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2-4 LEIGH ROAD EASTLEIGH

NOISE ASSESSMENT

Technical Report: R10760-1 Rev 0

Date: 13th September 2024

For: Bajar Property Investments
62a London Road
Southampton
SO15 2AH

24 Acoustics Document Control Sheet**Project Title:** 2-4 Leigh Road Eastleigh - Noise Assessment**Report Ref:** R10760-1 Rev 0**Date:** 13th September 2024

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For and on behalf of 24 Acoustics Ltd				

Document Status and Approval Schedule

Revision	Description	Prepared By	Reviewed By	Approved By
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1.0 INTRODUCTION

- 1.1 24 Acoustics Ltd has been appointed by Bajar Property Investments to undertake a noise assessment at 2-4 Leigh Road Eastleigh for a proposed mixed use scheme to convert the existing building, for commercial use at ground floor and a hotel on the first and second floor.
- 1.2 The primary sources of noise in the vicinity are road traffic using Leigh Road, noise from the service yard/car park and third party building services plant, low frequency noise from the neighbouring substation and noise from external patrons at the nearby licensed premises (The Wagon Works - JD Wetherspoon). Accordingly, this noise impact assessment has included:
- Environmental noise monitoring;
 - Consideration of noise arising from road traffic from Leigh Road;
 - Consideration of service yard/car park and third party building services plant;
 - Consideration of patrons noise at the public house external area;
 - Consideration of low frequency noise from the nearby substation;
 - Assessment of sound insulation between ground floor commercial and hotel accommodation above;
 - Assessment of internal noise levels within the proposed scheme;
- 1.3 This report presents the results of the assessment, following environmental noise measurements and on-site investigations undertaken between 8th and 15th August 2024.
- 1.4 All sound pressure levels quoted in this report are in dB relative to 20 μ Pa. A glossary of the acoustic terminology used in this report is provided in Appendix A.

2.0 SITE DESCRIPTION

- 2.1 2-4 Leigh Road Eastleigh is a terraced three-storey building and the surrounding properties are primarily commercial. The rear of the building overlooks a service yard/car park that includes plant for the neighbouring business and a refuse area, whilst the front of the site overlooks Leigh Road.
- 2.2 The site is a 3-storey building including a loft conversion, currently comprising Class E use. The proposed change of use will comprise four hotel bedrooms/studios, two on the first floor and the other two on the second floor. The Ground floor Class E use will be retained and will likely be a retail unit.
- 2.3 The nearby licensed premises (The Wagon Works - JD Wetherspoon) is located east of the site with the external pub garden overlooked by the east façade of the site. The Wagon Works' listed opening hours are 08:00 to 00:00 Monday to Thursday and Sunday; 08:00 to 01:00 Friday and Saturday.
- 2.4 The site location is shown in Figure 1 and the proposed floor layouts are shown in Figure 2 and Figure 3.

3.0 STANDARDS AND GUIDANCE

National Planning Policy Framework and Noise Policy Statement for England

- 3.1 The National Planning Policy Framework (NPPF) [Reference 1] states that planning policies and decisions should:
- a) 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;
 - b) identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason.
- 3.2 The NPPF states that where the operation of an existing business could have a significant adverse effect on new development in its vicinity, the applicant (or 'agent of change') should be required to provide suitable mitigation before the development has been completed. The NPPF states

"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."

3.3 The NPPF also refers to the Noise Policy Statement for England (NPSE) [Reference 2] which is intended to apply to all forms of noise, including environmental noise, neighbour noise and neighbourhood noise. The NPSE sets out the Government's long-term vision to 'promote good health and a good quality of life through the effective management of noise within the context of Government policy on sustainable development' which 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.

3.4 The NPSE defines the concept of a 'significant observed adverse effect level' (SOAEL) as 'the level above which significant adverse effects on health and quality of life occur'. The following guidance is provided within the NPSE:

"It is not possible to have a single objective noise-based measure that defines SOAEL that is applicable to all sources of noise in all situations. Consequently, the SOAEL is likely to be different for different noise sources, for different receptors and at different times. It is acknowledged that further research is required to increase our understanding of what may constitute a significant adverse impact on health and quality of life from noise. However, not having specific SOAEL values in the NPSE provides the necessary policy flexibility until further evidence and suitable guidance is available."

- 3.5 The Planning Practice Guidance (PPG) [Reference 3] is written to support the NPPF with more specific planning guidance. The PPG reflects the NPSE and states that noise needs to be considered when new developments may create additional noise and when new developments would be sensitive to the prevailing acoustic environment. It also states that opportunities should be taken, where practicable, to achieve improvements to the acoustic environment. The PPG states that noise can over-ride other planning concerns but should be considered in the context of the wider characteristics of the development proposal, its likely users and its surroundings.
- 3.6 The PPG expands upon the concept of SOAEL (together with Lowest Observable Adverse Effect Level, LOAEL and No Observed Effect Level, NOEL) as introduced in the NPSE and provides a table of noise exposure hierarchy for use in noise impact assessments in the planning system.
- 3.7 The PPG also expands on the 'agent of change' principle and provides guidance on how the risk of conflict between new development and existing businesses can be addressed, including where mitigation is required.
- 3.8 Paragraph 009 of the PPG (July 2020) states the following regarding the mitigation of noise from existing businesses:

"The agent of change will also need to define clearly the mitigation being proposed to address any potential significant adverse effects that are identified. Adopting this approach may not prevent all complaints from the new residents/users about noise or other effects, but can help to achieve a satisfactory living or working environment, and help to mitigate the risk of a statutory nuisance being found if the new development is used as designed (for example, keeping windows closed and using alternative ventilation systems when the noise or other effects are occurring)."

- 3.9 The NPPF, NPSE and PPG documents do not refer to specific noise criteria. For residential developments 24 Acoustics considers that the spirit of the requirements of the NPPF and NPSE will be complied with if criteria from British Standard 8233: 2014 and guidance from the World Health Organisation are adopted for internal noise levels within dwellings.

Professional Practice Guidance on Planning & Noise (ProPG)

3.10 The Professional Practice Guidance on Planning and Noise (ProPG) [Reference 4] was published jointly by the Association of Noise Consultants, Institute of Acoustics and Chartered Institute of Environmental Health in May 2017. The guidance relates to the consideration of existing sources of transportation noise upon proposed new residential development and strives to:

- Advocate full consideration of the acoustic environment from the earliest possible stage of the development control process;
- Encourage the process of good acoustic design in and around new residential developments;
- Determine what should be taken into account in deciding planning applications for new noise-sensitive developments;
- Improve understanding of how to determine the extent of potential noise impact and effect; and
- Assist the delivery of sustainable development.

3.11 It is important to note that the guidance in ProPG does not constitute an official government code of practice and neither replaces nor provides an authoritative interpretation of the law or government policy.

BS 8233:2014 and WHO Guidelines

3.12 BS 8233:2014 [Reference 5] provides design guidance for dwelling houses, flats and rooms in residential use and recommends that internal noise levels in dwellings do not exceed 35 dB $L_{Aeq, 16 \text{ hour}}$ in living rooms and bedrooms during the day, 40 dB $L_{Aeq, 16 \text{ hour}}$ in dining rooms during the day and 30 dB $L_{Aeq, 8 \text{ hour}}$ in bedrooms at night. These are considered suitable for general environmental noise sources.

3.13 The standard states that the above limits apply to steady external noise sources without specific character, and also states the following:

"Noise has a specific character if it contains features such as a distinguishable, discrete and continuous tone, is irregular enough to attract attention, or has strong low-frequency content, in which case lower noise limits might be appropriate."

3.14 BS 8233:2014 also notes that "Regular individual noise events (for example, scheduled aircraft or passing trains) can cause sleep disturbance. A guideline value may be set in terms of SEL or $L_{Amax,F}$, depending on the character and number of events per night."

- 3.15 Although the guidelines have no formal standing, the World Health Organisation (WHO) provides guidance on desirable internal noise levels to minimise the risk of sleep disturbance. The WHO 2000 guidelines [Reference 6] suggest internal night-time noise levels not exceeding 30 dB $L_{Aeq, 8 \text{ hour}}$ or regularly (10 – 15 times per night) exceeding 45 dB $L_{Amax, f}$ for 'a good night's sleep'.

External Public House Noise

- 3.16 There is no published objective method of assessing the potential for noise impact arising from patrons using the outside area of the licensed premises. The approach adopted in this assessment for the proposed hotel has been to use the following noise criteria for noise from external patrons:

- Not to exceed 30 dB $L_{Aeq, 1hr}$ in bedrooms during the daytime (07:00 to 23:00 hours)
- Not to exceed 25 dB $L_{Aeq, 15min}$ in bedrooms at night (23:00 to 07:00 hours)
- Not to regularly exceed 45 dB $L_{Amax, fast}$ in bedrooms at night (23:00 to 07:00 hours)

- 3.17 On the basis that these criteria are achieved, the resulting noise levels from customers, assessed within the public house would be controlled to a level unlikely to cause disturbance.

Internal Sound Insulation

- 3.18 The proposed hotel will be located above a ground floor commercial unit. Party floors separating the retained Class E space should achieve an airborne sound insulation performance of at least 48 dB $D_{nT,w} + C_{tr}$, which is 5 dB better than the minimum requirements under the building regulations.

Service Yard Noise

- 3.19 The proposed development is located to the south of a service yard/car park serving the adjacent commercial properties.

- 3.20 It is recommended that the building fabric be specified to ensure that internal noise levels, due to building services plant and deliveries do not exceed the following criteria:

- Not to exceed 30 dB $L_{Aeq, 1hr}$ in bedrooms during the daytime (07:00 to 23:00 hours)
- Not to exceed 25 dB $L_{Aeq, 1hr}$ in bedrooms at night (23:00 to 07:00 hours)
- Not to regularly exceed 45 dB $L_{Amax, fast}$ in bedrooms at night (23:00 to 07:00 hours)

- 3.21 On the basis that these criteria are achieved, the resulting noise levels within the proposed development would be controlled to a suitable level.

Low Frequency Noise

- 3.22 Substation or transformer noise tends to be characterised by a discrete peak at 100 Hz or higher harmonics, caused by the magnetostrictive effect in the transformer core.
- 3.23 Potential low frequency noise from the substation has been assessed using 'Procedure for the Assessment of Low Frequency Noise Complaints' [Reference 7] NANR45 Rev 1 December 2011. This document presents a procedure for the measurement and assessment of low frequency noise to enable environmental health practitioners to handle complaints of low frequency noise. It is not intended to be used for design purposes.
- 3.24 The document proposes a criterion curve which if exceeded warrants further investigation of sources of low frequency noise. This curve applies **inside** residential dwellings. The criterion curve values above the 31.5 Hz third octave band are of interest in relation to substation noise and these are reproduced below in Table 1.

	Third Octave Band Centre Frequency, Hz							
	31.5	40	50	63	80	100	125	160
dB L_{eq}	56	49	43	42	40	38	36	34

Table 1: Proposed Low Frequency Noise Criterion Curve.

Summary

- 3.25 Based on the requirements of the above guidance, the following criteria have been used in the assessment:
- Internal Noise Levels from road traffic in line with the requirements of BS 8233 and the WHO:
 - Internal daytime Levels to not exceed 35 dB L_{Aeq} 16 hour;
 - Internal night-time noise levels to not exceed 30 dB L_{Aeq} 8 hour;
 - Internal night-time maximum noise levels to not regularly exceed 45 dB $L_{Amax, f}$.
 - Internal Noise Levels from the public house, third party building services plant and the service yard:
 - Internal daytime Levels to not exceed 30 dB L_{Aeq} 1 hour;

- Internal night-time noise levels to not exceed 25 dB $L_{Aeq, 1 \text{ hour}}$;
- Internal night-time maximum noise levels to not regularly exceed 45 dB $L_{Amax, f}$.
- Sound insulation between residential and Class E areas to achieve minimum performance of 48 dB $D_{nT,w} + C_{tr}$.
- Low frequency noise criterion curve from NANR45 for noise from the substation.

4.0 ENVIRONMENTAL NOISE SURVEY

4.1 Environmental noise measurements were undertaken at the site between 30th June to 4th July 2023 to determine the prevailing noise levels at the site. Measurements were undertaken using the following equipment:

- | | |
|---------------------------------------|---------------|
| • 2x Rion precision sound level meter | Type NL-52 |
| • 1 x INM precision sound level meter | Type INM-E001 |
| • Brüel & Kjær acoustic calibrator | Type 4231 |

4.2 The equipment was located as described below and as shown in Figure 1.

- Monitoring Location 1 – South of the site overlooking Leigh Road, at first floor height;
- Monitoring Location 2 – East of the site overlooking The Wagon Works pub garden at first floor height.
- Monitoring Location 3 – North of the site internally within the first floor of the existing building, overlooking the yard area and the substation.

4.3 Noise measurements were undertaken in samples of 1 minutes in terms of the octave-band and free-field A-weighted L_{eq} , L_{90} and $L_{max,f}$ parameters. Measurements were made in accordance with BS 7445:1991 "Description and measurement of environmental noise Part 2 - Acquisition of data pertinent to land use" [Reference 8].

4.4 The instrument calibration was verified before and after the survey in accordance with the manufacturer's instructions and no variation in calibration level was recorded. Calibration of 24 Acoustics' equipment is traceable to National Standards.

4.5 All instrumentation was fitted with environmental weather shields during the survey.

4.6 Weather conditions were generally fine and dry during the survey, with windspeeds not exceeding 5 m/s.

External Noise Measurements - Results

- 4.7 The results of the ambient noise survey at the external locations are shown graphically in Appendix B and summarised in Table 2 and Table 3.

Date	Daytime Level (07:00 - 23:00), dB	Night Time Level (23:00 - 07:00), dB	
	L _{Aeq} , 16 hour	L _{Aeq} , 8 hour	Typical L _{Amax} , f
Thursday 8/8/2024	64	61	77
Friday 9/8/2024	66	57	78
Saturday 10/8/2024	64	56	78
Sunday 11/8/2024	63	60	81
Monday 12/8/2024	64	60	81
Tuesday 13/8/2024	65	59	80
Wednesday 14/8/2024	64	59	80
Thursday 15/8/2024	64	--	--
Representative	65	60	80

Table 2 - Measured Noise Levels at Location 1 – External Overlooking Leigh Road

Date	Daytime Level (07:00 - 23:00), dB	Night Time Level (23:00 - 07:00), dB	
	L _{Aeq} , 16 hour	L _{Aeq} , 8 hour	Typical L _{Amax} , f
Thursday 8/8/2024	60	58	78
Friday 9/8/2024	68	58	81
Saturday 10/8/2024	68	62	83
Sunday 11/8/2024	63	57	79
Monday 12/8/2024	64	57	75
Tuesday 13/8/2024	66	56	80
Wednesday 14/8/2024	59	57	78
Thursday 15/8/2024	58	--	--
Representative	63	58	79

Table 3 - Measured Noise Levels at Location 2 – External Overlooking Wagon Works Garden

- 4.8 24 Acoustics determines the typical maximum noise event to be the tenth highest value during the measurement period.

- 4.9 The prevailing noise levels at monitoring location 1 were determined by local road traffic on Leigh Road. Noise levels at Location 2 were affected by noise from patrons in the external area of the public house during the evening period.
- 4.10 Table 4 shows the measured external noise levels during the busiest period on Friday and Saturday evenings at The Wagon Works (22:00 to 01:00) while patrons used the external area.

Date	Night Time Level (22:00 – 01:00), dB	
	$L_{Aeq, T}$	Typical $L_{Amax, f}$
Friday 9/8/2024	66	85
Saturday 10/8/2024	70	86
Representative	70	86

Table 4: Measured Noise Levels at Location 2 (22:00 to 01:00) - Overlooking Wagon Works

Internal Noise Measurements - Results

- 4.11 The results of the measured internal noise levels at Location 3 are summarised in Table 5. The windows of the room were closed throughout the measurements.

Date	Daytime Level (07:00 – 23:00), dB	Night Time Level (23:00 – 07:00), dB	
	$L_{Aeq, 16 \text{ hour}}$	$L_{Aeq, 8 \text{ hour}}$	Typical $L_{Amax, f}$
Thursday 8/8/2024	31	31	52
Friday 9/8/2024	32	26	44
Saturday 10/8/2024	31	24	44
Sunday 11/8/2024	31	28	50
Monday 12/8/2024	31	29	50
Tuesday 13/8/2024	31	27	49
Wednesday 14/8/2024	31	29	48
Thursday 15/8/2024	30	--	--
Representative	31	28	48

Table 5 - Measured Noise Levels at Location 3 – Internally Overlooking Service Yard and Substation

- 4.12 The internal noise levels measured at Location 3 were affected by noise from the use of the service yard and car park. Noise from third party plant on nearby buildings was not observed to affect the overall internal noise levels. Low frequency noise from the substation is further assessed below.
- 4.13 Table 6 shows the internal low frequency noise levels at Location 3, during the early hours of the morning when traffic movements were minimal (02:30 - 04:00). This time period has been selected in order to determine low frequency noise levels from the substation in the absence of other noise sources.

Night Time Low Frequency Level (02:30 - 04:00), dB							
31.5 Hz	40 Hz	50 Hz	63 Hz	80 Hz	100 Hz	125 Hz	160 Hz
36	28	27	25	22	26	20	25

Table 6: Measured Noise Levels, Location 2 (22:00 to 01:00).

5.0 RESIDENTIAL INTERNAL NOISE LEVELS

- 5.1 The measured noise levels at locations 1 and 2 have been corrected in the following assessments for free-field conditions, in accordance with BS 8233: 2014.
- 5.2 Calculations have been undertaken based on the measured external and internal noise levels to determine the acoustic requirements for windows/glazing and ventilation to the proposed hotel, which will ensure that the internal noise levels from all sources (road traffic noise, pedestrian activity and public house external area) achieve the criteria described in Section 3. The calculations are based on the approved floorplans and elevations by ACA Architectural Design Ltd, provided to 24 Acoustics in August 2024.
- 5.3 It is understood that mechanical ventilation (MVHR) is to be provided to all habitable rooms within the hotel, with no trickle ventilators or passive ventilation openings in the hotel façades. The ventilation strategy must also achieve other relevant requirements as per Building Regulations Approved Document F [Reference 9], to be confirmed by others.

Non-Glazed Elements

- 5.4 The building external walls to the hotel accommodation will comprise the existing masonry construction, which is expected to achieve a minimum sound insulation performance of 52 dB R_w.

Windows/Glazing

- 5.5 The hotel layout shown in Figure 3 is beneficial, as the majority of existing windows overlooking the pub garden are to be removed, such that only bathroom and laundry windows on the first floor will face the pub garden.
- 5.6 All hotel bedrooms and studios on the first and second floor, within Zones A and B as shown in Figure 3, require upgraded glazing to achieve the minimum sound insulation performances described in Table 7.

Glazed Element	Minimum SRI (dB) per Octave Band Centre Frequency (Hz)						
	63	125	250	500	1k	2k	4k
Hotel rooms Zone A	19	24	25	31	42	44	49
Hotel rooms Zone B	21	26	28	35	44	48	54

Table 7 - Glazing Sound Insulation Specification.

- 5.7 In making a comparison with the values in Table 7, it is important that the glazing figures used are the result of tests in accordance with ISO 10140, Part 2: 2010. The quoted minimum sound reduction specifications must be achieved by the entire glazing system as a whole, including frames, seals, any insulated panels and not just the glass. The requirements also apply to external doors and rooflights.
- 5.8 In order to assist with the selection process, the following glazing configurations, if installed properly, would be capable of achieving the required sound reduction performances:

Enhanced double glazed system comprising:

ZONE A - 6mm glass: 12 mm cavity: 6.4mm Stadip Silence glass (min 36 dB R_w)

ZONE B - 8mm glass: 12 mm cavity: 8.8mm Stadip Silence glass (min 40 dB R_w)

- 5.9 With the proposed mitigation the established noise criteria for noise arising from road traffic, the public house, third party building services plant and the service yard will be achieved in all the habitable rooms for the proposed hotel.

Low Frequency Noise

- 5.10 Monitoring Location 3 shows that the measured low frequency noise levels are comfortably below the NNR45 criterion values for internal levels of low frequency noise as shown in Table 6.

- 5.11 On this basis no additional mitigation is required to control low frequency noise from the substation.

6.0 INTERNAL SOUND INSULATION

- 6.1 The ground floor will be used as a commercial Class E space sharing a party floor to the new proposed hotel.

- 6.2 Airborne sound insulation tests were undertaken between the existing ground floor and first floor. The existing floor construction is understood to comprise the following:

- Carpet
- Suspended Timber floor
- Suspended ceiling with ceiling tiles.

- 6.3 The sound insulation tests were carried out as per ISO 140:4, Annex B of Part E of the Building Regulations and ISO 717:1. The equipment used is listed below:

- Norsonic precision real time analyser Type Nor118
- Yamaha combined amplifier & loudspeaker Type DBR10
- Bruel and Kjaer calibrator Type 4231

- 6.4 The results of the sound insulation tests of the existing floor are summarised below:

- Ground Floor to first floor – 36 to 39 $D_{nT,w} + C_{tr}$

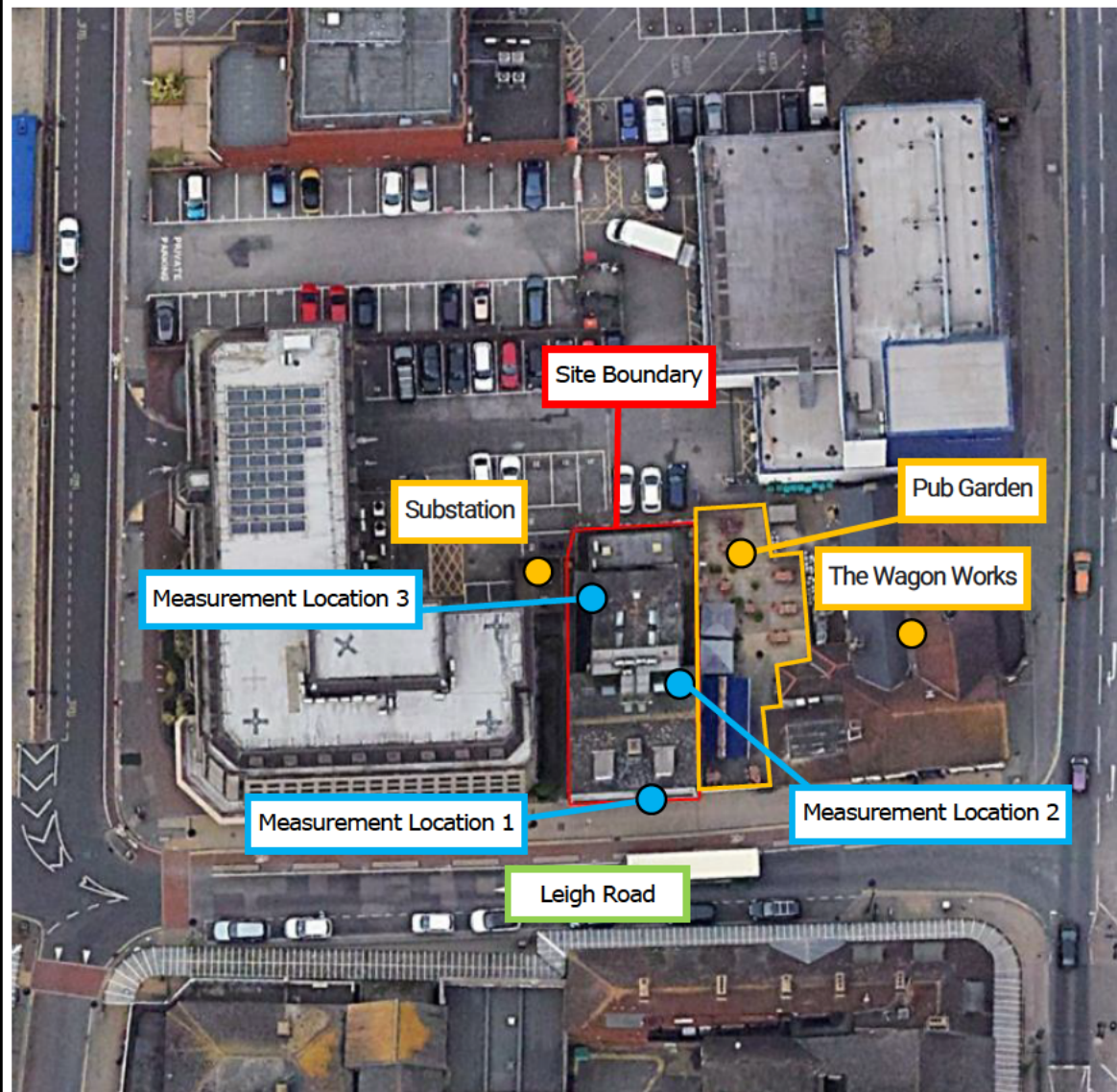
- 6.5 As part of the refurbishment works, the overall floor and ceiling construction between the commercial and hotel uses will be upgraded in order to meet the recommended criterion of 48 $D_{nT,w} + C_{tr}$.

7.0 CONCLUSIONS

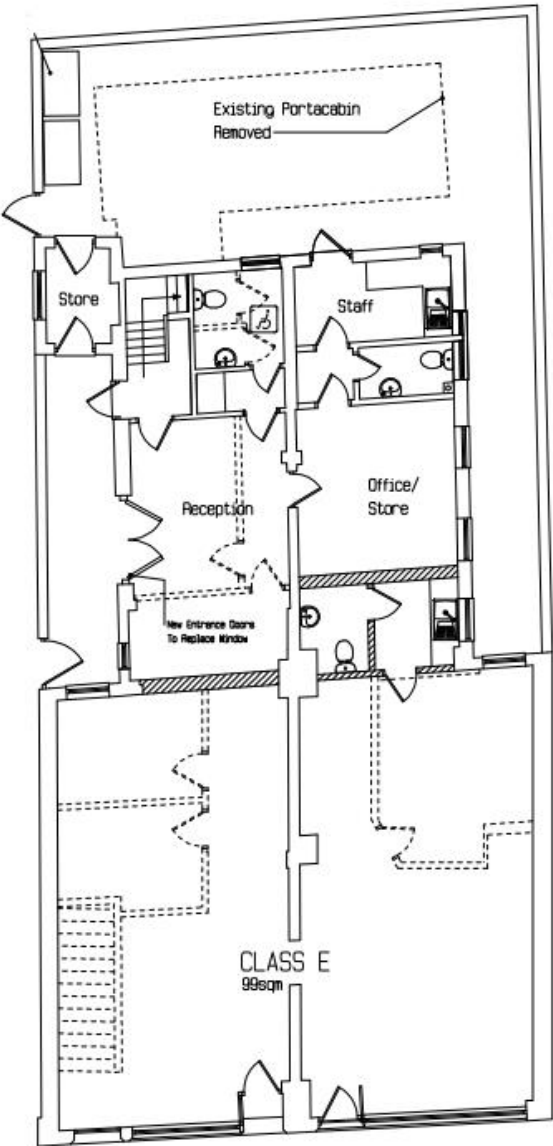
- 7.1 24 Acoustics Ltd has been appointed by Bajar Property Investments to undertake a noise assessment at 2-4 Leigh Road Eastleigh for a proposed mixed use scheme to convert the existing building, for commercial use at ground floor and a hotel on the first and second floor..
- 7.2 Environmental noise measurements have been undertaken at the site to determine existing noise levels during daytime and night-time periods.
- 7.3 Calculations have been undertaken to determine acoustic requirements for the windows/glazing and ventilation to the proposed hotel to ensure suitable internal noise levels are achieved from road traffic sources, the public house, third party building services plant and the service yard.
- 7.4 Testing results for the existing separating floor above the commercial uses have been included as well as recommendations to upgrade the sound insulation performance of the floor construction.
- 7.5 The assessment has therefore demonstrated that. with the proposed mitigation, noise levels within the proposed hotel accommodation would be acceptable.

REFERENCES

1. Department for Levelling Up, Housing & Communities. National Planning Policy Framework, 2023.
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7. Procedure or the Assessment of Low Frequency Noise Complaints, NANR45 Rev 1, Salford University, December 2011.
8. British Standards Institution. British Standard 7445:1991 Description and measurement of environmental noise Part 2 - Acquisition of data pertinent to land use, 1991.
9. Building Regulations. Approved Document F - Ventilation, 2010.

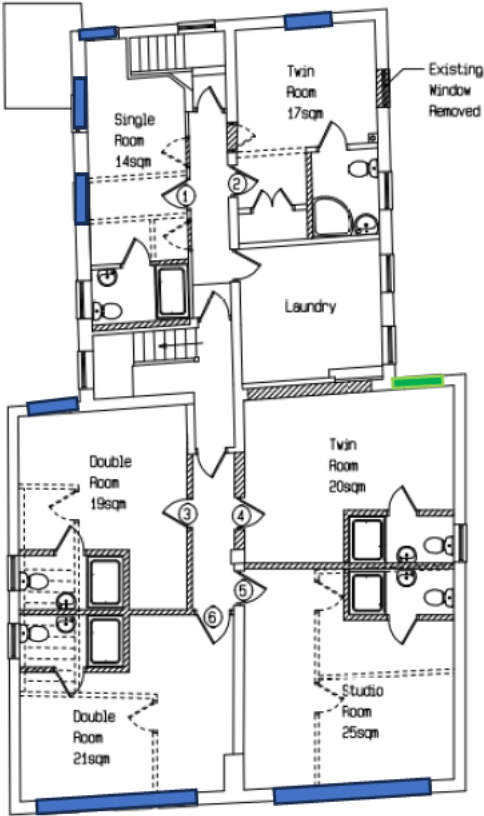


Project: 2-4 Leigh Road Eastleigh	Title: Site Overview and Noise Measurement Location		 24Acoustics
DWG No: Figure 1	Scale: N.T.S.	Rev: 0	
Date: August 2024	Drawn By: AP	Job No: 10760	

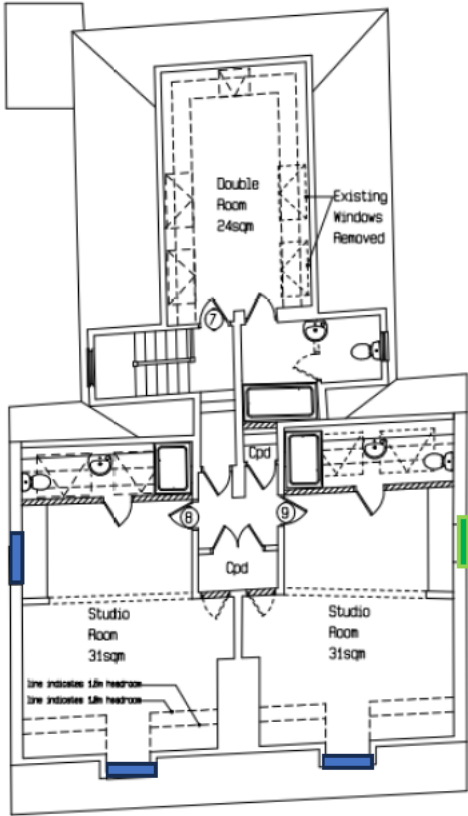


Proposed Ground Floor Plan

Project: 2-4 Leigh Road Eastleigh	Title: Ground Floor Plan - Commercial		 24Acoustics
DWG No: Figure 2	Scale: N.T.S.	Rev: 0	
Date: August 2024	Drawn By: AP	Job No: 10760	



Proposed First Floor Plan



Proposed Second Floor Plan



Project: 2-4 Leigh Road Eastleigh	Title: 1 st and 2 nd Floor Plan – Hotel and Glazing Mitigation Zones		
DWG No: Figure 3	Scale: N.T.S.	Rev: 0	
Date: August 2024	Drawn By: AP	Job No: 10760	

APPENDIX A – ACOUSTIC TERMINOLOGY

Noise is defined as unwanted sound. The range of audible sound is from 0 to 140 dB. The frequency response of the ear is usually taken to be around 18 Hz (number of oscillations per second) to 18000 Hz. The ear does not respond equally to different frequencies at the same level. It is more sensitive in the mid-frequency range than the lower and higher frequencies and because of this, the low and high frequency components of a sound are reduced in importance by applying a weighting (filtering) circuit to the noise measuring instrument. The weighting which is most widely used and which correlates best with subjective response to noise is the dBA weighting. This is an internationally accepted standard for noise measurements.

For variable sources, such as traffic, a difference of 3 dB is just distinguishable. In addition, a doubling of traffic flow will increase the overall noise by 3 dB. The 'loudness' of a noise is a purely subjective parameter, but it is generally accepted that an increase/ decrease of 10 dB corresponds to a doubling/ halving in perceived loudness.

External noise levels are rarely steady, but rise and fall according to activities within an area. In attempt to produce a figure that relates this variable noise level to subjective response, a number of noise indices have been developed. These include:

i) The L_{Amax} noise level

This is the maximum noise level recorded over the measurement period.

ii) The L_{Aeq} noise level

This is "equivalent continuous A-weighted sound pressure level, in decibels" and is defined in British Standard BS 7445 as the "value of the A-weighted sound pressure level of a continuous, steady sound that, within a specified time interval, T, has the same mean square sound pressure as a sound under consideration whose level varies with time".

It is a unit commonly used to describe construction noise and noise from industrial premises and is the most suitable unit for the description of other forms of environmental noise. In more straightforward terms, it is a measure of energy within the varying noise.

iii) The L_{A10} noise level

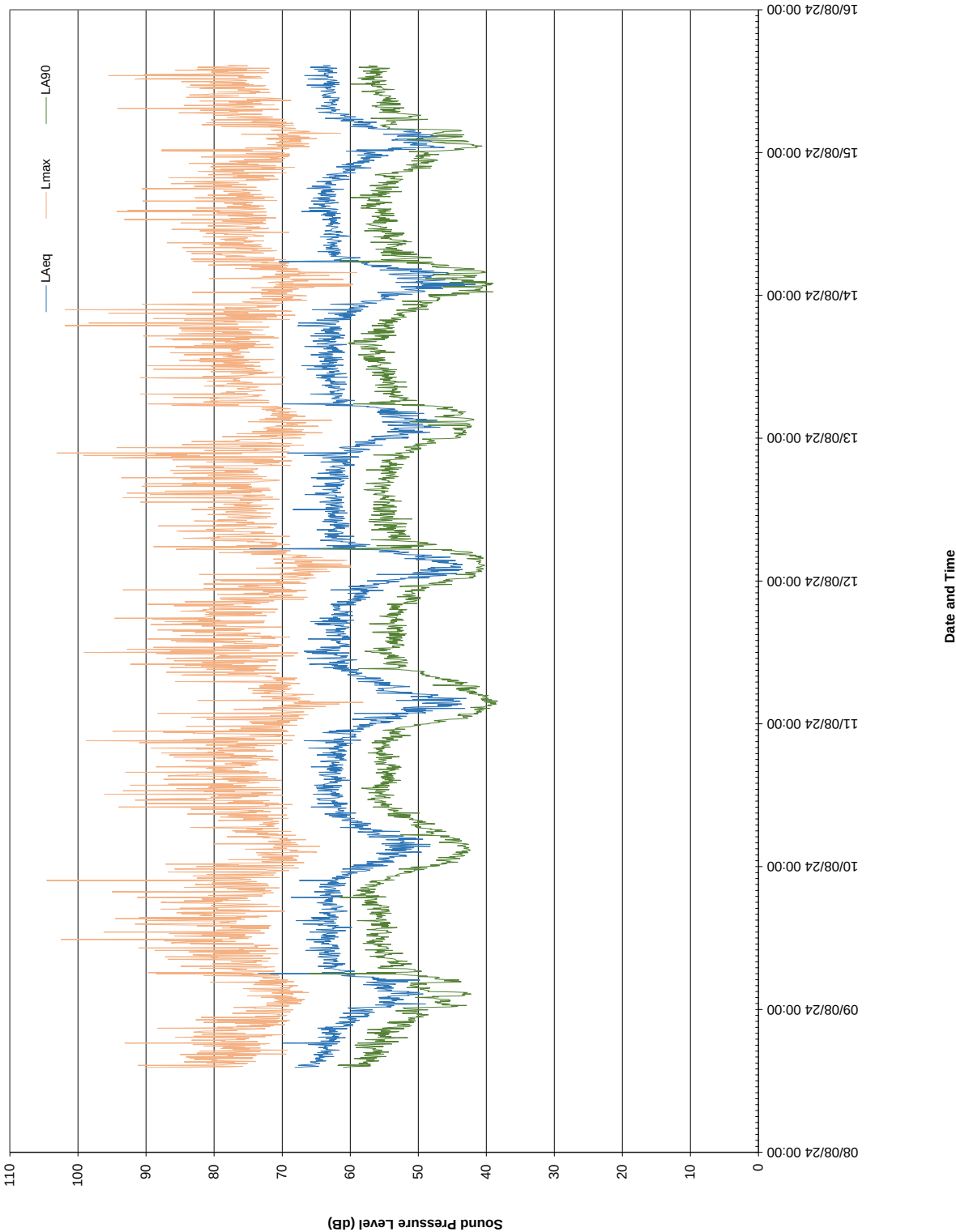
This is the noise level that is exceeded for 10% of the measurement period and gives an indication of the noisier levels. It is a unit that has been used over many years for the measurement and assessment of road traffic noise.

iv) The L_{A90} noise level

This is the noise level that is exceeded for 90% of the measurement period and gives an indication of the noise level during the quieter periods. It is often referred to as the background noise level and is used in the assessment of disturbance from industrial noise.

APPENDIX B – ENVIRONMENTAL NOISE MEASUREMENTS

Monitoring Location 1 - 2-4 Leigh Road Eastleigh
Noise Survey
8th to 15th August 2024



Monitoring Location 2 - 2-4 Leigh Road Eastleigh
Noise Survey
8th to 15th August 2024

