Frequency Band, at source</i>									
Source	63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz	dB(A)
Restaurant	103	100	88	89	88	83	76	67	92

**Table 7.1: Predicted Operational Noise Levels**

These levels will be used to calculate the noise transmission to the flats above.



## 8.0 MITIGATION

### 8.1 Noise Limiter

In the first instance, it has been proposed that noise levels arising from amplified music may be treated at source by means of a suitable noise limiting device, to be installed to the in-house sound system.

Calculations have been undertaken based on the assumed worst case noise levels and the measured performance of the existing floor.

In order to achieve a noticeable reduction in noise received in the flats above, we would recommend limiting the noise in the restaurant to not exceed the spectral and overall levels shown in Table 8.1.

<i>Sound Pressure Level (dB) in each Frequency Band, at source</i>									
Source	63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz	dB(A)
Restaurant	75	66	63	63	62	58	56	53	67

**Table 8.1: Recommended Limit Levels**

With music played back at the levels shown in Table 8.1, noise levels in the flat would be expected to comply with the proposed criteria described in Section 6.1 and be at a level that was considered unintrusive and difficult to hear against typical residual noise levels (without the influence of the restaurant’s music).

We would also recommend certain steps to reduce transmission of structure-borne noise (See Section 8.2 and 8.3).

### 8.2 Noise Management for Internal Activities

In order to ensure the calculated noise emission levels are not exceeded, we would recommend following certain steps when operating the bar, as detailed below:

- We would recommend ensuring noise levels do not exceed the noise limit levels shown in Table 8.1 above<sup>[1]</sup>.
- In order to ensure these limits are adhered to, we would recommend the installation of suitable in-line noise limiter system, set up and properly calibrated to limit maximum noise levels within the restaurant.

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*Note – the above levels apply to the most noise sensitive periods – higher levels may be acceptable at less sensitive times (e.g. during typical office hours).*

- All loudspeakers should be isolated from the building structure. For fixed speakers, this should be achieved using neoprene fixings for all speaker mountings. For free standing speakers, these should be sited on a suitable isolating material.
- DJs should be reminded of the requirements and be trained in the proper use of noise limiting equipment and the appropriate control of sound systems.
- Music should not be played through the main sound system outside opening hours. Where staff require entertainment during preparation periods, this should be provided by a smaller standalone radio or similar.

**[1] It must be noted that these noise limits are a prediction only, based on the measured noise transmission to the receiving flat in relation to the source level. A final commissioning exercise should be undertaken to determine the appropriate limits in practice, which could change.**

### 8.3 Residential Receiver Assessment – Internal Levels (Transmission through Separating Floor)

In order to predict the transmission of noise to residential spaces, calculations have been undertaken using the following standard acoustic formula:

$$SPL_{receiver} = SPL_{source} - SRI_{separation} + 10\log_{10} S - 10\log_{10} A$$

Where:

- $SRI_{separation}$  is the calculated sound reduction of the existing floor,
- $S$  is the area of the transmitting floor
- and  $A$  is the absorption area of the receiving room

Taking all above factors into account, including mitigation measures, the predicted transmission level of noise to residential spaces would be as shown in Table 8.2.

Receiver	Design Target	Noise Rating Level at Receiver [due to proposed commercial activity]
Residential Flat	NR 14	NR 12

**Table 8.2: Noise levels and criteria at noise sensitive receiver**

As shown in Table 8.3, noise transmission to residential spaces would be expected to comply with the proposed criteria, provided the specified noise limits and noise management measures are put in place.

## 9.0 OPTIONAL UPGRADE - IMPROVEMENT WORKS TO SEPARATING FLOOR/CEILING

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Mitigation by means of a noise limiter and noise management measures described in Section 8.0 above would be expected to address the complaints received with regards to amplified music. However, the resulting sound levels will be significantly reduced compared to current practice. The restaurant operator may wish to increase the noise limit. If required, additional mitigation may be applied in order further improve sound insulation to the flats above and facilitate a higher music level to be set in the restaurant.

The measured sound insulation of the existing separating floor between the ground floor space and flat above, as shown in Table 5.1 could be improved. At the time of testing the dining room had no ceiling installed, leaving the concrete slab exposed.

In order to further reduce sound transmission to the flat above we would recommend the installation of a full ceiling within the restaurant.

Due to the sufficient floor to ceiling height and access restrictions from treating the floor from above, we would recommend the installation of an independent ceiling system.

The independent ceiling should then ideally be constructed on a timber frame (attached to the surrounding walls only) forming a new void of at least 100 mm. We would then recommend that the new ceiling void is 2/3 filled with dense mineral wool (45 kg/m<sup>3</sup>) and then 2 layers of 15 mm SoundBloc plasterboard (or 1 x 15 mm SoundBloc and 1 x 15 mm FireLine) are installed to create the new ceiling.

An overall improvement of approx. 8-10 dB would be expected by the installation of an independent ceiling. This would also aid in mitigating less controllable operational noise such as kitchen work, service noise and customer interactions.

It may then be possible to increase the noise limit for amplified music as well (further assessment would be required once any new ceiling is installed to determine appropriate amplified music limits).

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## 10.0 CONCLUSION

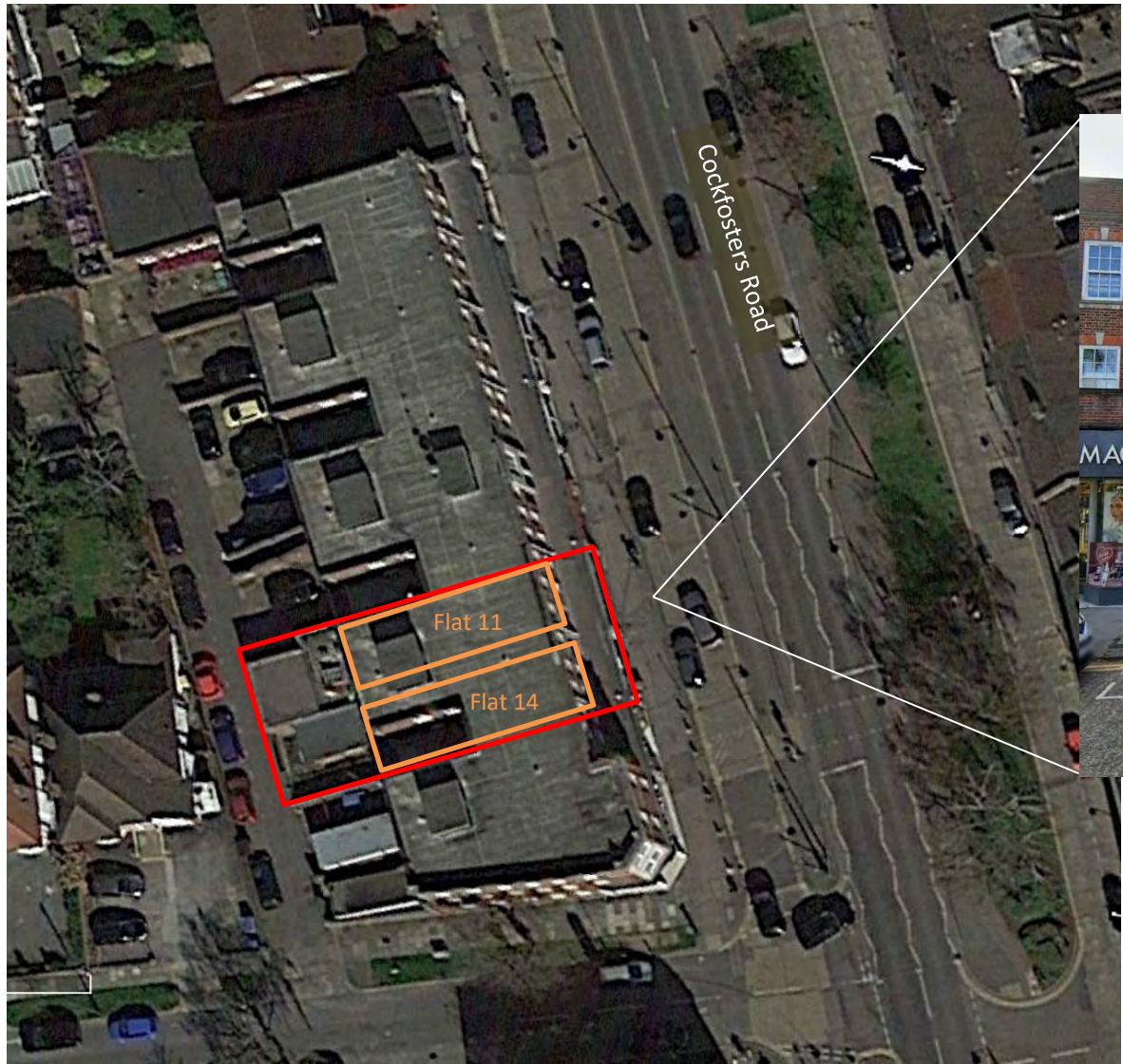
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Sound insulation testing and site inspection have been undertaken at 113-115 Cockfosters Road, Cockfosters.

A noise impact assessment has been undertaken to set appropriate noise limits for noise emissions from amplified music played during restaurant opening hours.

Calculations show that noise emissions from the proposed use of the ground floor premises would be expected to be reduced to an acceptable level with the recommended mitigation and noise management measures as stated herein.

Additional advice has been provided for further improvement of the separating floor, should higher noise levels than those set be desired.



Noise Sensitive Receiver

18141-SP1 Indicative site plan showing site surroundings and noise sensitive receivers

## GLOSSARY OF ACOUSTIC TERMINOLOGY

### **dB(A)**

The human ear is less sensitive to low (below 125Hz) and high (above 16kHz) frequency sounds. A sound level meter duplicates the ear's variable sensitivity to sound of different frequencies. This is achieved by building a filter into the instrument with a similar frequency response to that of the ear. This is called an A-weighting filter. Measurements of sound made with this filter are called A-weighted sound level measurements and the unit is dB(A).

### **L<sub>eq</sub>**

The sound from noise sources often fluctuates widely during a given period of time. An average value can be measured, the equivalent sound pressure level L<sub>eq</sub>. The L<sub>eq</sub> is the equivalent sound level which would deliver the same sound energy as the actual fluctuating sound measured in the same time period.

### **L<sub>10</sub>**

This is the level exceeded for not more than 10% of the time. This parameter is often used as a "not to exceed" criterion for noise

### **L<sub>90</sub>**

This is the level exceeded for not more than 90% of the time. This parameter is often used as a descriptor of "background noise" for environmental impact studies.

### **L<sub>max</sub>**

This is the maximum sound pressure level that has been measured over a period.

### **Octave Bands**

In order to completely determine the composition of a sound it is necessary to determine the sound level at each frequency individually. Usually, values are stated in octave bands. The audible frequency region is divided into 10 such octave bands whose centre frequencies are defined in accordance with international standards.

### **Addition of noise from several sources**

Noise from different sound sources combines to produce a sound level higher than that from any individual source. Two equally intense sound sources operating together produce a sound level which is 3dB higher than one alone and 10 sources produce a 10 dB higher sound level.

### Attenuation by distance

Sound which propagates from a point source in free air attenuates by 6dB for each doubling of distance from the noise source. Sound energy from line sources (e.g. stream of cars) drops off by 3 dB for each doubling of distance.

### Subjective impression of noise

Sound intensity is not perceived directly at the ear; rather it is transferred by the complex hearing mechanism to the brain where acoustic sensations can be interpreted as loudness. This makes hearing perception highly individualised. Sensitivity to noise also depends on frequency content, time of occurrence, duration of sound and psychological factors such as emotion and expectations. The following table is a reasonable guide to help explain increases or decreases in sound levels for many acoustic scenarios.

Change in sound level (dB)	Change in perceived loudness
1	Imperceptible
3	Just barely perceptible
6	Clearly noticeable
10	About twice as loud
20	About 4 times as loud

### Barriers

Outdoor barriers can be used to reduce environmental noises, such as traffic noise. The effectiveness of barriers is dependent on factors such as its distance from the noise source and the receiver, its height and its construction.

### Reverberation control

When sound falls on the surfaces of a room, part of its energy is absorbed and part is reflected back into the room. The amount of reflected sound defines the reverberation of a room, a characteristic that is critical for spaces of different uses as it can affect the quality of audio signals such as speech or music. Excess reverberation in a room can be controlled by the effective use of sound-absorbing treatment on the surfaces, such as fibrous ceiling boards, curtains and carpets.



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## Customer

Maz Demir  
12 Cockfosters Parade  
Cockfosters Road  
Barnet,  
EN4 0BX

Proforma No. : **10420**  
Proforma Date : **22/01/2023**  
Sales Person : **Trevor Morley**  
Site Name : **Skewd**

## Sound Limiter

Supply, Installation, Testing and Commissioning of a Audio Sound Limiter.

An Audio Sound Limiter is a device installed to ensure that the noise level of a venue does not exceed a certain threshold. The noise level will be measured in decibels (dB) and when the audio activity in the venue reaches the dB threshold set for more than a few seconds a signal will be sent to the house audio system to reduce the dB volume level of the system.

Description	Quantity	Unit Price Ex. VAT	Total
Supply, Installation, Testing and Commissioning of a Audio Sound Limiter	1.00	£2,800.00	£2,800.00

### Sound Limiter -

**Sub Total Ex. VAT :** £2,800.00  
**Total VAT at 20 % :** £560.00  
**Total Inc. VAT :** £3,360.00

34 Page 1

VAT is subject to change and will be charged at the rate set by HM Revenue & Customs & invoice date  
All goods will remain the property of The Hub Audio Visual Ltd until paid in full.

CEDIA  
MEMBER

# SENTRY MK2 SOUND LEVEL CONTROL

## Sound level monitoring Complete control

The Sentry MK2 is widely recognised as one of the most effective and versatile sound level control units of its type on the market and a market leader.

The trigger level can be set between 85-125dB, when triggered there is both a low voltage and mains output which is usually used to drive a contactor.

Two separate levels can be set so if different limits are required for example weekdays and weekends or daytime and night then this can be done with a switch, a timer version is available which will automatically switch at programmed times.

The level is set by a single adjustment under the panel. The display indicates how close or far the sound level is from the set threshold, the factory setting allows about 20 seconds over limit before tripping which is generally enough for the performer to adjust their level down. The time delay can be adjusted

074K



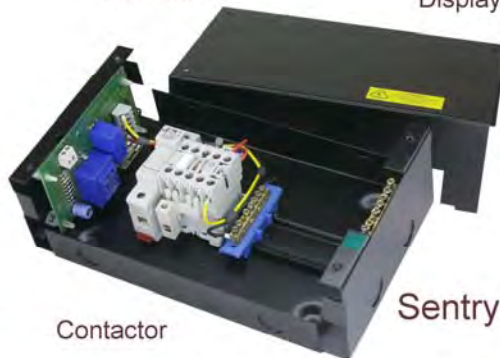
Remote  
Keyswitch

Remote reset options

074P



Remote  
push button



Contactor

The display/control box is available separately and can be used as a warning display or with a mains contactor.

Our contactor is 32A and in a box with a low voltage interface and fixing points to make installation easier with only a low voltage (<18V) and low current (<100mA) connection required between display and contactor box.

A double contactor version is also available if control of more than one ring is needed.

Display/Control unit



Sentry MK2

The second level is also useful if a lower level is needed if doors/windows are open when magnetic relays can switch levels.

A connection for a external microphone and phantom power is included, plus a connection for a remote reset box option (see left).

Below is the AT1 option that provides extra control (See separate AT1 leaflet).

There is also a security loop facility and alarm connection for emergency cut off such as fire alarm. Also provided is a set of isolated contacts that switch when the unit trips for any other requirement.

A choice of linear, "A", "C" and bass weighting is fitted, the weighting is selected by moving jumpers under the panel below the display.



35 AT1 option



# SENTRY MK2 SOUND LEVEL CONTROL

The Sentry MK2 display/control unit has an internal microphone and facility for an external mic, the display indicates how close the sound level is to a set threshold.

## Sentry MK2

Threshold levels

Microphone

Display

Trip delay

Reset

Security Loop

Trip outputs

Warning output

Fire alarm interface

Weighting

Connections and adjustments

Case

Power

Dimensions

The threshold is set by an adjustable pot beneath the front panel, when the set level is exceeded a number of trigger outputs are presented.

The trigger outputs include a low voltage, a mains voltage and a set of isolated contacts.

Normally a contactor is connected to one of these outputs to control a mains ring, but equally the outputs can be used to drive a display or other device.

Our contactor uses the low voltage output and is rated at 32 Amps so is perfectly suited to controlling a 32A ring main. Using a low voltage connection also avoids unnecessary routing of mains cable.

When the display reaches warning level a warning output is enabled providing 60VA of mains power to drive a warning light if required.

For full details of the features download the product manual from our website.

A remote display option is available should a second display be required.

## TECHNICAL SPECIFICATION

2 levels may be set between 85dB and 125dB, switching is by shorting two terminals

Internal electret microphone is fitted and a connection for an external microphone and 18V phantom power if required.

10 segments indicating -20dB, -10dB, -7dB, -5dB, -3dB, 0dB, -1dB, +1dB, WARNING (+2dB) and OVERLIMIT (+3dB).

Adjustable between 5 and 45 seconds.

Front panel push button or optional remote panel.

A shorting link which when broken trips the unit after a short delay.

Low voltage (12-18V at <100mA), 60VA mains and isolated contacts.

60VA mains

Can be set for volts applied, volts removed, contacts closing or contacts opening.

A choice of linear, "C", "A" or Bass selectable on jumpers.

Located beneath the display under a removable front cover.

High impact polycarbonate, flame resistance UL 94-V2, grey with clear cover.

240V or 110V internally selectable.

320mm wide x 261mm high x 120mm deep

Formula Sound reserve the right to alter the specification without notice

## Sound Level Control

Formula Sound offer what is probably the most comprehensive range of sound level control equipment available.

The Sentry Lite is a slimmer and lower cost version "cut off" control unit offering 1 level setting, 2 weighting choices, security loop, remote reset options and remote microphone option.

For fixed installations the AVC range of 1RU units provides complete control of levels, the AVC2 and AVC2D will each control 1 stereo channel (the AVC2D can be microphone driven). The AVC4 will control 2 stereo levels.

The CX4 is a 1RU unit that will control 2 stereo levels and provide a comprehensive fire alarm interface. The CX10 is a 1RU 10 line fire alarm interface.

Formula Sound Limited

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36

**Microphone**  
located under  
No.14

**SOUND  
LIMITER**

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07 February 2023

Ref: 18141-230207-L1

<b>London office</b> 1B(c) Yukon Road London SW12 9PZ Tel: 0203 475 2280	<b>Manchester office</b> 105 Manchester Road Bury BL9 0TD Tel: 0161 850 2280
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NARTS Food and Leisure Ltd  
53 Stoke Newington High Street  
London  
N16 8EL

### 18141: SKEWD KITCHEN 113-115 COCKFOSTERS ROAD, COCKFOSTERS

Further to our visit at the above address, we are pleased to present the results of the noise limiter sensitivity adjustment and verification undertaken in the restaurant dining room. The site comprises a restaurant dining room with sound system to provide background music, including DJ performances on select days. The nearest noise sensitive receivers have been identified as the residential flats directly above.

A previous breakout / noise impact assessment conducted by Clement Acoustics (as described report 18141-NIA-01) has set the internal noise limits at 67 dB(A) for amplified music in order to mitigate noise transmission from the premises in response to complaints received.

## 1.0 EQUIPMENT

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The equipment used for the noise limiter sensitivity was as follows.

- Norsonic Nor145 Class 1 Sound Level Meter
- Svantek SV33B Calibrator
- Fixed PA system (Provided by venue).

The sound level meter calibration was verified before and after use and no abnormalities were observed.



7688



## 2.0 MEASUREMENT PROCEDURE

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In order to verify the cut-off level of the installed noise limiter, white noise was played through the house sound system while incrementally increasing in volume until the cut-off point. The procedure was repeated with various recorded music styles, played back through loudspeakers, progressively increasing the volume until cut-off point, to verify consistent cut-off level regardless of source or music style.

A continuous recording is undertaken during this process with the sound level meter in 1 second integration periods to record noise levels generated within the room.

Once the noise limiter trips the power, the generated time history will show the sound level suddenly decreasing. This procedure was repeated to verify the findings.

## 3.0 NOISE LIMITER ACCESS

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The installed limiter is a hardwired cut-off type with an associated microphone installed in the ceiling of the restaurant dining room above the DJ booth; this product is set up to cut music playback levels to a default quiet level (present by the computer-controlled sound system) when a threshold is exceeded.

At the time of the visit it was noted that the limiter unit was properly installed and operating as described above.

Calibration measurements were undertaken by playing music / white noise from a laptop directly to the sound system. It is understood that the DY system follows the same signal pathway and cannot bypass the limiter or computer controlled sound level presents.

The limiter has a short delay between the limit being reached, and the power being cut, to avoid being triggered by short (less than 1s) exceedances that would not be expected to have a negative effect on receptors. This is set at approximately 3 seconds. Warning of potential cut-off is provided by incremental illumination of green, yellow and red LEDs on the front of the limiter. Noise levels should be immediately reduced when red lights are illuminated to prevent cut-off.

It was noted that the settings are only accessible by unscrewing the faceplate of the limiter. This measure would be deemed sufficient to ensure that the settings are not modified without authorisation.

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## 4.0 MEASUREMENT RESULTS

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### 4.1 Set Noise Limits

Noise limits are required to be set to a maximum 67 dB(A) based upon the results of a previous assessment designed to ensure noise emissions are not audible at the nearest residential receiver (Noise Rating of NR 14).

### 4.2 Results

Verifications tests were undertaken using representative worst case recorded music from the installed sound system. Measured noise levels further to the verification of the noise limiter settings in the dining room are shown in Figures 18141-TH1 and TH2 below.

Measurements have shown that the noise limiter is **activating at or below the 67 dB max limit** for the three verification test recordings, so complying with the recommendations of Clement Acoustics Report 18141-NIA-01 and thereby achieving the agreed limit.

## 5.0 CONCLUSION

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A site visit has been undertaken at Skewd kitchen 113-115 Cockfosters Road, Cockfosters in order to verify the sensitivity of a noise limiter installed within the dining room.

Suitable adjustments have been made to the frequency response and time delay to the meter to allow both live performance and recorded music to be facilitated.

Measurements have shown that set noise levels of 67 dB(A) are not exceeded with the currently installed limiter system in operation.

It is recommended that the sensitivity of the installed noise limiter should be verified on a minimum yearly basis in order to ensure adequate operation.

**Author** **Matthew Markwick**  
Principal Consultant  
BSc (Hons) MSc MIOA



7 February 2023

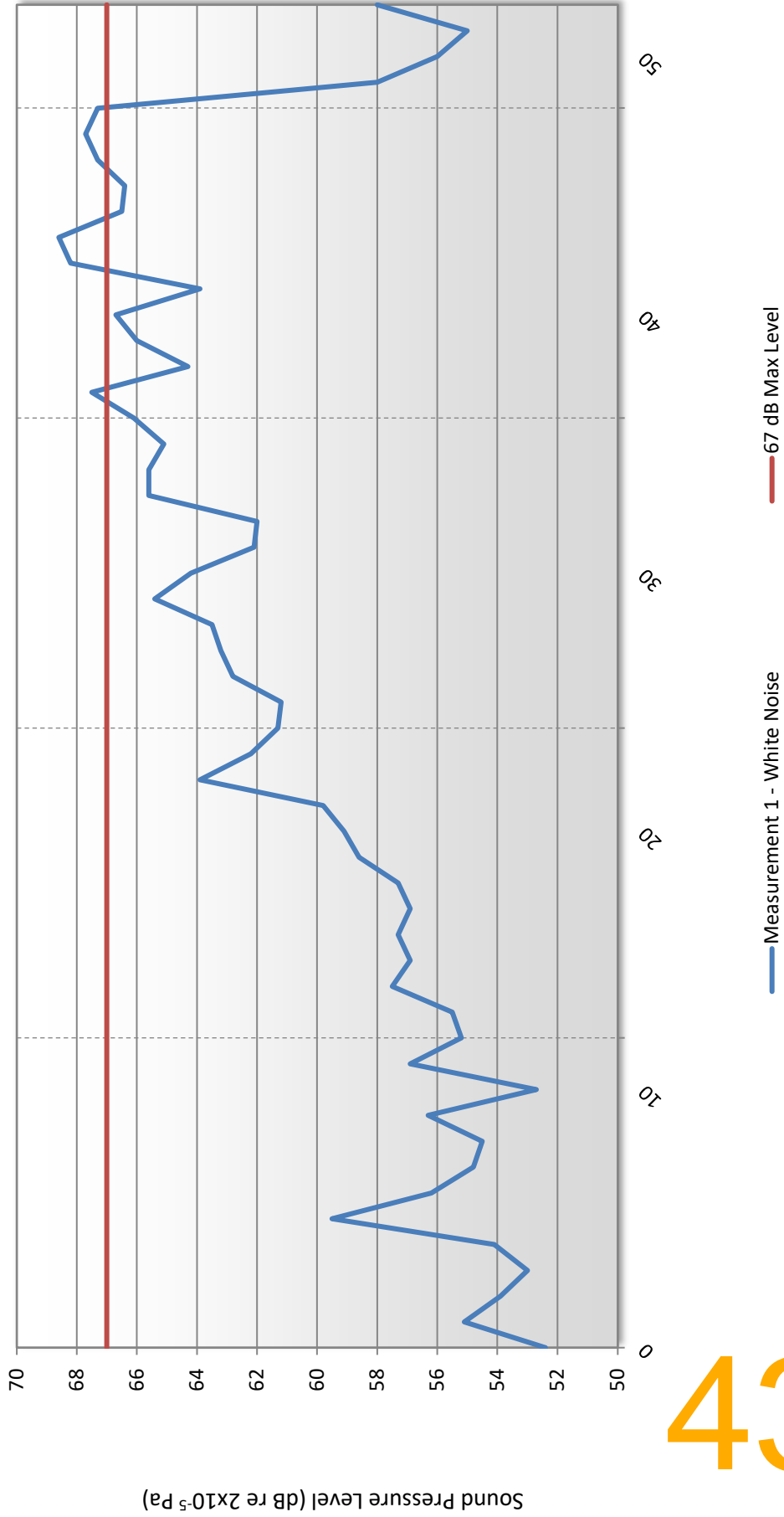
**Approved** **Duncan Martin**  
Director  
BSc (Hons) MIOA



7 February 2023

### Skewd kitchen 113-115 Cockfosters Road,

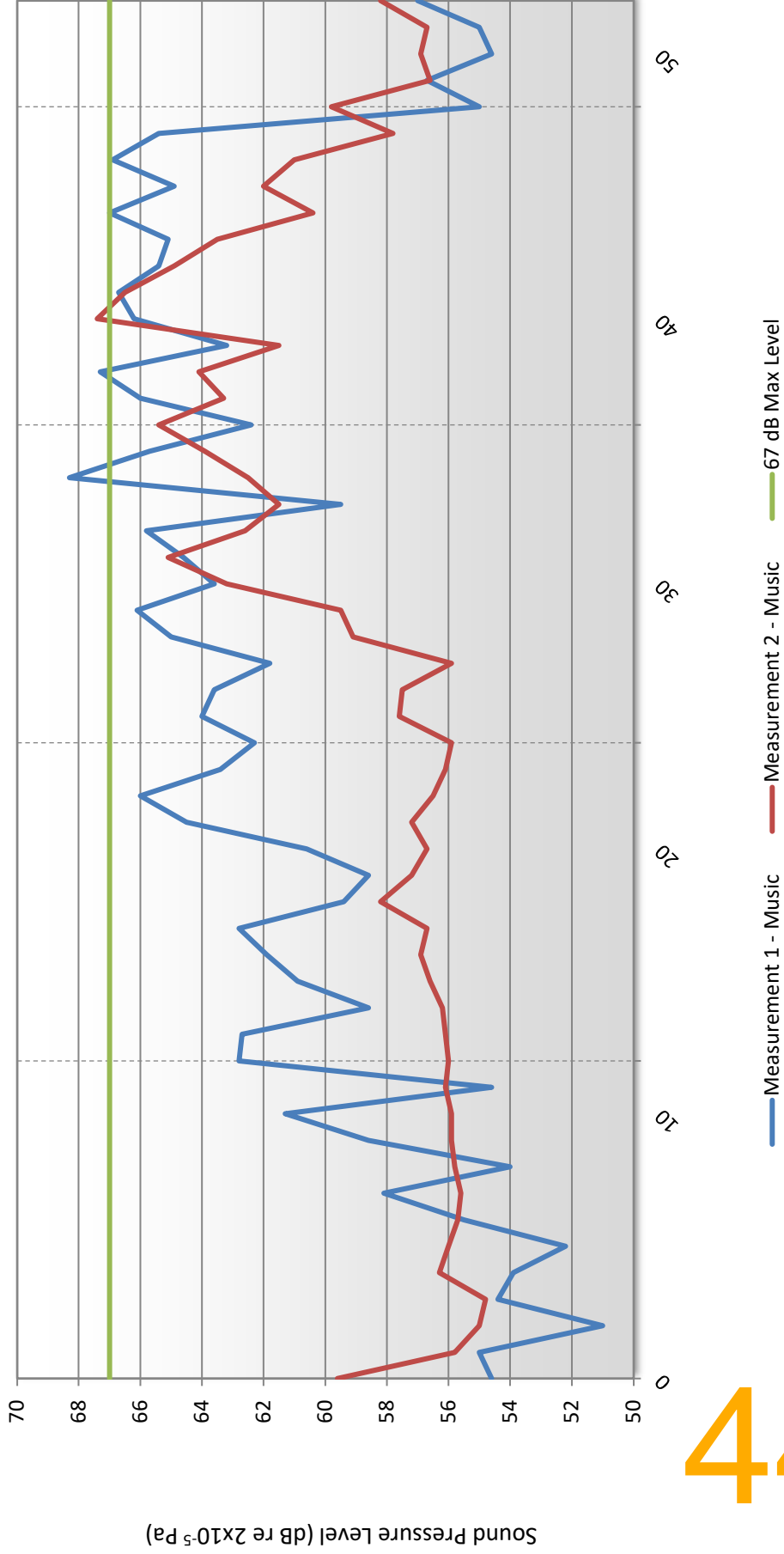
Cockfosters  
Noise Limiter Time History  
Test 1 White Noise



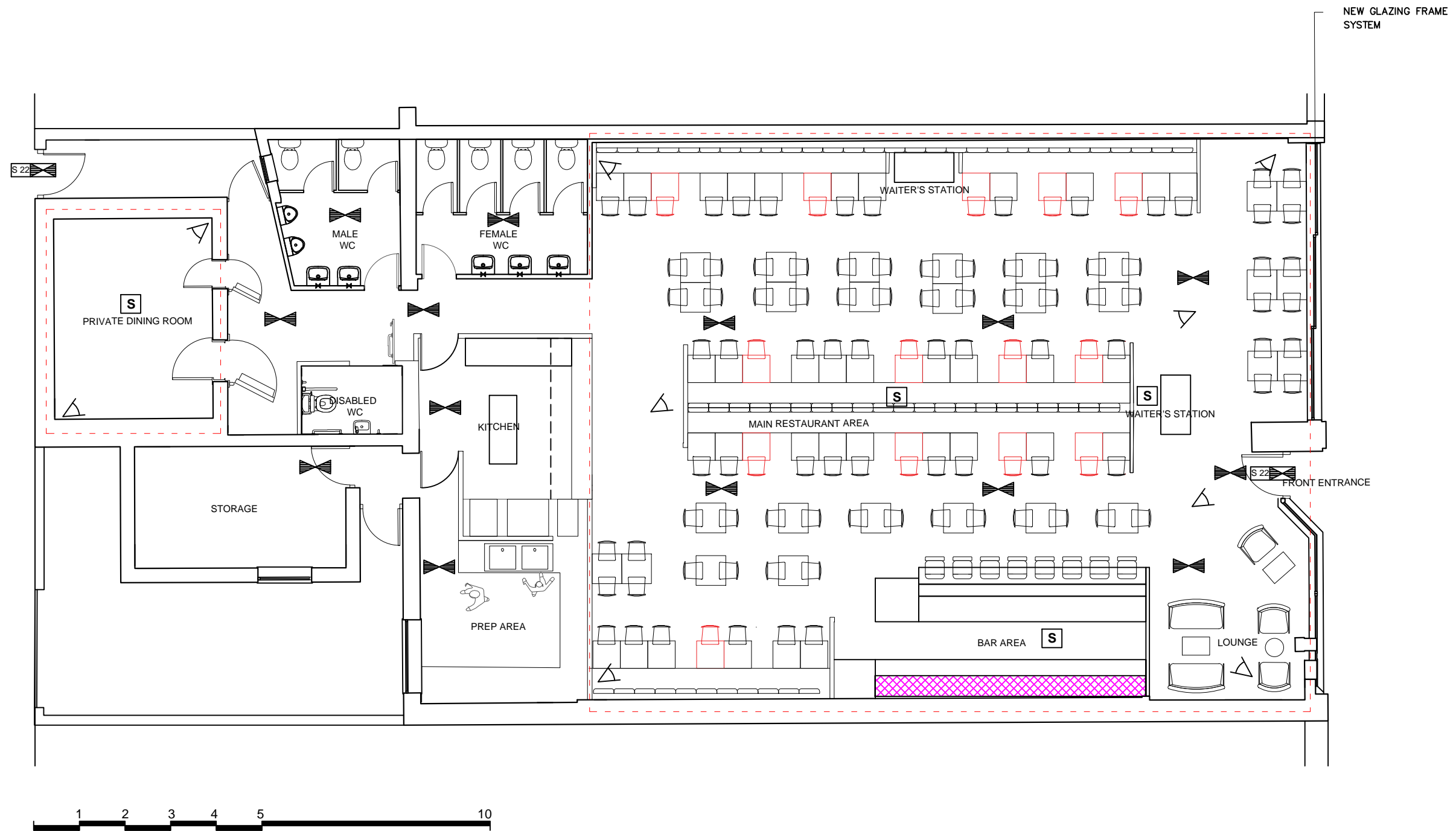
43

Skewd kitchen 113-115 Cockfosters Road,

Cockfosters  
Noise Limiter Time History  
Test 2 Music



44  
18141-T12



- ALCOHOL
- WC AREA
- FRIDGES
- AMBIT OF LICENSED PREMISES
- SAFETY LIGHTS
- SMOKE DETECTOR
- CCTV
- S 20 FIRE ESCAPE KEEP CLEAR
- INTERNALLY ILLUMINATED FIRE ESCAPE SIGN (BS 5266)

AMENDMENTS	
A	
B	
C	
D	
E	
F	
G	
H	

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