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18 Regent Road, Wrexham
Noise Impact Assessment

Application P/2022/1057 – Discharge of Condition 4

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1. Introduction

1.1. Overview

1.1.1. JPM Acoustics Ltd has been appointed to undertake a noise impact assessment to support an application to discharge Planning Condition 4 attached to the development approved under planning application reference P/2022/1057.

1.1.2. The approved development comprises the conversion of the upper floors of the existing building at 18 Regent Street, Wrexham to form two residential apartments. The ground floor retail use is to be retained.

1.1.3. Condition 4 of the planning permission requires that, prior to the commencement of development, a noise survey is carried out and a detailed report of the findings submitted to and approved in writing by the Local Planning Authority.

1.1.4. The condition requires noise levels to be determined for both Day (07:00–23:00) and Night (23:00–07:00) periods, having regard to Technical Advice Note (Wales) 11: Noise (TAN 11). The report is required to include:

(a) Noise levels arising from day and night-time activities in the vicinity of the proposed development site and the impact upon the proposed accommodation; and

(b) A detailed scheme of noise insulation and/or attenuation measures designed to safeguard the amenity of the occupants of the proposed accommodation.

1.1.5. This report presents the findings of a baseline noise survey undertaken on the site in February 2026, categorises the site in accordance with TAN 11 Noise Exposure Categories (NECs), and sets out the minimum acoustic performance requirements for the building envelope to ensure that internal noise levels within the proposed apartments are appropriate for residential use.

2. Site Description and Layout

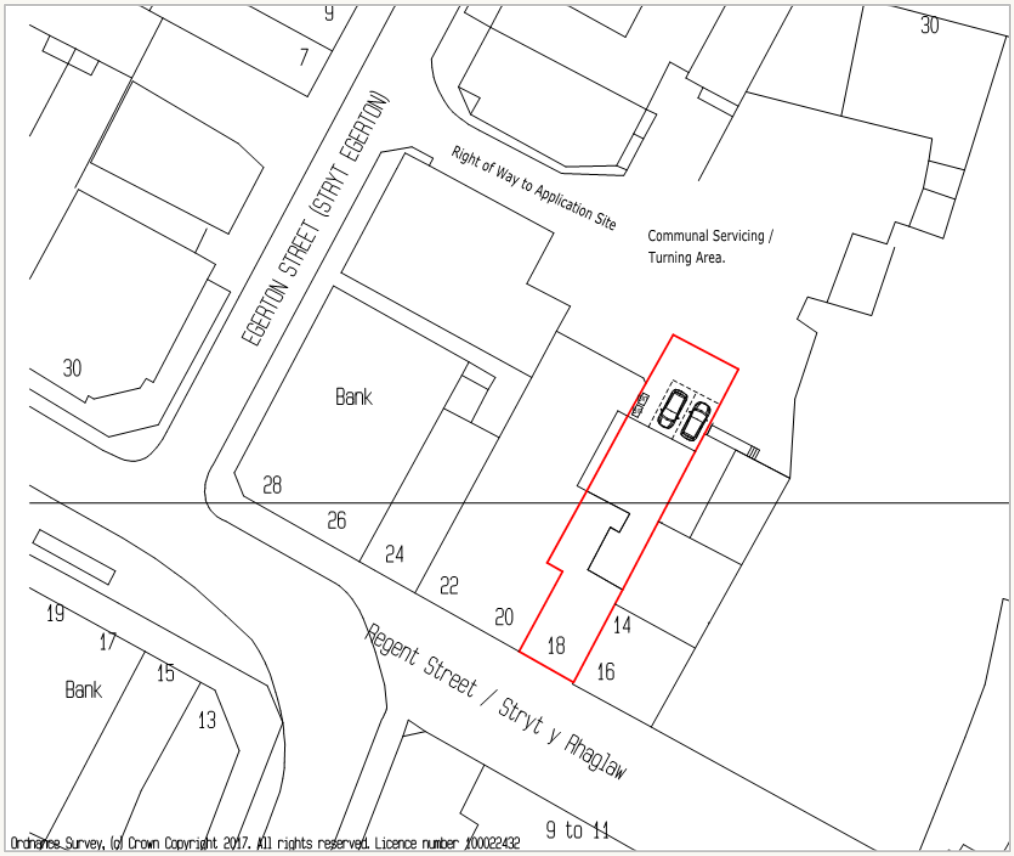
2.1.1. The application site is located at 18 Regent Street within Wrexham town centre. The building is a terraced property with a vacant retail unit at ground level, with vacant upper floor storage space which is the subject of the conversion to for two residential apartments. The existing and proposed development layout plans are presented in **Appendix B**.

2.1.2. Regent Street is a busy thoroughfare forming part of Wrexham's primary retail zone. The portion of Regent Street immediately adjacent to the development site is pedestrianised, with the trafficked element of Regent Street located circa. 15 m to the west.

2.1.3. Noise levels incident on the southern façade of the development overlooking Regent Street are dominated by pedestrian activity associated with daytime retail footfall and, during evening and periods, activity associated with the night-time economy including patrons of nearby licensed premises. Noise from vehicles on the trafficked portion of Regent Street is also noted to be audible. To the north of the site is a private gated car park, accessible only to residents of the adjacent apartments and the tenants of the adjacent retail units.

2.1.4. The location of 18 Regent Street in the context of its surroundings is presented in **Figure 2.1** below.

Figure 2.1: 18 Regent Road, Wrexham



3. Assessment Criteria

3.1. Planning Condition 4

3.1.1. Planning condition 4 associated with planning application reference P/2022/1057 is as follows:

"No part of the development shall commence until a noise survey has been carried out, and a detailed report of the survey findings has been submitted to, and approved in writing by, the Local Planning Authority. The noise survey shall determine noise levels for both Day (07:00 - 23:00 hours) and Night (23:00 - 07:00 hours), having regard to Planning Policy Wales (PPW) Guidance, Technical Advice Note (TAN) 11 - Noise. The report of the noise survey findings shall include:

a) Noise levels arising from day / night time activities in the vicinity of the proposed development site and the impact upon the existing or proposed accommodation, and

b) A detailed scheme of noise insulation and / or attenuation measures so designed to safeguard the amenity of the existing or occupants of the proposed accommodation hereby approved.

The measures as are approved shall be fully implemented prior to the first occupation / use of the development."

3.2. Technical Advice Note (Wales) 11: Noise (TAN 11)

3.2.1. TAN 11 provides guidance on how the planning system can be used to minimise the adverse impact of noise. It establishes a system of Noise Exposure Categories (NECs) for the assessment of residential development near existing noise sources, expressed in terms of $L_{Aeq,T}$ over the standard day period (07:00–23:00) and night period (23:00–07:00).

3.2.2. The four NECs are defined as follows:

- NEC A: Noise need not be a determining factor, although levels at the high end of the category should not be regarded as desirable.
- NEC B: Noise should be taken into account and conditions imposed where appropriate to ensure an adequate level of protection.
- NEC C: Planning permission should not normally be granted. Where permission is given, conditions should be imposed to ensure a commensurate level of protection.
- NEC D: Planning permission should normally be refused.

3.2.3. The recommended $L_{Aeq,T}$ noise level ranges for new dwellings near road traffic and mixed sources are set out in Table A2 of TAN 11 Annex A and are reproduced in Table 3.1 overleaf.

Table 3.1: TAN 11 recommended noise exposure categories for new dwellings affected by mixed sources

NEC	Day $L_{Aeq,16h}$ dB (07:00–23:00)	Night $L_{Aeq,8h}$ dB (23:00–07:00)
A	< 55	< 45
B	55–63	45–57
C	63–72	57–66
D	> 72	> 66
A	< 55	< 45

3.2.4. TAN 11 Annex A note 2 further states that sites where individual noise events regularly exceed 82 dB L_{AFmax} several times in any hour during the night period should be treated as NEC C regardless of the $L_{Aeq,8h}$ value, except where the $L_{Aeq,8h}$ already places the site in NEC D.

3.3. BS 8233:2014: Guidance on Sound Insulation and Noise Reduction for Buildings (BS 8233)

3.3.1. BS 8233 provides guidance for the control of noise in and around buildings. The guidance provided within the document is applicable to the design of new buildings, or refurbished buildings undergoing a change of use.

3.3.2. The Standard includes recommended internal and external guideline noise levels which are applicable to dwellings for steady external noise sources. The Standard states that it is desirable that the internal ambient noise levels do not exceed the criteria set out in **Table 2.1**.

Table 3.2: Desirable internal guideline values from BS 8233

Activity	Location	Period	
		07:00 to 23:00 (Daytime)	23:00 to 07:00 (Night-time)
Resting	Living Room	35 dB $L_{Aeq, 16h}$	-
Dining	Dining Room/Area	40 dB $L_{Aeq, 16h}$	-
Sleeping (daytime resting)	Bedroom	35 dB $L_{Aeq, 16h}$	30 dB $L_{Aeq, 8h}$

3.3.3. Whilst BS 8233 recognises that a guideline value may be set in terms of SEL or L_{AFmax} for the assessment of regular individual noise events that can cause sleep disturbance during the night-time, a specific criterion is not stipulated.

3.3.4. It is common practice, however, to adopt 45 dB L_{AFmax} as a criterion for typical events at night, based on the guidance from the World Health Organisation 'Guidelines for Community Noise' (WHO Guidelines).

3.4. World Health Organisation (WHO) 1999: Guidelines for Community Noise

3.4.6. The World Health Organisation (WHO) guidance: 1999: *Guidelines for community noise* includes guidance for individual maximum noise events during the night-time. This document draws upon guidance from Vallet and Vernay, which states:

"For good sleep, it is believed that indoor sound pressure levels should not exceed approximately 45 dB LAFmax more than 10-15 times per night"

3.4.7. This criterion is also referenced in the subsequent WHO publication *Night Noise Guidelines For Europe* (WHO, 2009).

4. Baseline Noise Survey

4.1. Summary

4.1.1. A baseline noise survey was undertaken to determine noise levels incident on the proposed development site. The measurement positions adopted during the survey are identified in **Figure 4.1**.

Figure 4.1: Baseline noise survey location



4.1.2. The microphone at Measurement Location 1 (ML1) and Measurement Location 2 (ML2) was positioned to protrude approximately 0.2 m from an open window at first floor height. Measurements were therefore made in façade conditions (i.e. inclusive of reflections from the building façade). As such, a -3 dB correction has been applied to the measurement results presented in this report, to be reflective of free-field conditions. The survey at ML1 and ML2 was undertaken from 14:30 on Thursday 12th February 2026 until 07:00 on Sunday 15th February 2026.

4.1.3. ML1 was selected to determine noise levels incident on the southern façade of the development overlooking Regent Street. The survey period was designed to capture representative weekday and weekend periods, including Friday and Saturday nights when the night-time economy is at its most active and noise levels are expected to be at their highest.

4.1.4. ML2 was selected to determine noise levels incident on the northern façade of the development overlooking the gated car park.

4.2. Equipment

4.2.5. The baseline noise survey was undertaken using the Class 1 specification noise measurement equipment detailed in **Table 4.1**. The measurement equipment was calibrated using a portable calibrator immediately before and after the measurements with no significant drift in calibration observed.

4.2.6. The sound level meter, pre-amplifier and microphone were calibrated to traceable standards within 24 months prior to the measurements. The portable calibrator was calibrated within 12 months prior to the measurements.

Table 4.1: Equipment details

Location	Equipment	Make and Model	Serial Number	Calibration Due Date
ML1	Sound Level Meter	SVAN 971	60745	02/10/2027
	Microphone	ACO 7052E	66815	
	Preamplifier	SV18	64535	
ML2	Sound Level Meter	01 dB Fusion	11327	06/10/2027
	Microphone	Grass 40CE	259479	
	Preamplifier	01 dB PRE 22	1605201	
ML1 & ML2	Calibrator	01dB-Stell Cal 21	34675335	27/11/2026

4.3. Weather Conditions

4.3.7. Weather conditions during the survey were conducive to the measurement of environmental noise, it being generally dry (intermittent showers) with low wind speeds (<5 ms^{-1}).

4.4. Results

4.4.8. Summaries of the equivalent continuous ($L_{Aeq,T}$), background sound ($L_{A90,T}$), and maximum noise ($L_{AFmax,T}$) levels are presented in **Table 4.2** and **Table 4.3** overleaf.

Table 4.2: Summary of measured sound pressure levels at ML1

Description	Start Date & Time	Period (T)	Measured Sound Pressure Levels		
			dB $L_{Aeq,T}$[1]	dB $L_{A90,T}$[2]	dB L_{AFmax}[3]
Thursday Day	12/02/2024 14:30	9.5 hours	55	47	—
Thursday Night	12/02/2024 23:00	8 hours	51	39	75
Friday Day	13/02/2024 07:00	16 hours	57	47	—
Friday Night	13/02/2024 23:00	8 hours	54	39	78
Saturday Day	14/02/2024 07:00	16 hours	55	43	—
Saturday Night	14/02/2024 23:00	8 hours	54	39	72

[1] Logarithmic average of the $L_{Aeq,15min}$ values between during relevant survey period
[2] Taken to be the arithmetic average $L_{A90,15mins}$ sound pressure levels during relevant period
[3] Taken to be the 10th highest of the measured $L_{AFmax,5min}$ values during the night-time period

Table 4.3: Summary of measured sound pressure levels at ML2

Description	Start Date & Time	Period (T)	Measured Sound Pressure Levels		
			dB $L_{Aeq,T}$[1]	dB $L_{A90,T}$[2]	dB L_{AFmax}[3]
Thursday Day	12/02/2024 14:30	9.5 hours	49	42	—
Thursday Night	12/02/2024 23:00	8 hours	45	39	58
Friday Day	13/02/2024 07:00	16 hours	50	43	—
Friday Night	13/02/2024 23:00	8 hours	43	38	59
Saturday Day	14/02/2024 07:00	16 hours	49	43	—
Saturday Night	14/02/2024 23:00	8 hours	44	38	58

[1] Logarithmic average of the $L_{Aeq,15min}$ values between during relevant survey period
[2] Taken to be the arithmetic average $L_{A90,15min}$s sound pressure levels during relevant period
[3] Taken to be the 10th highest of the measured $L_{AFmax,5min}$ values during the night-time period

5. Assessment

5.1. TAN 11 Noise Exposure Category

5.1.1. The noise environment on the southern elevation of the site (overlooking Regent Street) is dominated by a combination of road traffic, pedestrian activity and night-time economy sources. As no single source is dominant, the noise climate is considered most appropriately assessed against the "mixed sources" NEC thresholds in Table 2 of TAN 11 Annex A. Noise levels incident on the quieter northern elevation (overlooking the gated car park) are materially lower, as summarised in **Table 4.3**, and are considered separately.

5.1.2. The worst-case daytime noise levels incident on the southern elevation was 57 dB LAeq,16h, measured on Friday 13th February. The worst case night-time noise levels incident on the southern elevation of the site was 54 dB $L_{Aeq,8h}$, recorded on both Friday and Saturday nights, which is considered the most representative night-time condition given the influence of night-time economy activity on Regent Street.

5.1.3. Applying the measured levels at ML1 to the TAN 11 mixed sources NEC thresholds results in the following classifications:

- Daytime (07:00–23:00): 57 dB $L_{Aeq,16h}$ - falls within the range 55 - 63 dB → **NEC B**
- Night-time (23:00–07:00): 54 dB $L_{Aeq,8h}$ - falls within the range 45 - 57 dB → **NEC B**

5.1.4. With respect to the TAN 11 Annex A note 2, L_{AFmax} criterion, sites where individual noise events regularly exceed 82 dB L_{AFmax} several times in any hour should be treated as NEC C regardless of the $L_{Aeq,8h}$. The L_{AFmax} values at ML1 presented in Table 4.2 represent the 10th highest values recorded across 5-minute intervals at night. The highest such value recorded was 78 dB L_{AFmax} during the Friday night. Analysis of the measurement data confirms that L_{AFmax} noise levels do not regularly exceed 82 dB L_{AFmax} several times in any night-time hour. The NEC C L_{AFmax} uplift criterion is therefore not triggered.

5.1.5. For the northern elevation overlooking the private carpark, measured noise levels at ML2 were significantly lower than those recorded at ML1, with daytime levels of 49 - 50 dB $L_{Aeq,16h}$ and night-time levels of 43 - 45 dB $L_{Aeq,8h}$. These levels fall within NEC A for both day and night periods.

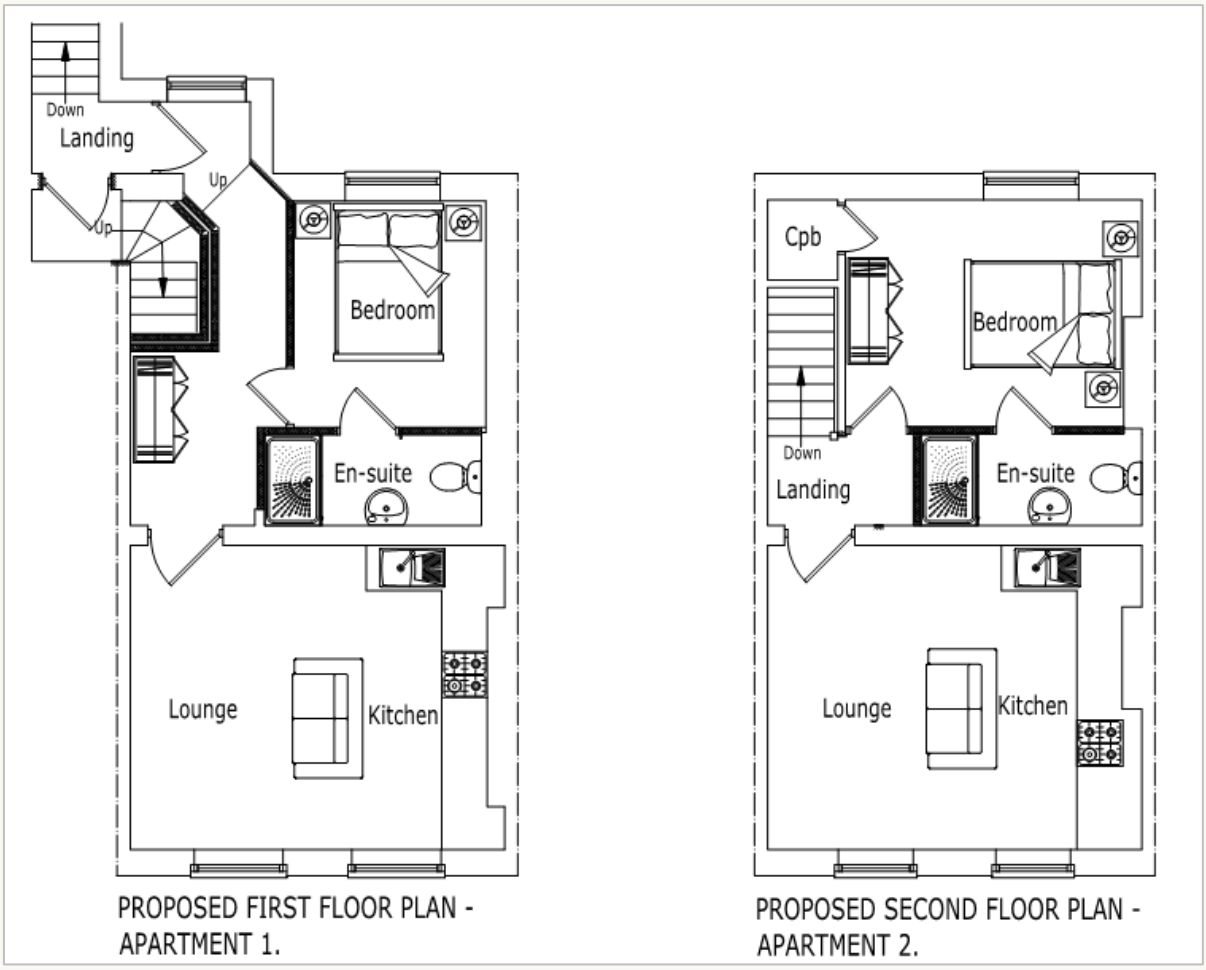
5.1.6. A summary of planning guidance associated with the relevant NECs is provided below:

- NEC A (northern elevation): Noise need not be a determining factor, although levels at the high end of the category should not be regarded as desirable.
- NEC B (southern elevation): Noise should be taken into account and conditions imposed where appropriate to ensure an adequate level of protection.

5.2. Internal Noise Levels

5.2.1. The proposed development layout is identified in **Figure 5.1**. The layout has been designed to take advantage of the acoustic gradient across the site, with living room spaces located on the southern elevation overlooking Regent Street, and bedrooms positioned on the quieter northern elevation overlooking the private car park. This arrangement ensures that the most noise-sensitive room type (bedrooms) benefits from the lowest external noise levels, whilst the less sensitive living spaces face the more exposed southern façade.

Figure 5.1: Proposed development layout



Northern Elevation – NEC A

5.2.2. Noise levels incident on the northern elevation of the scheme fall within NEC A where guidance from TAN 11 suggests that *"noise need not be considered a determining factor in granting planning permission".*

5.2.3. Notwithstanding the above, an assessment of internal noise levels within the proposed bedrooms on the northern elevation has been undertaken to demonstrate compliance with the guideline values from BS 8233 and the WHO Guidelines.

5.2.4. Noise levels incident on the northern elevation of the site during the daytime period are 50 dB $L_{Aeq,16h}$, reducing to 45 dB $L_{Aeq,8h}$ during the night-time period. With windows open for ventilation, internal noise levels are predicted to be 35 dB $L_{Aeq,16h}$ during the day and 30 dB $L_{Aeq,8h}$ at night, assuming 15 dB of attenuation across a window open for ventilation, as per guidance from BS 8233.

5.2.5. The predicted internal noise levels therefore meet the desirable guideline values from BS 8233 of 35 dB $L_{Aeq,16h}$ for bedrooms during day and 30 dB $L_{Aeq,8h}$ at night.

5.2.6. Furthermore, the 10th highest 5-minute L_{AFmax} recorded on the northern elevation during the night-time period was 58 - 59 dB, which, assuming 15 dB of open-window attenuation across an open window, yields a predicted internal 10^{th} highest L_{AFmax} of approximately 43 - 44 dB, which achieves compliance with the recommended criteria from the WHO Guidelines.

5.2.7. It is therefore concluded that acceptable internal noise conditions are achievable within the proposed bedrooms on the northern elevation of the site, with windows open, without the need for any acoustic mitigation.

Southern Elevation – NEC B

5.2.8. Noise levels incident on the southern elevation overlooking Regent Street during the daytime period are 57 dB $L_{Aeq,16h}$. With windows open for ventilation, the internal noise level within the worst-affected living room is anticipated to be approximately 42 dB $L_{Aeq,16h}$, assuming 15 dB of attenuation across a window open for ventilation.

5.2.9. BS 8233 sets a desirable internal guideline value of 35 dB $L_{Aeq,16h}$ for living rooms during daytime periods, and advises that reasonable conditions may still be achieved where levels do not exceed this value by more than 5 dB, giving an upper threshold of 40 dB $L_{Aeq,16h}$. No night-time internal noise criterion is provided by BS 8233 for living rooms, as these spaces are not typically occupied during night-time hours; consideration of night-time noise levels in living rooms is therefore not relevant to this assessment.

5.2.10. The predicted internal noise level of 42 dB $L_{Aeq,16h}$ with windows open exceeds the upper threshold of 40 dB $L_{Aeq,16h}$ by 2 dB. Whilst this exceedance is modest, consideration has been given to the internal noise levels achievable with windows closed and ventilation provided by other means, in order to demonstrate compliance with the desirable guideline values from BS 8233.

5.2.11. With windows closed, a minimum sound level reduction of 22 dB is required across the southern façade to achieve the desirable guideline value of 35 dB $L_{Aeq,16h}$.

5.2.12. The developer is proposing to install a new, thermally proficient double-glazed window system across the southern façade.

5.2.13. The required sound reduction performance across the façade is considered readily achievable by any standard double-glazed window, and does not require specialist acoustic glazing.

5.2.14. The ventilation strategy for the apartments comprises mechanical extract ventilation with trickle ventilators installed within the building façade. To maintain the overall sound insulation performance of the façade, the developer is proposing to install through-wall ventilators achieving a minimum sound insulation performance of 31 dB $D_{ne,w}$. This performance comfortably exceeds the minimum façade sound reduction requirement of 22 dB, ensuring that the ventilators do not represent an acoustic weak point in the building envelope and that the internal guideline values from BS 8233 are maintained with windows closed.

5.2.15. It is therefore concluded that, with the proposed glazing and ventilation measures in place, acceptable internal noise conditions are achievable within the living rooms on the southern elevation during daytime periods, in compliance with the desirable guideline values from BS 8233.

6. Conclusion

6.1.1. JPM Consult has undertaken a noise impact assessment to support the discharge of Planning Condition 4 attached to planning permission WRR P/2022/1057 for the conversion of the upper floors of 18 Regent Street, Wrexham to two residential apartments.

6.1.2. A baseline noise survey was undertaken between 12th and 15th February 2026 at two measurement locations, capturing noise levels incident on the southern façade overlooking Regent Street (ML1) and the northern façade overlooking the private car park (ML2). The southern elevation falls within NEC B under TAN 11 and the northern elevation falls within NEC A.

6.1.3. The proposed layout places living rooms on the noisier southern elevation and bedrooms on the quieter northern elevation. On the northern elevation, bedrooms are predicted to comply with the desirable guideline values from BS 8233 and the WHO Guidelines with windows open, requiring no additional mitigation. On the southern elevation, noise levels in living rooms are predicted to marginally exceed the BS 8233 upper threshold with windows open; however, compliance with the desirable guideline values is predicted to be achieved with windows closed, assuming any proprietary double-glazed system in installed, together with through-wall ventilators which achieve a minimum sound insulation performance of 31 dB $D_{ne,w}$.

6.1.4. On the basis of the findings of this assessment, it is concluded that acceptable internal noise conditions are achievable within all habitable rooms of the proposed apartments with the glazing and ventilators proposed to be installed by the contractor. The requirements of Condition 4 of planning permission P/2022/1057 are therefore considered to be satisfied.

Appendix A: Glossary

Table A.1: Acoustic terminology

Terminology	Description
A-Weighting, dB(A)	A-weighted decibel. This is a measure of the overall level of sound across the audible spectrum with a frequency weighting (i.e. 'A' - weighting) to compensate for the varying sensitivity of the human ear to sound at different frequencies.
Decibel, (dB)	A scale for comparing the ratios of two quantities, including sound pressure and sound power. The difference in level between two sounds s1 and s2 is given by 20 $\log_{10}$ (s1/s2). The decibel can also be used to measure absolute quantities by specifying a reference value that fixes one point on the scale. For sound pressure, the reference value is 20 Pa.
Façade	At a distance of 1 m in front of a large sound reflecting object such as a building façade.
Fast Time Weighting (F)	Averaging time constant used in sound level meters and commonly used in the measurement of environmental noise.
Free-Field	Far from the presence of sound reflecting objects (except the ground), usually taken to mean at least 3.5 m away.
$L_{90,T}$	A noise level index. The noise level exceeded for 90% of the time over the period, T. L_{90} may be thought of as the "average minimum" noise level. Generally used to describe background noise.
$L_{eq,T}$	A noise level index called the equivalent continuous noise level over the time period, T. This is the level of a notional steady sound that would contain the same amount of sound energy as the actual, possibly fluctuating, sound that was recorded.
$L_{max,T}$	A noise level index defined as the maximum noise level during the period, T. L_{max} is sometimes used for the assessment of occasional loud noises, which may have little effect on the overall L_{eq} noise level but will still affect the noise environment. Unless described otherwise, it is measured using the 'fast' sound level meter response.
Noise Level Indices	Noise levels usually fluctuate over time, so it is often necessary to consider an average or statistical noise level. This can be done in several ways, so a number of different noise indices have been defined, according to how the averaging or statistics are carried out.
Sound Pressure	Sound, or sound pressure, is a fluctuation in air pressure over the static ambient pressure. Measured in pascals (Pa).
Sound Pressure Level (Sound Level), L_p	The sound level is the sound pressure on a decibel scale, relative to a reference value of 20×10^{-6} Pascals.

Appendix B: Appendix Title

Figure B1: Existing development layout – 18 Regent Street,



Figure B1: Proposed development layout – 18 Regent Street,



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