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Lu's Place, Knowle Lane, Meltham

Noise Impact Assessment

For:
Robert Halstead Chartered Surveyors & Town Planners

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1 Introduction

1.1 Overview

Environmental Noise Solutions Ltd (ENS) has been commissioned by Robert Halstead Chartered Surveyors & Town Planners (hereafter referred to as 'the client') to provide a noise assessment in support of an application to extend opening hours at the existing Lu's Place, a café located off Knowle Lane, Meltham.

This report presents:

- The methodology and results of a noise survey conducted at the site
- An assessment of noise emission from the site to nearby noise sensitive receptors

This report has been prepared on behalf of the client for the sole purpose described above and no extended duty of care to any third party is implied or offered. Third parties referring to the report should consult the client and ENS as to the extent to which the findings may be appropriate for their use.

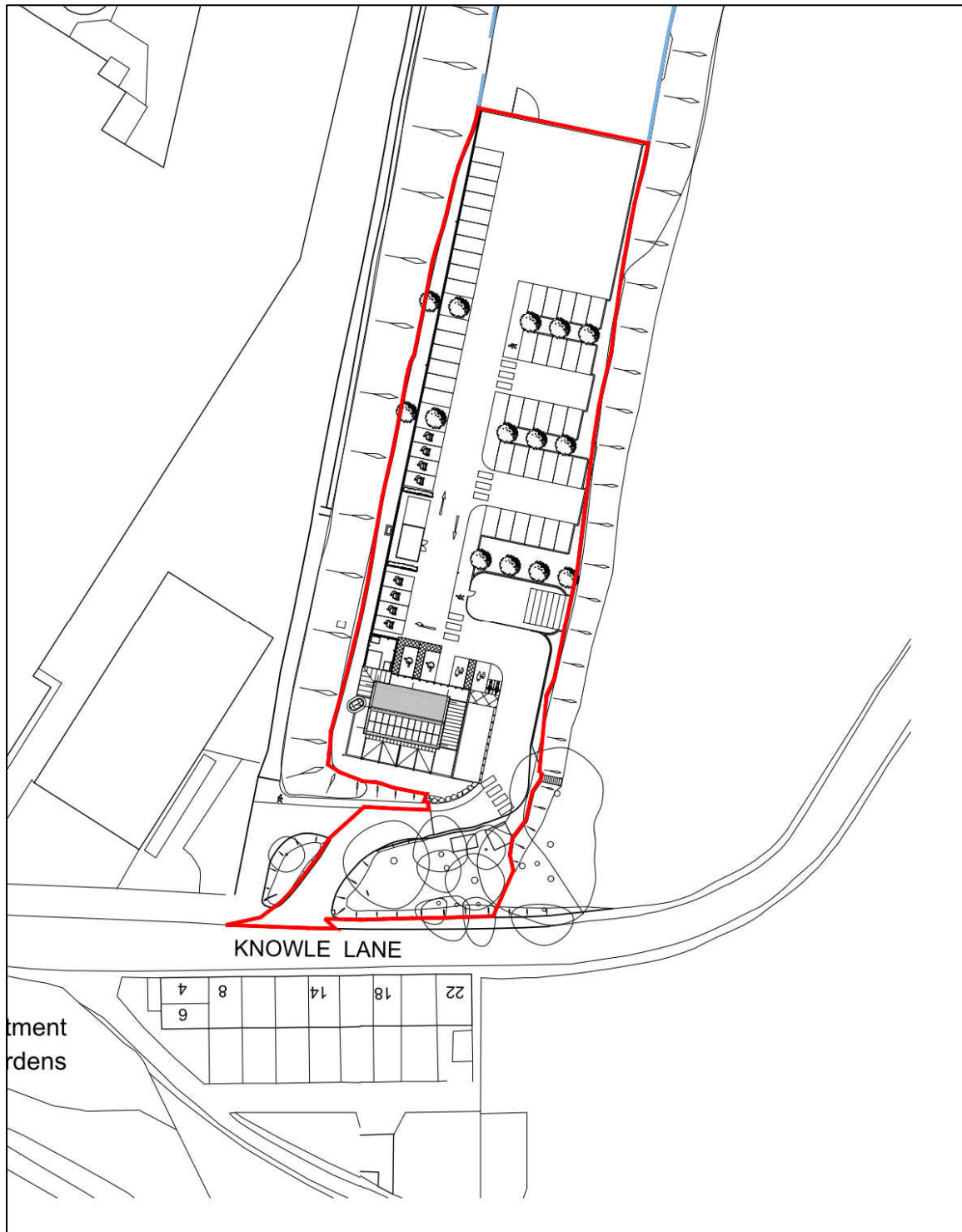
A glossary of acoustic terms used in the main body of the text is contained in Appendix A.

1.2 Site Description

The site is located to the north of Knowle Lane, approximately 1km east of Meltham, in a mixed-use area comprising commercial properties to the west, residential dwellings to the south and areas woodland in the immediate vicinity.

The site location and approximate boundary is presented on Figure 1.1 below.

Figure 1.1: Site Location



2 Noise Criteria

2.1 Assessment Guidance

British Standard 4142: 2014 +A1:2019 “Methods for rating and assessing industrial and commercial sound”

BS 4142¹ presents methods for rating and assessing the potential impact of commercial and industrial sound upon noise sensitive receptors. The Standard is appropriate for the consideration of industrial and manufacturing processes, fixed installations which comprise mechanical and electrical plant and equipment and mobile plant / vehicles that form an intrinsic part of the industrial/commercial including the loading and unloading of goods and materials at the premises.

The noise impact magnitude is derived from the numerical subtraction of the representative² background noise level from the measured or calculated rating level of the specific sound under consideration. Typically, the greater this difference, the greater the magnitude of the impact:

- A difference of around +10 dB or more is likely to be an indication of a significant adverse impact, depending on the context
- A difference of around +5 dB is likely to be an indication of an adverse impact, depending on the context
- 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

The ‘rating level’ must be determined considering the need for any ‘character corrections’ to the specific industrial/commercial noise level to account for tonal qualities, impulsive qualities, other sound characteristics and/or intermittency. This can be done using a subjective, objective or reference methods. Where multiple features are present the corrections should be added in a linear fashion to the specific level.

The subjective method is based on the corrections presented in Table 2.1.

Table 2.1: BS4142 Subjective Method ‘Acoustic Feature’ / Rating Corrections

Level of Perceptibility	Tonal Correction	Impulsivity Correction	Intermittency Correction	Other
None	0 dB	0 dB	+3 dB Where intermittency is readily identifiable	+3 dB Where neither tonal nor impulsive but clearly identifiable against prevailing soundscape
Just Perceptible	+ 2 dB	+ 3 dB		
Clearly Perceptible	+ 4 dB	+ 6 dB		
Highly Perceptible	+ 6 dB	+ 9 dB		

BS 4142 requires separate analysis for day and night time periods, evaluating the Rating level over an appropriate reference time interval (T_r) of:

- 1 hr during the day (between 07:00 – 23:00 hrs)
- 15 min during the night (between 23:00 – 07:00 hrs)

¹ British Standard 4142:2014+A1:2019 Methods for rating and assessing industrial and commercial sound. British Standards Institution (2019)

² ‘Representative’ is generally considered to be ‘typical’ (e.g. formed by analysis of modal / mean average values) rather than the lowest measured

National Planning Policy Framework

The National Planning Policy Framework (NPPF)³ was updated in February 2025 and sets out the Government's planning policies for England and how these are expected to be applied.

Where issues of noise impact are concerned the NPPF provides brief guidance in paragraph 187 where it states that planning policies and decisions should contribute to and enhance the natural and local environment by:

'preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of.....noise pollution'.

Paragraph 198 advises that:

'Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development. In doing so they should.....mitigate and reduce to a minimum potential adverse impacts resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life'.

With regard to extant community noise sources and the potential to affect proposed new developments, Paragraph 200 states that:

'Planning policies and decisions should ensure that new development can be integrated effectively with existing businesses and community facilities (such as places of worship, pubs, music venues and sports clubs). Existing businesses and facilities should not have unreasonable restrictions placed on them as a result of development permitted after they were established. Where the operation of an existing business or community facility could have a significant adverse effect on new development (including changes of use) in its vicinity, the applicant (or 'agent of change') should be required to provide suitable mitigation before the development has been completed.'

The NPPF also refers to the 2010 DEFRA publication, the Noise Policy Statement for England (NPSE) which reinforces and supplements the NPPF.

1.1 Noise Policy Statement for England

The Noise Policy Statement for England⁴ (NPSE) sets out the long-term vision of promoting good health and a good quality of life through the effective management of noise within the context of Government policy on sustainable development. This long-term vision is supported by the following aims:

- Avoid significant adverse impacts on health and quality of life
- Mitigate and minimise adverse impacts on health and quality of life
- Where possible, contribute to the improvement of health and quality of life

The NPSE describes the following levels at which noise impacts may be identified:

- NOEL – No Observed Effect Level. This is the level below which no effect can be detected. In simple terms, below this level, there is no detectable effect on health and quality of life due to the noise
- LOAEL – Lowest Observed Adverse Effect Level. This is the level above which adverse effects on health and quality of life can be detected

3 National Planning Policy Framework. Ministry of Housing, Communities and Local Government (2021)

4 Government Department for Environment, Food and Rural Affairs. Noise Policy Statement for England. March 2010.

- SOAEL – Significant Observed Adverse Effect Level. This is the level above which significant adverse effects on health and quality of life occur

According to the explanatory notes in the statement, where a noise level falls between the lowest observable adverse effect level (LOAEL) and a level which represents a significant observable adverse effect level (SOAEL):

‘...all reasonable steps should be taken to mitigate and minimise adverse effects on health and quality of life whilst also taking into consideration the guiding principles of sustainable development. This does not mean that such effects cannot occur.’

2.2 Noise Sensitive Receptors

The closest residential noise sensitive receptors are dwellings to the south of the Site boundary, indicated on the site location plan included as Appendix B, and described in Table 2.2 below.

Table 2.2: Noise Sensitive Receptors

NSR	Description	Direction	Approximate minimum distance to site boundary (m)
A	Residential dwellings on Knowle Lane	South	10

3 Noise Survey and Results

3.1 Representative Noise Levels

Noise monitoring was undertaken between Friday 28th February and Saturday 1st March, 2025 with additional measurements taken on Saturday 8th March 2025. Noise measurements were made at the following locations:

- Position 1 - At the southern site boundary approximately 14m north of the NSRs on Knowle Lane
- Position 2 - Approximately 1m from the kitchen extract flue on the eastern façade of Lu's Place

The approximate monitoring locations are presented on the site plan included as Appendix B.

Observations made during the attended survey periods indicate that the noise climate in the vicinity of the site was controlled by road traffic along Knowle Lane to the south of the site.

Noise measurements were undertaken using a Bruel & Kjaer 2250 Type 1 integrating sound level meter. External measurements were made with the microphone positioned at approximately 1.5m metres above ground, in 'free-field' conditions (i.e. > 3.5 metres from a vertical reflective surface), at the locations detailed above.

The calibration of each measurement system was verified immediately before and after the survey period using a Bruel & Kjaer Type 4231 calibrator. No drift in calibration levels greater than 0.5 dB was noted. Measurements consisted of A-weighted broadband parameters including L_{Aeq} , L_{A10} and $L_{Amax,F}$ together with linear octave band data.

As the survey was unattended, weather conditions were not directly recorded. However, analysis of historic online weather data indicates that conditions throughout the survey were considered appropriate for noise monitoring.

3.2 Summary of Results

Table 3.1 presents a summary of the noise data for the day and night time periods, rounded to the nearest decibel.

Table 3.1: Summary of Noise Measurement Data

Position	Date	Time (hh:mm)	$L_{Aeq,T}$ (dB)	$L_{A90,T}$ (dB)
1	28/02/25	18:00-19:00	66	42
		19:00-20:00	65	42
		20:00-21:00	62	40
		21:00-22:00	60	38
		22:00-23:00	58	35
	01/03/25	12:00-13:00	64	42
		13:00-14:00	64	43
		14:00-14:55	64	42
2	01/03/25	11:48-11:53	61	61

4 Assessment

4.1 Introduction

The proposals are for the extension of operational hours from 09:00 – 22:30 Monday to Saturday, with all staff off-site by 23:00.

4.2 Fixed Plant Noise

With reference to the BS 4142 guidance set out in Section 2, where the rating noise level from an item or items of fixed plant exceeds the existing background noise level by 5 dB or more, this is an indication that the noise would have an adverse impact at the noise sensitive receptors. On this basis, fixed plant noise should not exceed a rating noise level which is 5 dB above the existing representative background noise level.

Table 4.1 below presents a summary of the lowest 1-hour background noise levels measured between 18:00 and 23:00 and the corresponding proposed Rating limits. The noise level presented below should be achieved at 1m from the façade of nearby noise sensitive receptors.

Averaging periods (T) are 1 hour for the daytime.

Table 4.1: BS4142 Rating Noise Limits

NSR	Period	Representative background noise level (dB $L_{A90,T}$)	Proposed Rating Noise Limit (dB $L_{Ar,Tt}$)
All NSRs	Daytime (18:00-23:00)	35	≤ 40

4.3 Plant Noise Assessment

Based on observations made on site, existing fixed plant is presently limited to a single extraction fan, which is ducted to the eastern façade at a height of approximately 3m above ground level. To assess the noise level from this existing plant, measurements were made at 1m from the grille with a noise level of 61 dB $L_{Aeq,5min}$ recorded. Plant is assumed to be operating continuously and concurrently throughout the assessment period, with a sound power level of 69 dB L_{WA} calculated from the source measurements described above.

One further item of plant will be associated with the proposed bouncy castle use, which will be located within the play area to the north of the café. This blower has an assumed sound power level of 75 dB L_{WA} considered representative of a small 1.1kW unit.

To calculate specific noise levels at the nearest noise sensitive receptors, a three-dimensional Cadna-A noise model has been developed. Noise model geometry is based on Ordnance Survey mapping data and drawings supplied by the client.

Propagation of noise has been calculated in octave bands according to ISO 9613: 1996, at a height of 4m above ground level, representative of a first-floor bedroom. All buildings within the model are assumed to be acoustically reflective, and second order reflections have been considered. The noise model assumes mixed hard/soft ground for propagation corrections and all dwellings outside the site boundary have an assumed height of 8m.

The following assumptions were used in the model:

- Meteorological conditions: Temp. 10 °C, Relative Humidity 70%
- Reflections: 2nd order reflections considered
- Propagation of noise has been calculated at a height of 4m above ground level

All plant is assumed to be operating continuously and concurrently throughout the assessment period.

4.4 BS 4142 Assessment

Specific noise levels have been calculated at 4m above ground level, representing a first-floor window, with the results presented in Table 4.2.

Noise levels have been assessed over a time period (T) of 1-hour, as recommended in BS 4142.

Table 4.2: Calculated Specific Noise Levels at NSRs

Noise Sensitive Receptor	Specific Noise Level [dB $L_{Aeq,T}$] at Receptor
NSR A	≤ 28

With regard to potential 'acoustic feature' corrections, the following is considered:

- The assessed plant is understood to operate continuously whilst the Café is in use.
- Plant of this type is not impulsive, and typically produces a steady noise level when operating.
- Source noise levels used in the assessment are not considered tonal.

Based on the above, no acoustic feature corrections have been applied.

The calculated fixed plant noise levels have been assessed in accordance with the methodology set out in BS 4142. The results of the assessment are presented in Table 4.3.

The results presented in Table 4 indicate that noise from the existing plant would not exceed the lowest 1-hour background noise level measured at the NSR during the proposed extended operating hours. With reference to the BS 4142 guidance set out in Section 2.2, this is representative of a 'low impact'.

5 Operational Noise

5.1 Guidance

Guidance for the assessment of noise from operational activities has been drawn from the Institute of Environmental Management and Assessment (IEMA) guidelines for Environmental Noise Impact Assessment. The IEMA guidelines provide recommendations for noise impact assessments in the context of the Environmental Impact Assessment (EIA) process, however the principles are considered relevant to all types of project where noise effects are likely to occur.

Table 5.1 below presents an example of noise impact magnitude descriptors used to assess the impact of road traffic noise. This has been adopted as a means of assessing the impact of potential changes in ambient noise level at NSRs due to the proposed extension of operational hours.

Table 5.1: Noise impact magnitude

Relative change (dB)	Magnitude / Scale of change
≤ 2.9	Negligible
3.0 to 4.9	Small
5 to 9.9	Medium
≥ 10	Large

5.2 Operational Noise

The assessment of operational noise considers the following noise sources:

- Noise emission from the internal café area via fully open doors
- Noise from the proposed play area and bouncy castle (excluding plant)

To inform the assessment, measurements were made within the existing café between 11:57 and 12:54 on Saturday 8th March 2025 which is understood to be representative of the busiest period in terms of café occupation with noise levels found to be ≤ 69 dB $L_{Aeq,1hr}$.

Noise levels for the play area have been drawn from measurements previously made by ENS in a soft-play area occupied by 16 no. children, which is considered representative of the highest number of users likely to be on site concurrently with a noise level ≤ 61 dB $L_{Aeq,1hr}$ at 8m.

Noise levels from each source have been calculated at the NSR using the Cadna-A noise model previously described. Noise emission from the café has been modelled as a vertical area source, representing open doors on the eastern façade with an area of 9m². Noise from the play area has been calculated as a point source with a height of 1m above ground level.

The predicted noise level from each of the sources has been predicted at the façade of the NSR and compared to the lowest prevailing noise level measured in the vicinity of the NSR between 22:00 and 23:00. This is considered to represent the most onerous period, with prevailing noise levels measured between 18:00 and 22:00 being up to 8 dB higher.

The results are set out in Table 5.2 below.

Table 5.2: Calculated Specific Noise Levels at NSRs

Activity	Noise level at NSR (dB $L_{Aeq,1hr}$)	Prevailing noise level (dB $L_{Aeq,1hr}$)	Change in noise level (dB)
Breakout noise	33	58	0
Play area noise	45	58	0

The results set out in Table 5.2 indicate that the proposals would not result in a change in prevailing noise level at the NSRs which is indicative of a negligible impact.

With reference to the NPSE guidelines set out in Section 2, noise from the proposals are considered to represent the no observable effect level (NOEL) in that noise may be audible at the NSR, but not at a level at which a detectable effect on health or quality of life.

6 Summary and Conclusions

A noise impact assessment has been undertaken to support an application to extend opening hours at the existing Lu's Place, a restaurant located off Knowle Lane, Meltham.

Noise monitoring was undertaken between Friday 28th February and Saturday 1st March, 2025 with additional measurements taken on Saturday 8th March 2025 to assess prevailing background noise levels in the vicinity of nearby noise sensitive receptors.

Predicted noise levels from existing plant at the façade of the nearest identified noise sensitive receptors are predicted to be below the level at which adverse impacts are likely to occur during proposed extended hours.

Noise levels from the café and play area have also been predicted at the façade of the NSR with no change in the prevailing noise level predicted to occur throughout the proposed extended hours.

Based on the above, noise is not considered a constraint to the proposals.

Appendix A – Abbreviations and Definitions

Sound Pressure Level (L_p)

The basic unit of sound measurement is the sound pressure level. As the pressures to which the human ear responds can range from 20 μ Pa to 200 Pa, a linear measurement of sound levels would involve many orders of magnitude. Consequently, the pressures are converted to a logarithmic scale and expressed in decibels (dB) as follows:

$$L_p = 20 \log_{10}(p/p_0)$$

Where L_p = sound pressure level in dB; p = rms sound pressure in Pa; and p_0 = reference sound pressure (20 μ Pa).

A-weighting

A frequency filtering system in a sound level meter, which approximates under defined conditions the frequency response of the human ear. The A-weighted sound pressure level, expressed in dB(A), has been shown to correlate well with subjective response to noise.

Equivalent continuous A-weighted sound pressure level, $L_{Aeq, T}$

The value of the A-weighted sound pressure level in decibels of continuous steady sound that within a specified time interval, T , has the same mean-square sound pressure as a sound that varies with time. $L_{Aeq, 16h}$ (07:00 to 23:00 hours) and $L_{Aeq, 8h}$ (23:00 to 07:00 hours) are used to qualify daytime and night time noise levels.

$L_{A10, T}$

The A-weighted sound pressure level in decibels exceeded for 10% of the measurement period, T . $L_{A10, 18h}$ is the arithmetic mean of the 18 hourly values from 06:00 to 24:00 hours.

$L_{A90, T}$

The A-weighted sound pressure level of the residual noise in decibels exceeded 90% of a given time interval, T . L_{A90} is typically taken as representative of background noise.

$L_{AF \max}$

The maximum A-weighted noise level recorded during the measurement period. The subscript 'F' denotes fast time weighting, slow time weighting 'S' is also used.

Single Event Level / Sound Exposure Level (SEL or L_{AE})

The energy produced by a discrete noise event averaged over one second, regardless of the event duration. This allows for comparison between different noise events which occur over different lengths of time.

Weighted Sound Reduction Index (R_w)

Single number quantity which characterises the airborne sound insulation properties of a material or building element over a defined range of frequencies (R_w is used to characterise the insulation of a material or product that has been measured in a laboratory).

Appendix B –Site Location Plan and Monitoring Positions

