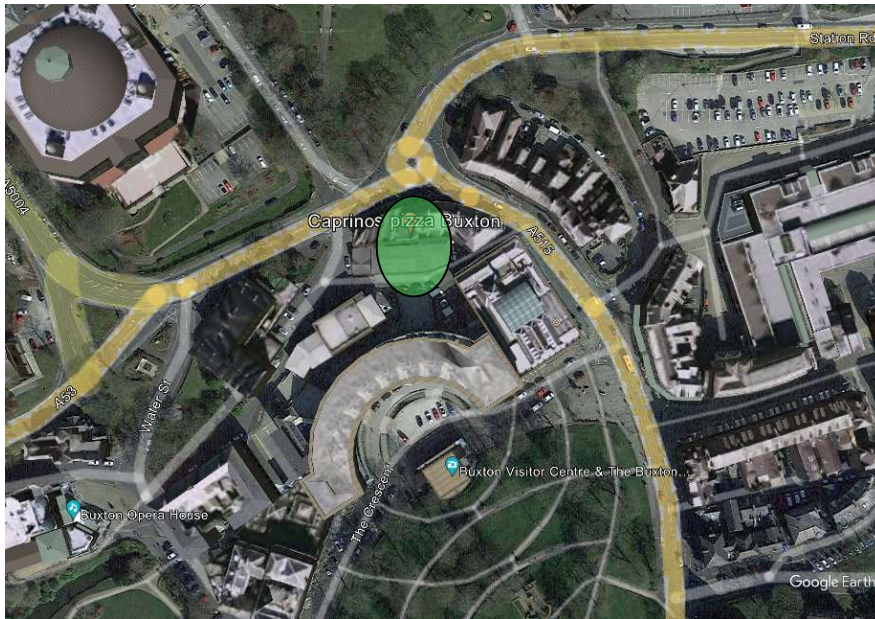




CAPRINOS PIZZA TAKE-AWAY

6 Cavendish Circus, Buxton, SK17 6AT



Extraction System

NOISE IMPACT ASSESSMENT

Report by
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Report Date: 13th March 2024

Ref: E21422

Site Visited by: S.B.Mellor MA, MIOA, CMIOSH

Site Visit: 29th February 2023

Signed:

CONTENTS

SECTION	PAGE
1.0 INTRODUCTION	3
2.0 SITE DESCRIPTION	4
3.0 NOISE CRITERION	6
4.0 MEASUREMENT PROCEDURE	10
5.0 MEASUREMENT RESULTS	11
6.0 ADDITIONAL OBSERVATIONS	13
7.0 ASSESSMENT OF RESULTS	14
8.0 DISCUSSION AND CONCLUSIONS.....	17
APPENDIX 1	18
APPENDIX 2	19
APPENDIX 3	20

1.0 INTRODUCTION

SBM Safety Solutions Ltd attended Caprinos pizza take-away located at 6 Cavendish Circus, Buxton, SK17 6AT, on the instructions of the proprietor to carry out initial measurements which would inform this noise impact assessment.

This assessment would evaluate the potential for adverse impact from an existing extraction system. The plant operates when the take-away is open. The extraction hood and ducting is located within the ground floor restaurant, fed through an internal stairway to an external cowl. It is at this cowl location where there is the potential for adverse impact regarding nearby residents.

Measurements were taken on the 29th of February 2024 for a 24hr period plus a short measurement close to the cowl itself. This report discusses the results of that monitoring and assesses the potential for adverse impact.

Acoustic terminology is explained at Appendix 1 of this report, the author's qualifications and experience are described in Appendix 2 and location photographs at Appendix 3.

2.0 SITE DESCRIPTION

The take-away is situated in the centre of Buxton. Buxton is a spa town in the Borough of High Peak, Derbyshire. It is a busy market town lying close to Cheshire to the west and Staffordshire to the south, on the edge of the Peak District National Park. There are similar businesses on each side of take-away – St. Moritz Italian restaurant to the right (facing) and a bar next to that and on the other side another bar, shop and then Thai restaurant. There is a busy roundabout to the front, off the A53 and A515.

There is other AC plant, extraction plant, fans, inlets and outlets and trade entrance doors located at the rear servicing these other businesses.

The nearest residents are located at approximately 4m from the cowl. The take-away opens during the following hours and this is when the plant operates and also possibly just before and after closing:

Figure 1 – Opening Hours



	OPEN	CLOSE
MON	11:00	23:00
TUE	11:00	23:00
WED	11:00	23:00
THU	11:00	23:00
FRI	11:00	24:00
SAT	11:00	24:00
SUN	11:00	23:00

Figure 2 – Caprinos Buxton Location



Figure 3 – Monitoring (24hrs through window at 1m from façade) and later at 0.5m from the cowl



Figure 4 – Nearest Receptor (windows at Approximately 6m from the cowl)



Sources of noise at the site contributing to the ambient noise levels:

- Road traffic noise throughout.
- Staff from other businesses using the rear yard – doors shutting etc.
- AC, fans, extraction and miscellaneous external plant (see photos below).

Measurements were made at 1m from the façade of the building.

Figure 5 – External plant associated with other businesses



3.0 NOISE CRITERION

3.1 BS4142:2014 – Rating Industrial Noise Affecting Mixed Residential and Industrial Areas

BS4142:2014 states, *“Response to sound can be subjective and is affected by many factors, both acoustic and non-acoustic.*

The significance of its impact, for example, can depend on such factors as the margin by which a sound exceeds the background sound level, its absolute level, time of day and change in the acoustic environment, as well as local attitudes to the source of the sound and the character of the neighbourhood...This British Standard describes methods for rating and assessing sound of an industrial and/or commercial nature”.

This British Standard describes a method for assessing whether a specific sound may have an adverse impact. The Standard requires that the ambient noise (***totally encompassing sound in a given situation at a given time, usually composed of sound from many sources near and far***) including the “specific” sound from the source in question is measured in terms of the equivalent continuous sound level LAeq [see Appendix 1 for acoustic terms], which is then corrected for the residual sound (total LAeq excluding the “specific” sound).

A correction for character is made if ***“a tone, impulse or other characteristic occurs”***. For tonality, a correction of between +2dB and 6dB is considered acceptable and for impulsivity between 3 and 9dB. See table below.

Table 1

Character	Just Perceptible	Clearly Perceptible	Highly Perceptible
Tonality	+2dB	+4dB	+6dB
Impulsivity	+3dB	+6dB	+9dB

Where the specific sound features characteristics that are neither tonal nor impulsive, though otherwise are readily distinctive against the residual acoustic environment, a penalty of 3 dB can be applied. Where tonal and impulsive characteristics are present in the specific sound within the same reference period then these two corrections can both be taken into account. If one feature is dominant, then it might be appropriate to apply a single correction. Where both features are likely to affect perception and response, the corrections ought normally to be added in a linear fashion.

Intermittency

“When the specific sound has identifiable on/off conditions...if the intermittency is readily distinctive against the residual acoustic environment, a penalty of 3 dB can be applied”.

The final figure, including any character correction is known as the Rating level. This Rating Level is then compared with the measured background [LA90] level. The greater this difference the greater the likelihood of “adverse impact” (See Notes 1 & 2 from BS4142:2014 below).

NOTE 1

- a) Typically, the greater this difference, the greater the magnitude of the impact.
- b) A difference of around +10 dB or more is likely to be an indication of a significant adverse impact, depending on the context.
- c) A difference of around +5 dB is likely to be an indication of an adverse impact, depending on the context.
- d) The lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact or a significant adverse impact. Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact, depending on the context.

NOTE 2

Adverse impacts include, but are not limited to, annoyance and sleep disturbance. Not all adverse impacts will lead to complaints and not every complaint is proof of an adverse impact.

4.0 MEASUREMENT PROCEDURE

The site was visited on the 29th of February 2024 and instrumentation was installed at 1m from a first floor window at approximately 2m from the extraction cowl for 24 hours at 15 minute intervals. Measurements were also taken at much closer proximity to lessen the influence from other plant, at approximately 0.5m.

The weather conditions during the survey period were predominantly damp following a spell of snow before attendance although the snow had ceased on arrival and was rapidly thawing. From then on it was dry, overcast and with temperatures of -1 to 11 degrees Celsius and a wind speed 0.5-1m/s (SW) measured on an electronic anemometer although slightly stronger winds were forecast.

It is not considered that weather conditions would have influenced the results.

The sound level meter used can be found in the table below:

Table 2

Instrument	Type	Serial No.	Calibration Cert. No.	Date of Due Calibration
Svan 977	Sound Level Meter	36870	1502651-1	17/05/2024
Svan SV12L	Preamp	71675	1502651-1	17/05/2024
Aco Pacific 7052E	Microphone	70160	1502651-1	17/05/2024
Svan SV33B	Calibrator	112680	1502651-2	17/05/2024
With outdoor kit and all-weather windmuffs				

The instrumentation had been laboratory calibrated within the preceding 2 years and on-site pre monitoring and after monitoring to 94dBA.

5.0 MEASUREMENT RESULTS

The results obtained are shown in the Tables below (Opening Hours Shown in Green).

Table 3 – Existing Ambient and Background L90 dBA

Day / Start Time	LAeq	LAmaz	LAmaz	L01	L10	L50	L90	L95
29/02/2024 16:00:00	61.1	76.2	55.5	64.9	63.9	58.7	56.9	56.6
29/02/2024 16:15:00	62.4	83.7	55.9	65.8	64.0	61.5	57.3	56.9
29/02/2024 16:30:00	59.9	78.1	55.9	65.5	63.7	58.0	56.9	56.8
29/02/2024 16:45:00	62.5	79.6	56.5	65.7	64.4	62.0	58.8	57.9
29/02/2024 17:00:00	58.5	72.4	56.3	61.2	59.4	58.2	57.3	57.0
29/02/2024 17:15:00	62.7	77.1	56.0	69.0	65.4	60.9	57.1	56.9
29/02/2024 17:30:00	59.9	77.9	56.1	65.6	62.9	58.2	57.3	57.0
29/02/2024 17:45:00	62.2	71.3	56.2	66.2	65.3	60.9	57.6	57.3
29/02/2024 18:00:00	61.3	69.2	56.3	64.7	64.0	58.5	57.2	56.9
29/02/2024 18:15:00	60.5	72.1	56.3	63.5	62.3	60.4	57.4	57.1
29/02/2024 18:30:00	61.4	70.9	56.3	65.1	64.1	59.0	57.4	57.1
29/02/2024 18:45:00	61.3	75.7	56.4	64.7	63.2	61.5	57.6	57.3
29/02/2024 19:00:00	61.4	70.2	56.2	65.6	64.4	58.8	57.3	57.0
29/02/2024 19:15:00	62.9	67.0	56.3	65.9	64.8	62.6	58.0	57.5
29/02/2024 19:30:00	58.7	71.8	56.1	64.6	59.5	58.2	57.3	57.0
29/02/2024 19:45:00	63.2	79.8	56.4	66.7	65.5	61.3	57.5	57.2
29/02/2024 20:00:00	59.8	75.9	56.2	64.5	63.0	58.5	57.3	57.0
29/02/2024 20:15:00	62.3	76.7	56.1	66.0	64.9	61.6	57.6	57.3
29/02/2024 20:30:00	61.8	70.3	56.1	65.4	64.5	59.4	57.3	57.0
29/02/2024 20:45:00	62.4	89.4	56.2	63.5	62.2	60.2	57.4	57.1
29/02/2024 21:00:00	61.6	78.8	55.6	65.5	64.3	59.1	56.9	56.6
29/02/2024 21:15:00	61.5	74.1	55.2	66.1	64.2	61.3	56.9	56.5
29/02/2024 21:30:00	60.5	72.3	55.2	65.2	64.2	57.5	56.3	55.9
29/02/2024 21:45:00	62.9	82.4	55.3	66.7	65.8	61.7	56.9	56.5
29/02/2024 22:00:00	57.6	76.1	55.1	61.4	58.6	57.1	56.1	55.8
29/02/2024 22:15:00	62.6	74.2	55.5	65.3	64.4	62.4	57.4	56.9
29/02/2024 22:30:00	61.1	71.0	55.3	65.1	64.2	58.4	56.4	56.1

29/02/2024 22:45:00	60.4	72.9	55.1	64.7	63.0	58.4	56.3	56.0
29/02/2024 23:00:00	61.8	78.4	55.1	65.5	64.6	60.9	56.4	56.1
29/02/2024 23:15:00	60.3	79.5	55.2	66.1	63.7	57.6	56.3	55.9
29/02/2024 23:30:00	61.6	68.8	55.2	66.7	65.6	58.1	56.6	56.3
29/02/2024 23:45:00	62.1	67.6	55.2	66.7	65.5	59.1	56.4	56.1
01/03/2024 00:00:00	59.0	72.0	55.5	63.0	61.9	57.7	56.6	56.3
01/03/2024 00:15:00	62.2	66.0	55.3	65.6	64.7	62.1	56.5	56.2
01/03/2024 00:30:00	60.6	65.6	55.2	64.7	63.6	58.8	56.4	56.2
01/03/2024 00:45:00	60.9	65.8	55.2	65.2	64.4	58.1	56.3	56.0
01/03/2024 01:00:00	62.4	66.1	55.5	65.2	64.5	62.3	57.0	56.5
01/03/2024 01:15:00	58.8	64.0	55.4	63.3	61.9	57.6	56.5	56.3
01/03/2024 01:30:00	62.4	67.4	55.3	66.7	65.6	61.4	56.6	56.3
01/03/2024 01:45:00	60.8	67.5	55.2	66.7	65.0	57.8	56.5	56.3
01/03/2024 02:00:00	61.2	67.5	55.2	66.7	65.7	57.8	56.3	56.0
01/03/2024 02:15:00	61.7	65.7	55.1	65.2	64.6	58.6	56.4	56.1
01/03/2024 02:30:00	59.9	64.4	55.3	63.6	62.6	57.8	56.3	56.0
01/03/2024 02:45:00	61.7	65.7	55.3	65.2	64.5	59.2	56.5	56.1
01/03/2024 03:00:00	62.1	66.2	55.4	65.2	64.4	62.2	56.8	56.4
01/03/2024 03:15:00	59.1	65.6	55.3	64.9	63.4	57.3	56.2	55.9
01/03/2024 03:30:00	62.7	66.2	55.4	65.3	64.6	62.6	57.7	56.8
01/03/2024 03:45:00	57.4	62.1	55.2	59.7	58.7	57.1	56.2	55.9
01/03/2024 04:00:00	62.9	67.9	55.3	67.0	66.1	59.0	56.7	56.4
01/03/2024 04:15:00	59.9	65.4	55.3	65.0	64.1	57.6	56.3	56.0
01/03/2024 04:30:00	61.7	67.2	55.3	66.2	64.6	61.4	57.0	56.6
01/03/2024 04:45:00	61.5	67.8	55.1	65.2	64.5	58.6	56.6	56.3
01/03/2024 05:00:00	60.1	64.4	55.3	63.4	62.5	59.0	56.5	56.2
01/03/2024 05:15:00	61.6	65.7	55.4	65.4	64.6	58.7	56.7	56.4
01/03/2024 05:30:00	60.9	65.7	55.5	64.7	63.3	61.2	56.8	56.4
01/03/2024 05:45:00	60.8	65.8	55.4	65.2	64.5	57.9	56.8	56.5
01/03/2024 06:00:00	62.6	66.9	55.5	66.5	65.5	61.9	56.7	56.4
01/03/2024 06:15:00	58.0	72.5	55.5	60.3	59.1	57.7	56.7	56.4
01/03/2024 06:30:00	64.3	87.0	55.9	69.0	66.1	62.3	57.4	56.9
01/03/2024 06:45:00	59.0	70.6	55.9	64.9	59.9	57.9	56.9	56.6
01/03/2024 07:00:00	67.6	93.3	55.8	70.2	65.2	62.6	58.8	57.9
01/03/2024 07:15:00	63.3	74.6	55.9	68.0	65.1	63.5	57.6	57.2
01/03/2024 07:30:00	60.6	70.8	56.2	63.7	62.7	59.6	57.4	57.2
01/03/2024 07:45:00	61.8	66.2	55.9	65.6	64.7	59.0	57.2	56.9
01/03/2024 08:00:00	60.3	65.5	56.0	63.8	62.6	59.1	57.4	57.1
01/03/2024 08:15:00	62.1	71.7	56.3	65.5	64.5	60.4	57.9	57.5
01/03/2024 08:30:00	60.9	67.8	56.4	66.2	64.7	59.0	57.6	57.3
01/03/2024 08:45:00	61.9	75.9	56.3	66.6	65.2	59.2	57.7	57.4
01/03/2024 09:00:00	61.9	66.6	56.1	66.1	65.1	59.2	57.6	57.3

01/03/2024 09:15:00	59.5	65.3	56.1	63.2	62.0	58.5	57.3	57.0
01/03/2024 09:30:00	62.7	83.7	56.9	65.7	64.6	62.7	58.3	57.9
01/03/2024 09:45:00	61.7	87.7	57.5	66.2	63.1	60.2	58.6	58.3
01/03/2024 10:00:00	62.4	72.5	57.3	66.1	64.5	62.0	58.8	58.4
01/03/2024 10:15:00	62.1	79.1	57.5	65.3	64.2	61.8	58.8	58.4
01/03/2024 10:30:00	60.9	66.7	57.8	65.0	63.5	59.9	58.6	58.3
01/03/2024 10:45:00	62.9	79.1	57.5	65.8	64.6	62.6	59.4	59.0
01/03/2024 11:00:00	60.7	69.2	57.8	64.4	62.5	60.1	58.9	58.6
01/03/2024 11:15:00	63.1	74.9	57.8	66.5	65.3	62.6	59.4	59.0

Table 4 – Extraction at Cowl Measured in Close Proximity (0.5m)

Day / Start Time	Duration	LAeq	LAmaz	LAmín	L01	L10	L50	L90	L95	Notes
01/03/2024 11:44:13.300	00:02:02.000	66.0	68.4	64.6	67.2	66.6	65.9	65.1	64.9	At 0.5m from the Cowl

Figures 6 – Trace – LAeq

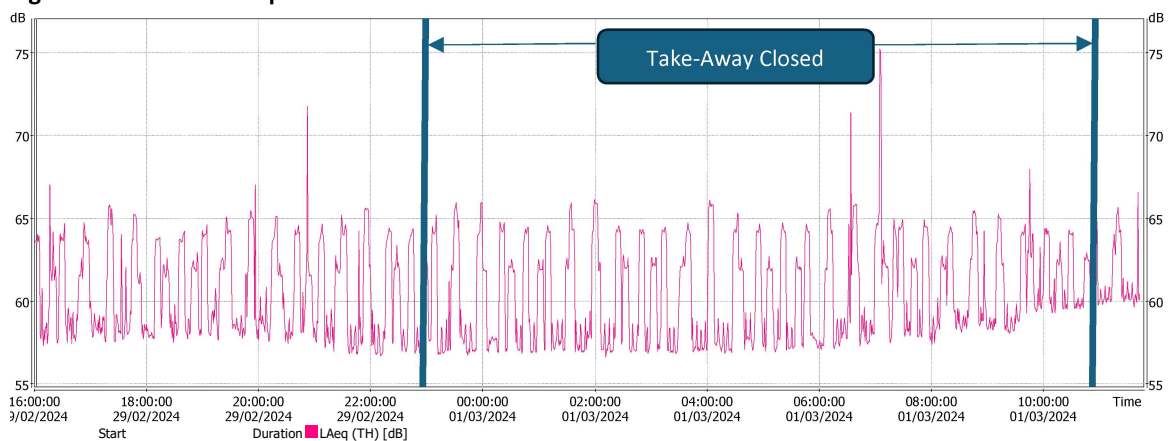
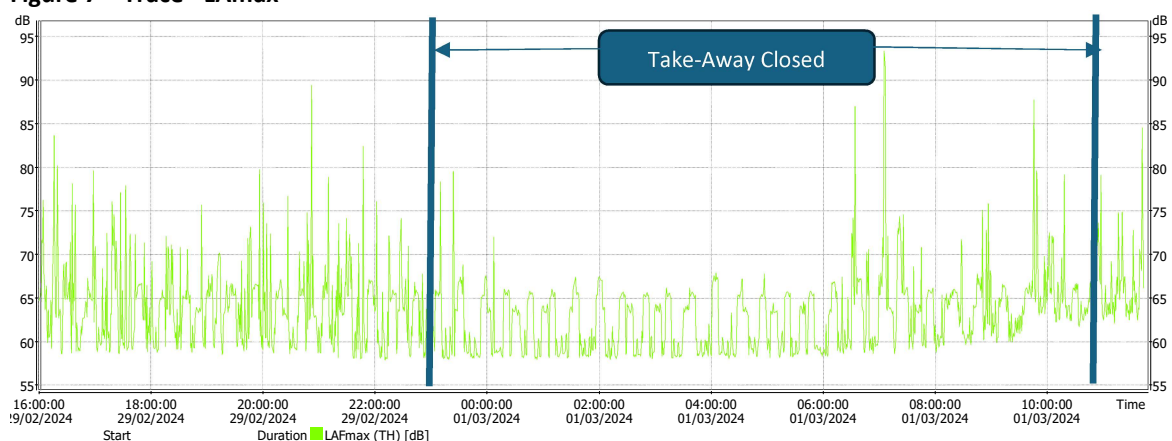


Figure 7 – Trace - LAmaz



It can be seen in the LAeq, t trace above that levels are fairly consistent before, during and after the take-away opens and closes. This suggests little influence from the shop extraction system on the ambient or background noise level. There are incidents of LAmax levels around 73dB during the same periods, therefore similar LAmax levels will persist even if the shop was not operating at all. These incidents are likely to be from people using the rear yards and rear exits as the frequency of incidents noticeably drops off late at night and in the early hours of the morning.

6.0 ADDITIONAL OBSERVATIONS

As noted above, there were occasional incidents in the rear yard plus road traffic and birdsong.

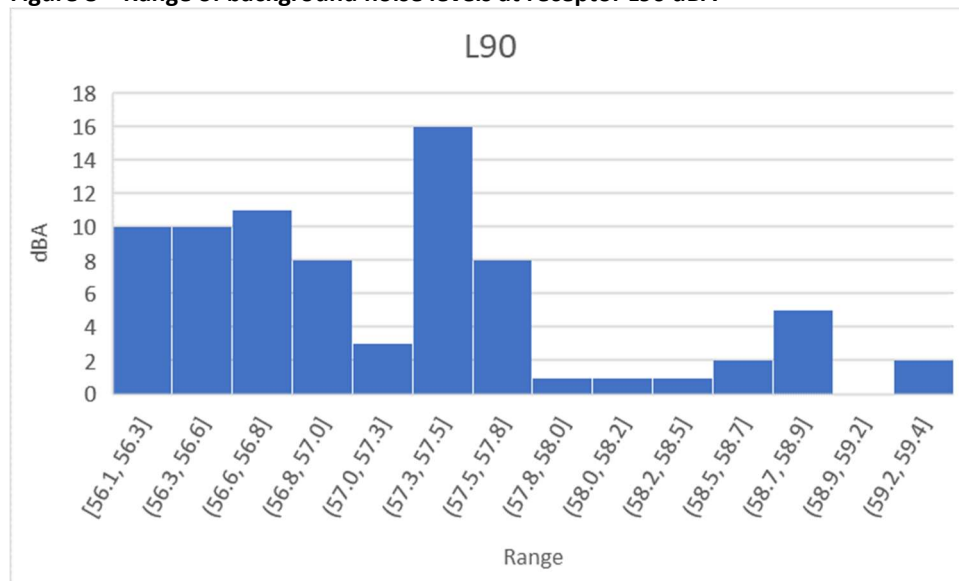
7.0 ASSESSMENT OF RESULTS

7.1 BS4142

To assess any potential impact to BS4142 we have to establish the typical background level L90. As can be seen in the table below the typical background level (not the lowest – BS4142:2014 does not require the lowest to be used for impact estimates) is 57.3-57.5dBA over the 24 hour

period. Levels are pretty steady with only 3dBA difference from the lowest to the highest.

Figure 8 – Range of background noise levels at receptor L90 dBA



At close proximity (0.5m from the extraction external cowl) our measured level was 66.0dBA. For a point source of noise we need to correct for distance, i.e. 6m to the nearest resident window¹. This would result in a level of **44dBA** [66-21.6=44.4dBA].

¹ 20 LOG (measurement distance / receptor distance)

Table 5 - BS4142 Assessment

Specific Noise Level	44dB
Tonal/Impulsive/Intermittent Character Correction (clearly audible hum close to the cowl)	4 dB
Rating Level [Specific + Character Correction]	48 dB
Background Noise Level (L90) – typical	57 dB
Excess over Background	-9dB
Conclusion – <i>“Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact, depending on the context.”</i>	

7.2 Uncertainty

The following factors have a bearing on the uncertainty of the assessment:

- No all businesses were open nearby. It is understood that the pub next door only opens on Friday and Saturday nights. This may influence the existing ambient/background levels at the rear and thus lesson the potential for adverse impact.
- The existing ambient / background level was established during one monitoring period, but this was for 24 hours and so can be considered to be representative.

Overall it is considered that the assessment is sufficiently robust.

8.0 DISCUSSION AND CONCLUSIONS

8.1 BS4142

The results of the noise measurements are presented above.

There is likely to be “**Low impact**” depending on context.

APPENDIX 1

EXPLANATION OF ACOUSTIC TERMS

The dB or the decibel, is the unit of noise. The number of decibels or the level, is measured using a sound level meter. It is common for the sound level meter to filter or 'weight' the incoming sound so as to mimic the frequency response of the human ear. Such measurements are designated **dB(A)**.

A doubling of the sound is perceived, by most people, when the level has increased by 10 dB(A). The least discernible difference is 2 dB(A). Thus, most people cannot distinguish between, say 30 and 31 dB(A).

The Background level of noise is most commonly represented by the level which is exceeded for 90% of the time i.e. the LA90.

If a noise varies over time, then the **equivalent continuous level, or LAeq**, is the notional constant level of noise which would contain the same amount of acoustic energy as the time varying noise.

The following table gives an indication of the comparative loudness of various noises expressed in terms of the A weighted scale:

Source of noise	dB(A)	Nature of Noise
Inside Quiet bedroom at night	30	Very Quiet
Quiet office	40	
Rural background noise	45	
Normal conversational level	60	
Busy restaurant	65	
Typewriter @ 1m	73	
Inside suburban electric train	76	
Alarm clock ringing @ .5m	80	
Hand clap @ 1m	80	
HGV accelerating @ 6m	92	Very Loud

APPENDIX 2

QUALIFICATIONS AND EXPERIENCE OF M. S. MELLOR

My full name is Steven Brian Mellor. I am the principal consultant at the firm of SBM Safety Solutions Ltd, a consultancy company that specialises in health, safety and environmental services including noise assessment and control.

I hold a Master's degree in Health, Safety and Environmental Law, British Occupational Health Society (BOHS) M104 certificate in Noise and Vibration and Institute of Acoustics Certificate of Competence in Environmental Noise Measurement (Derby University), plus Diploma in Acoustics and Noise Control (Bristol University). I am a member of the professional body for noise and vibration specialists, the Institute of Acoustics, MIOA.

I have some 22 years' experience of dealing with problems caused by noise and vibration, both regarding noise and vibration in the environment, the workplace and the home. The firm SBM Safety Solutions Ltd. was formed 19 years ago. During that time, we have advised many groups including employers, residents and developers about the problems of noise and vibration in the workplace and environment.

APPENDIX 3

Site and Location Images



Nearby Thai Restaurant

Roundabout at the Front



External Plant locate at the rear Associated with other Businesses



Rear yard and Walkthrough

Fans associated with a nearby Business