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# Residential Dwellings

# 421 Bradford Road, Batley, WF17 5LN

# Noise Impact Assessment

**For:**
**KMS Consultants & Associates Ltd**

8th December 2025

Ref: NIA/12378/25/12688/v1/421 Bradford Road, Batley
Issue: First
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# Contents

# 1 Introduction

## 1.1 Overview

Environmental Noise Solutions Ltd (ENS) has been commissioned by Richmond Properties (UK) Limited (hereafter referred to as 'the client') to undertake a noise impact assessment for existing residential apartments over a ground and first floor restaurants at 421 Bradford Road, Batley, WF17 5LN (hereafter referred to as 'the site').

This report details:

- The methodology and results of a noise survey conducted at the site
- An assessment of noise sources in the vicinity of the site which may affect the proposed residential dwellings

This report details the methodology and results of the assessment and has been prepared to support a retrospective planning application for the development.

The 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 and Development Proposals

The development is located at 421 Bradford Road, Batley, approximately centred on grid reference: 424613,424220 in an area of predominantly residential land uses.

Figure 1.1 below indicates the approximate site location in red.

**Figure 1.1:** Location of Proposed Development


The site is bounded to the north-west and west by a large supermarket. To the north-east and east, the site is bounded by Bradford Road with residential dwellings beyond. To the south-west, the site is bounded by a service yard associated with the supermarket, and an electrical sub-station plus residential dwellings located within Bobbin Mills further to the south-west.

# 2 Noise Criteria

## 2.1 Assessment Guidance

### National Planning Policy Framework

The National Planning Policy Framework (NPPF)[1] 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'.*

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

### Noise Policy Statement for England

The Noise Policy Statement for England[2] (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
- 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):

1 National Planning Policy Framework. Ministry of Housing, Communities and Local Government (2021)
2 Government Department for Environment, Food and Rural Affairs. Noise Policy Statement for England. March 2010.

*'….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.'*

## British Standard 8233:2014 - Guidance on Sound Insulation and Noise Reduction for Buildings

British Standard 8233:2014 'Guidance on Sound Insulation and Noise Reduction for Buildings' (BS 8233)[3] provides recommendations for the control of noise both in and around buildings and suggests criteria and limits appropriate to their function. For residential dwellings, the main considerations are:

- Bedrooms - the effect of noise upon sleep
- Other habitable rooms - the effect of noise upon resting, listening and communicating

It is desirable that the internal ambient noise level does not exceed the guideline values as replicated in Table 2.1.

**Table 2.1: Indoor Ambient Noise Levels for Dwellings – BS 8233:2014**

| Activity | Location | 07:00 – 23:00 | 23:00 – 07:00 |
|---|---|---|---|
| Resting | Living room | 35 dB $L_{Aeq,16hour}$ | - |
| Dining | Dining room/area | 40 dB $L_{Aeq,16hour}$ | - |
| Sleeping (daytime resting) | Bedroom | 35 dB $L_{Aeq,16hour}$ | 30 dB $L_{Aeq,8hour}$ |

BS8233 states:

*'If relying on closed windows to meet the guide values, there needs to be appropriate alternative ventilation that does not compromise the façade insulation or the resulting noise level. If applicable, any room should have adequate ventilation (e.g. trickle ventilators should be open) during assessment.'*

Whilst BS 8233 is primarily concerned with noise within dwellings, the following guidance is also provided for external amenity areas:

*"For traditional external areas that are used for amenity space, such as gardens or patios it is desirable that the external noise level does not exceed 50 dB $L_{Aeq,T}$, with an upper guideline value of 55 dB $L_{Aeq,T}$ which would be acceptable in noisier environments. However, it is also recognised that these guideline values are not achievable in all circumstances where development might be desirable. In higher noise areas, such as city centres or urban areas adjoining the strategic transport network, a compromise between elevated noise levels and other factors, such as the convenience of living in these locations or making efficient use of land resources to ensure development needs can be met, might be warranted. In such a situation, development should be designed to achieve the lowest practicable levels in these external amenity spaces, but should not be prohibited".*

[3] British Standard 8233:2014 Guidance on sound insulation and noise reduction for buildings. BSI

## ProPG Planning and Noise: New Residential Development

ProPG Planning and Noise: New Residential Development (ProPG)[4] recommends compliance with indoor noise level targets in residential dwellings based on the guidance contained in BS 8233 (see Table 2.1). Additionally, with regard to individual noise events, ProPG states:

*'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. Sporadic noise events could require separate values. In most circumstances in noise sensitive rooms at night (e.g. bedrooms) good acoustic design can be used so that individual noise events do not normally exceed 45dB $L_{Amax,F}$ more than 10 times a night. However, where it is not reasonably practicable to achieve this guideline, then the judgement of acceptability will depend not only on the maximum noise levels but also factors such as the source, number, distribution, predictability and regularity of the noise events."*

ProPG acknowledges that the internal target noise levels may only be practically achieved with windows closed in certain areas (e.g. in urban areas or sites adjacent to transportation noise sources) and states that:

*'In such circumstances, internal noise levels can be assessed with windows closed but with any façade openings used to provide 'whole dwelling ventilation' in accordance with Building Regulations Approved Document F (e.g. trickle ventilators in the open position).*

*It should also be noted that the internal noise level guidelines are generally not applicable under 'purge ventilation' conditions as defined by Building Regulations Approved Document F, as this should only occur occasionally (e.g. to remove odour from painting and decorating or from burnt food).'*

[4] 'ProPG Planning and Noise: New Residential Development (ProPG)', 2017. Association of Noise Consultants (ANC), Institute of Acoustics (IOA) and the Chartered Institute of Environmental Health (CIEH)

# 3 Noise Survey and Results

## 3.1 Overview

Noise monitoring was undertaken at the site on Tuesday 11th and Wednesday 12th November 2025.

The following noise monitoring positions were selected:

- 1 – externally at the north-eastern façade at 2nd floor level
- 2 – externally at the south-western façade at 2nd floor level
- 3 – externally at the north-eastern façade at 3rd floor level
- 4 – internally within a bedroom on the south-western façade at second floor level
- 5 – internally within a living room on the north-eastern façade at second floor level

All noise measurements were undertaken using NTi XL3 and Brüel & Kjaer 2250 Type 1 integrating sound level meters. The sound level meters were connected to a windshield covered microphone at all times. Internal noise measurements were undertaken with all windows closed.

The calibration of each measurement system was verified immediately before and after the survey period using a Brüel & Kjaer Type 4231 calibrator. No drift in calibration levels greater than 0.5 dB was noted. Measurements consisted of A–weighted broadband parameters including $L_{Aeq}$, $L_{A10}$, $L_{A90}$ and $L_{Amax,F}$ together with linear octave band data.

## 3.2 Summary of Results

Table 3.1 presents a summary of the noise data for each measurement session, at each measurement position, rounded to the nearest decibel. Measurements at positions 1 to 3 were made within 3 m of a façade, therefore the summarised results for these measurements include a -3 dB correction to approximate free-field levels.

**Table 3.1: Summary of Noise Measurement Data**

| Position | Date | Time (hh:mm) | $L_{Aeq,T}$ (dB) | $L_{Amax,F}$ [1] (dB) | $L_{A10,T}$ (dB) | $L_{A90,T}$ (dB) |
|---|---|---|---|---|---|---|
| 1 | 11/11/25 | 13:30-13:45 | 69 | - | 72 | 64 |
| 2 | 11/11/25 | 13:49-15:20 | 59 | - | 61 | 56 |
| 3 | 11/11/25 | 13:29-23:00 | 66 | - | 70 | 61 |
| | 11/11/25-12/11/25 | 23:00-07:00 | 61 | 78 | 67 | 38 |
| | 21/11/25 | 07:00-10:30 | 68 | - | 72 | 64 |
| 4 | 11/11/25 | 15:25-23:00 | 30 | - | 33 | 29 |
| | 11/11/25-12/11/25[2] | 23:00-06:00 | 23 | 37 | 30 | 20 |
| | 21/11/25 | 07:00-10:00 | 27 | | 29 | 21 |
| 5 | 11/11/25 | 15:30-23:00 | 34 | - | 35 | 33 |
| | 11/11/25-12/11/25[2] | 23:00-06:00 | 28 | 34 | 29 | 23 |
| | 21/11/25 | 07:00-10:00 | 32 | - | 32 | 27 |

Notes: [1] Highest value recorded during survey period [2] 06:00 to 07:00 period excluded due to activity within room

The noise climate at the site was controlled by distant and local road traffic noise, primarily from Bradford Road to the north-east of the site. Noise from fixed plant and commercial activities associated with the supermarket was also occasionally audible externally at the south-west façade.

# 4 Assessment

## 4.1 Internal Ambient Noise Levels

To assess compliance with the BS 8233 internal ambient noise level guidelines set out in Section 2, long term noise measurements were made within habitable rooms of residential dwellings at second floor level and compared against the guideline internal ambient noise level criteria set out in Section 2.

The noise measurements set out in Table 3.1 include periods when the ground and first floor restaurant were operating, as such any potential noise breakout from the restaurant to habitable spaces at second floor has been included in the measured levels.

Table 4.1 below sets out a summary of the measured noise levels against the relevant criteria for the day and night time period.

**Table 4.1: Indoor Ambient Noise Levels for Dwellings**

| Location | Period | Target Criteria | Measured noise level (dB $L_{Aeq,T}$) | Exceedance (dB $L_{Aeq,T}$) |
|---|---|---|---|---|
| Living room | Daytime (07:00-23:00) | 35 dB $L_{Aeq,16hour}$ | 34 | -1 |
| | Night time (23:00-07:00) | 35 dB $L_{Aeq,16hour}$ | 28 | -2 |
| Bedroom | Daytime (07:00-23:00) | 35 dB $L_{Aeq,16hour}$ | 29 | -6 |
| | Night time (23:00-07:00) | 30 dB $L_{Aeq,8hour}$ | 24 | -6 |

The results set out in Table 4.1 indicate that ambient noise levels within habitable rooms readily comply with the noise level target criteria set out in Section 2.

### Existing Floor Build-up

Whilst the results set out above demonstrate that noise levels within habitable rooms at second floor would satisfy relevant internal ambient noise level guidelines, additional sound insulation testing of the floor structure was undertaken to assess the performance of the separating floor between first and second floor.

The results of the testing indicate that the floor is capable of achieving 55 dB $D_{nT,w}$. The relevant test results are set out in Appendix B.

Based on the measured sound insulation performance, noise levels within the first-floor seating area of the restaurant of ≤ 90 dB during the daytime, and ≤ 85 dB during the night-time are considered permissible.

Given the size and nature of the development, such noise levels are considered unlikely to occur, with typical noise levels measured in similar restaurants being in the 75 to 80 dB $L_{Aeq,1hr}$ range during busy periods.

On this basis, noise from ground and first floor commercial uses is considered to be suitably controlled by the existing building fabric.

# 5 Summary and Conclusions

A noise impact assessment has been performed for residential dwellings at 421 Bradford Road, Batley.

A noise survey was undertaken internally and externally at the development site. The noise climate was found to be controlled primarily by noise from local and road traffic.

Internal ambient noise levels within habitable rooms have been measured and compared against the recommended levels set out in relevant guidance. The results indicate that noise levels during both the day and night time period readily comply with the relevant guideline noise levels.

# 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 μPa 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:

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

Where $L_p$ = sound pressure level in dB; p = rms sound pressure in Pa; and $p_o$ = reference sound pressure (20 μPa).

**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.

**$L_{Amax,F}$**
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 – Sound insulation test

Standardized level difference according to ISO 140-4
Field measurements of airborne sound insulation between rooms

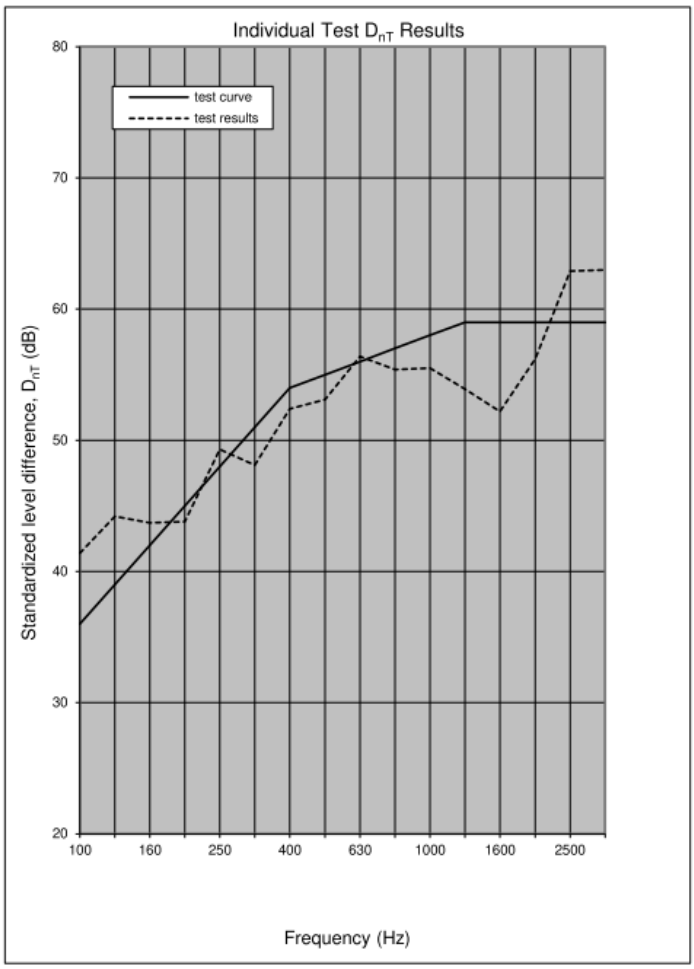
Rating according to ISO 717-1

$D_{nT,w}$ (C; $C_{tr}$) = 55 (-1; -3) dB

Evaluation based on field measurement results obtained in one-third octave bands by an engineering method.

| Freq | Test $D_{nT}$ values (dB) | | |
|---|---|---|---|
| (Hz) | curve | test | |
| 100 | 36 | 41.4 | |
| 125 | 39 | 44.2 | |
| 160 | 42 | 43.7 | |
| 200 | 45 | 43.8 | |
| 250 | 48 | 49.3 | |
| 315 | 51 | 48.1 | # |
| 400 | 54 | 52.4 | |
| 500 | 55 | 53.1 | |
| 630 | 56 | 56.4 | # |
| 800 | 57 | 55.4 | |
| 1000 | 58 | 55.5 | |
| 1250 | 59 | 53.9 | |
| 1600 | 59 | 52.2 | |
| 2000 | 59 | 56.2 | |
| 2500 | 59 | 62.9 | |
| 3150 | 59 | 63.0 | # |

# indicates background corrected
* indicates limit of measurement




| Construction details: |
|---|
| paste constuction type here |

**Test Reference Number: 144/51000/02**

| Date of test: | Signature of tester: | Source Room: | Vol (m3) | Receiver Room: | Vol (m3) |
|---|---|---|---|---|---|
| 11/11/2025 | | 2nd Floor Flat | 90 | 1st Floor Restaurant | 210 |

Figure C1: Floor sound insulation performance