

## **NOISE ASSESSMENT**

# **PROPOSED RESIDENTIAL DEVELOPMENT ON LAND OFF SPITFIRE ROAD, CALNE**

**ALLISON HOMES SW LIMITED**

**JANUARY 2026**

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| Revision | Prepared By                | Date     |
|----------|----------------------------|----------|
| 1.2      | L Jephson BEng (Hons) MIOA | 9/1/26   |
| 1.1      | L Jephson BEng (Hons) MIOA | 9/12/25  |
| 1.0      | L Jephson BEng (Hons) MIOA | 19/11/25 |

This report has been prepared using all reasonable skill and care within the resources and brief agreed with the client. LF Acoustics Ltd accept no responsibility for matters outside the terms of the brief or for use of this report, wholly or in part, by third parties.

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## 1. Introduction

LF Acoustics Ltd have been appointed by Allison Homes SW Limited to undertake an assessment of the noise levels within a proposed residential development to be located on land off Spitfire Road, Calne.

Outline planning permission for the proposed development was granted upon Appeal in February 2025 (Application Ref PL/2022/07893). Condition 18 of the planning permission relates to noise and is reproduced below for reference:

18. **Noise assessment:** *Prior to works commencing for the construction of any dwelling alongside Abberd Lane and concurrent with Reserved Matters submissions relating to appearance, scale and layout for the residential development, a further assessment of the noise levels and a scheme for protecting the development from road traffic noise, which demonstrates good acoustic design and complies with the requirements of BS 8233:2014, shall be submitted to and approved in writing by the Local Planning Authority. All works, which form part of the scheme, shall be implemented before any development within that phase so affected is occupied and thereafter retained.*

Abberd Lane is relatively lightly trafficked, with the traffic using the lane primarily accessing the RF Wood & Waste Recycling Ltd (RF Wood) facility located to the east, further along the lane.

This report presents an assessment of the road traffic noise levels within the proposed residential development, based upon a noise monitoring exercise carried out to establish current road traffic noise levels.

## 2. Applicable Standards and Guidance

A description of the noise units referred to within this report is provided in Appendix A.

### 2.1. British Standard BS 8233

Condition 18 refers to British Standard BS 8233 [1] to ensure satisfactory living conditions would be achieved within the proposed development.

BS 8233 recommends design aims for noise levels to be achieved in new buildings and is the most appropriate guidance in defining applicable noise levels within the proposed development. The Standard was updated in 2014 to better reflect the requirements of the NPPF in terms of impact classifications and achieving the recommended guidance values, seeks to ensure that the occupants would not be subject to any significant adverse impacts, to ensure compliance with the requirements of the NPPF.

For residential properties, the guidance recommends the following design aims for the daytime (07:00 – 23:00) and night-time (23:00 – 07:00) periods:

- 35 dB  $L_{Aeq,T}$  within living rooms and bedrooms during the daytime period;
- 40 dB  $L_{Aeq,T}$  within dining areas / rooms during the daytime period;
- 30 dB  $L_{Aeq,T}$  within bedrooms at night; and
- 50 – 55 dB  $L_{Aeq,T}$  within gardens and patios during the daytime.

With regards internal noise levels, the Standard advises:

*“Where development is considered necessary or desirable, external noise levels above WHO guidelines, the internal target levels may be relaxed by up to 5 dB and reasonable internal conditions still achieved.”*

Where the above limits require windows to be closed to maintain the standard of noise, there needs to be appropriate alternative ventilation provided that does not compromise the façade insulation or resulting noise level.

For outdoor amenity spaces, it is recognised in the Standard that these guideline values may not be achievable in all circumstances. Where development might be desirable, 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, the development should be designed to achieve the lowest practicable levels, but should not be prohibited. Given that there is a need for the development, it is considered in this situation, that this relaxation could be applied, providing the lowest practicable levels have been achieved.

### 2.2. Approved Document O

Approved Document O of the Building Regulations (ADO) came into force during June 2022. The document provides the requirements within dwellings to minimise the potential solar gains and to provide adequate means to remove heat from the indoor environment.

This report provides an assessment of the noise aspects of ADO, to identify areas where the requirement for additional assisted ventilation may be required.

ADO requires excess heat to be removed by the following means:

- Opening windows;
- Ventilation louvres in external walls;
- A mechanical ventilation system; and
- A mechanical cooling system.

The building should be designed to remove excessive heat by passive means as far as reasonably practical.

With regards to noise, ADO requires the following:

In locations where external noise may be an issue (for example, where the local planning authority considered external noise to be an issue at the planning stage), the overheating mitigation strategy should take account of the likelihood that windows will be closed during sleeping hours (11pm to 7am).

Windows are likely to be closed during sleeping hours if noise within bedrooms exceeds the following limits.

- 40dB  $L_{Aeq,T}$ , averaged over 8 hours (between 11pm and 7am).
- 55dB  $L_{AFmax}$ , more than 10 times a night (between 11pm and 7am).

Assuming a partially open windows typically provides around 10 - 15 dB(A) reduction between outside and in, windows would be likely to be considered closed when the following equivalent external noise levels are exceeded:

- 50 - 55dB  $L_{Aeq,T}$ , averaged over 8 hours (between 11pm and 7am).
- 65 - 70dB  $L_{AFmax}$ , more than 10 times a night (between 11pm and 7am).

### 3. Proposed Development

The proposed development layout is indicated below.



The final development layout has brought forward the principals identified at the outline planning stage, to ensure a good acoustic design has been implemented to minimise noise levels at the proposed dwellings.

As indicated above, the majority of the dwellings would be set back from Abberd Lane to reduce road traffic noise levels at the properties. Where properties are to be constructed closer to the road, these would be orientated perpendicular to the road to reduce the line of sight onto the carriageway.

Where possible within the development layout, the gardens to the properties closest to the lane have also been positioned to the south of the properties, which utilises the property façades to effectively screen the gardens from the traffic using the lane.

## **4. Noise Monitoring**

### **4.1. Noise Monitoring Exercise**

To establish the existing noise levels along the Abberd Lane boundary, a noise monitoring survey was carried out between Thursday 30 October to Monday 3 November 2025.

The aim of the monitoring exercise was to establish the noise levels attributable to the traffic using Abberd Lane both during a weekday and weekend period.

The survey comprised unattended noise monitoring carried out at one position along the northern boundary, representative of the closest properties to the lane. The monitoring equipment was positioned within the application site approximately 10 metres from the kerb, as indicated on Figure 1.

Weather conditions for the surveys were good, remaining generally dry with light winds throughout and thus suitable for undertaking an environmental noise survey.

A Rion NL-52 Class 1 Sound Level Meter was used for the exercise, which was calibrated before and after the exercise using a Rion NC-75 Class 1 Acoustic Calibrator, with the instrument reading 94.0 dB on each occasion. All the instrumentation used had been laboratory calibrated within the past 24 months in accordance with national standards, copies of the calibration certificates can be provided upon request.

The microphone was set in free-field conditions and at a height of 1.5 metres above the ground. It was fitted with Rion WS-15 outdoor microphone protection, to ensure Class 1 performance was maintained under a wide range of weather conditions.

The instrument was configured to monitor over both 1-second and 5-minute periods throughout the duration of the survey. The short duration monitoring periods allowed the individual vehicle passbys to be identified, particularly during the early morning periods, prior to 07:00 hours, when staff were arriving at the neighbouring facilities.

The instrument was also fitted with an audio recording option card, which enabled periodic audio snapshots of the noise environment to be captured, along with any particular activities giving rise to high noise levels, thus enabling particular sources to be identified.

### **4.2. Results of Noise Monitoring**

The noise monitoring results are presented graphically in Appendix B.

The monitoring results obtained at each position have been subsequently analysed to derive the day and night-time noise levels. Ambient  $L_{Aeq,T}$  noise levels have been evaluated based upon the noise levels monitored over the 16 hour daytime and 8 hour night-time periods in accordance with the requirements of BS 8233.

Table 4.1 below presents the period noise levels.

| Period                 | Period $L_{Aeq,T}$ Noise Levels [dB] |                            |
|------------------------|--------------------------------------|----------------------------|
|                        | Daytime (07:00 – 23:00)              | Night-time (23:00 – 07:00) |
| Thursday 30/10/25      | 53.1*                                | 49.7                       |
| Friday 31/10/25        | 53.1                                 | 47.2                       |
| Saturday 1/11/25       | 47.3                                 | 36.9                       |
| Sunday 2/11/25         | 42.4                                 | 48.9                       |
| Monday 3/11/25         | 53.3**                               | -                          |
| <b>Typical Weekday</b> | <b>53.2</b>                          | <b>48.5</b>                |

Note: \* Period comprised 10:00 – 23:00 hours

\*\* Period comprised 07:00 – 22:20 hours

**Table 4.1 Period Noise Levels Evaluated from Unattended Noise Survey**

The results indicated that the lane was most heavily used during the weekday periods, when RF Wood were operational, with noticeably lower traffic during the weekend period.

During the weekdays, cars were noted to use the lane after around 05:00 hours, with occasional vehicles passing between 05:00 – 06:00 hours. Traffic increased between 06:00 – 07:00 hours. No HGVs were noted to use the lane prior to 07:00 hours each day.

Overnight, maximum noise levels were generally attributable to occasional cars passing along the lane, which typically generated maximum noise levels of between 65 – 70 dB  $L_{Amax,F}$  at the monitoring position. It was noted that there was also generally one motorbike which passed each morning and noted to generate a maximum noise level of typically 80 dB  $L_{Amax,F}$ .

Analysing the results for the early morning weekday periods prior to 07:00 indicated that on Friday morning there were 13 vehicles generating a passby level of more than 65 dB  $L_{Amax,F}$ , of which 4 generated a passby level in excess of 70 dB  $L_{Amax,F}$ . On Monday morning there were 25 vehicles generating a passby level of more than 65 dB  $L_{Amax,F}$ , of which 7 generated a passby level in excess of 70 dB  $L_{Amax,F}$ .

## 5. Calculations and Assessment

### 5.1. Preamble

A noise model has been prepared using the SoundPlan computer modelling software to calculate the road traffic noise levels at the proposed dwellings, based upon the proposed development layout.

An initial model was prepared, based upon the present open site to calibrate the model against the results of the unattended noise survey.

A second model was then prepared, taking account of the proposed layout, to predict the day and night-time noise period  $L_{Aeq,T}$  levels at the proposed dwellings.

The results of the noise modelling are presented on Figures 2 and 3.

### 5.2. Assessment of Noise Levels Within Gardens

Close-boarded fencing to a height of 1.8 metres would be constructed around the garden boundaries of the properties as standard.

In addition, a 2m-high timber acoustic fence is to be constructed along the eastern boundary adjacent to Abberd Fields Farm.

The daytime noise modelling, presented on Figure 2, indicates that the road traffic noise levels within the majority of the gardens would be below a level of 50 dB  $L_{Aeq,T}$ , thus achieving the lower guideline value specified in BS 8233.

Noise levels within the garden of Plot 38, which is located in the north-eastern corner of the development would be marginally higher. However, the modelling indicates that the noise levels would remain below a level of 55 dB  $L_{Aeq,T}$ , thus maintaining compliance with the requirements of BS 8233.

On this basis, the proposed standard construction for the garden fences would provide adequate protection to ensure the requirements of Condition 18 were met.

### 5.3. Assessment of Noise Levels Within Dwellings

The proposed dwellings will be of standard brick / blockwork construction, with tiled roofs. Windows to the properties would be standard thermal double glazed units (typically 4-16-4 composition), with window vents with an indirect air path (Titon Trimvent Select E18 or equivalent).

Calculations of the noise levels within the properties closest to the lane have been made on the basis of the proposed constructions. The calculations have been based upon closed windows and the window vents open for ventilation purposes. The details of the calculations are provided in Appendix C.

The calculations indicate the following noise levels at the properties most exposed to road traffic noise along the lane:

- 23 dB  $L_{Aeq, 16 \text{ hr}}$  daytime; and
- 19 dB  $L_{Aeq, 8 \text{ hr}}$  night-time.

The calculations indicate that the proposed construction would provide a 28 dB(A) reduction in noise levels between outside and in assuming windows closed.

Maximum noise levels overnight, on the basis of the measured levels during the noise survey, would be up to 45 dB  $L_{Amax,F}$  overnight, assuming closed windows at the properties to be constructed closest to the road. To provide some additional protection to the properties closest to the road, it is recommended that acoustically treated passive vents are installed within the bedrooms of Plots 12, 14, 16, 18 and 38, with the windows that have a line of sight onto the road. This measure would ensure that the maximum noise levels within those bedrooms would not exceed a level of 45 dB  $L_{Amax,F}$  more than 10 times per night. An example of a suitable vent would be a Titon SF Xtra Sound Attenuator V50 + standard canopy, which would provide a sound reduction of 38 dB  $D_{new}$ , when open.

Assessing the noise levels within the properties against the requirements of BS 8233 would ensure a good standard of noise was maintained within the properties.

Consideration has also been given to the occupants maintaining windows open. A partially open window for ventilation purposes would typically provide a reduction of 15 dB(A) between outside and in (BS 8233, Annex G). On this basis, noise levels within the properties closest to the lane would be up to 39 dB  $L_{Aeq, 16 \text{ hr}}$  daytime / 35 dB  $L_{Aeq, 8 \text{ hr}}$  night-time. With windows open, a reasonable standard of noise would therefore be maintained within the properties with reference to BS 8233.

Consideration has also been given to the noise requirements of Approved Document O, in relation to noise within the bedrooms of the properties overnight.

Approved Document O requires consideration to the fact that occupants may wish to maintain windows closed, when internal noise levels exceed a level of 40 dB  $L_{Aeq, 8 \text{ hr}}$  / 55 dB  $L_{Amax,F}$  more than 10 times per night.

The calculations above indicate that the ambient noise levels within the bedrooms assuming a window partially open for ventilation would remain at least 5 dB(A) below the value specified in Approved Document O, thus remaining acceptable. With regards maximum noise levels overnight, based upon the recent survey data, levels of more than 55 dB  $L_{Amax,F}$  would not be exceeded more than 10 times per night. On this basis, there would be no acoustic requirements necessary for the properties.

In summary, with the provision of acoustically treated passive vents for a small number of bedrooms closest to Abberd Lane, standard constructions for the properties would ensure that the requirements of BS 8233 and ADO were achieved within the development.

## 6. Summary

LF Acoustics Ltd were appointed by Allison Homes SW Limited to undertake an assessment of the noise levels within a proposed residential development to be located on land off Spitfire Road, Calne.

Outline planning permission for the proposed development was granted upon Appeal in February 2025 (Application Ref PL/2022/07893). Condition 18 of the planning permission relates to noise and requires an assessment against BS 8233 to demonstrate that acceptable living conditions would be achieved within the properties attributable to road traffic travelling along Abberd Lane.

A noise measurement exercise was carried out to establish the current noise levels along the northern boundary adjacent to the lane. The lane is relatively lightly trafficked, with vehicles generally accessing RF Wood to the east. During the daytime period traffic was noted to include a mix of cars and HGVs. Overnight, traffic was very light, with a number of car movements after 05:00 hours, associated with staff arriving for work. It was noted prior to 07:00 that there were no HGVs travelling along the lane.

An assessment of the noise levels has been carried out within the proposed development, based upon the proposed layout.

The assessment concluded that the requirements of BS 8233 would generally be achieved through standard constructions.

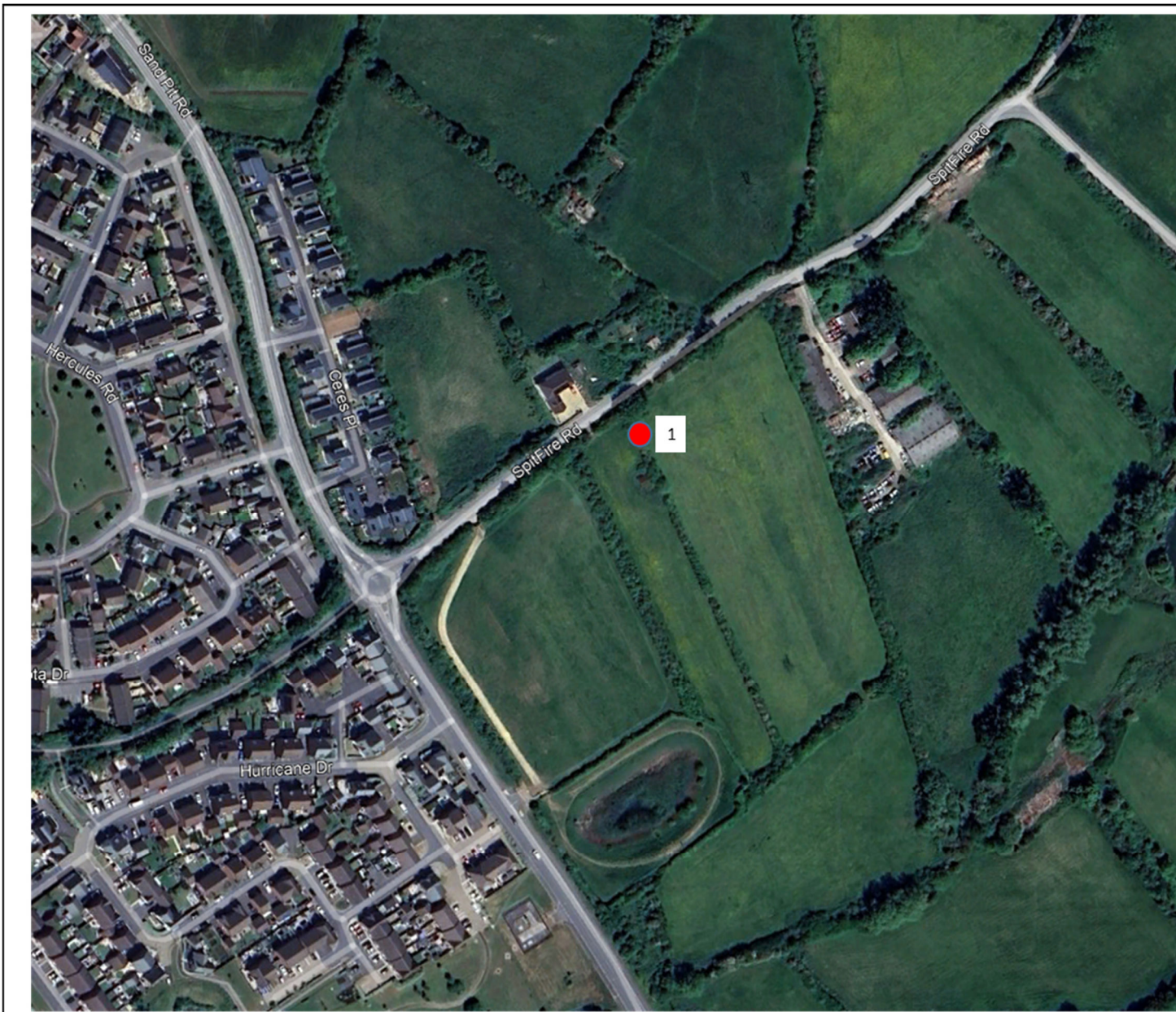
Marginally higher noise levels would be experienced at the properties to be constructed closest to the road (Plots 12, 14, 16, 18 and 38). For these plots, it is recommended that acoustically treated passive vents are installed within the bedrooms that have windows with a line of sight onto the lane to ensure that the maximum noise levels overnight remain acceptable.

With the additional mitigation provided, the noise levels within the development would achieve the guideline values specified within BS 8233 and thus ensure compliance with the requirements of Condition 18.

## References

1. British Standards Institute. Guidance on Sound Insulation and Noise Reduction in Buildings. BS 8233: 2014.

## Figures



● Noise Survey Location

Figure 1:  
Site Location and Noise  
Monitoring Positions





## **Appendix A**

### **Noise Units**

#### Decibels (dB)

Noise can be considered as 'unwanted sound'. Sound in air can be considered as the propagation of energy through the air in the form of oscillatory changes in pressure. The size of the pressure changes in acoustic waves is quantified on a logarithmic decibel (dB) scale firstly because the range of audible sound pressures is very great, and secondly because the loudness function of the human auditory system is approximately logarithmic.

The dynamic range of the auditory system is generally taken to be 0 dB to 140 dB. Generally, the addition of noise from two sources producing the same sound pressure level will lead to an increase in sound pressure level of 3 dB. A 3 dB noise change is generally considered to be just noticeable, a 5 dB change is generally considered to be clearly discernible and a 10 dB change is generally accepted as leading to the subjective impression of a doubling or halving of loudness.

#### A-Weighting

The bandwidth of the frequency response of the ear is usually taken to be from about 18 Hz to 18,000 Hz. The auditory system is not equally sensitive throughout this frequency range. This is taken into account when making acoustic measurements by the use of A-weighting, a filter circuit that has a frequency response similar to the human auditory system. All the measurement results referred to in this report are A-weighted.

#### Units Used to Describe Time-Varying Noise Sources ( $L_{Aeq}$ , $L_{Amax}$ , $L_{A10}$ , and $L_{A90}$ )

Instantaneous A-weighted sound pressure level is not generally considered as an adequate indicator of subjective response to noise because levels of noise usually vary with time.

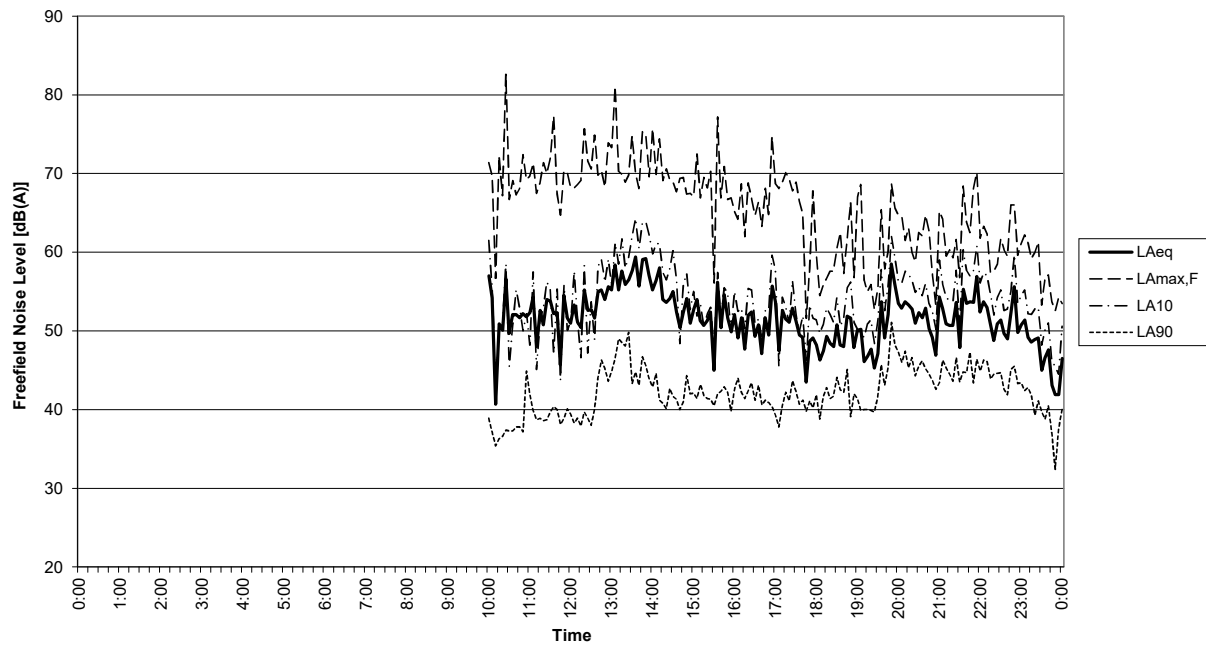
For many types of noise the Equivalent Continuous A-Weighted Sound Pressure Level ( $L_{Aeq,T}$ ) is used as the basis of determining community response. The  $L_{Aeq,T}$  is defined as the A-weighted sound pressure level of the steady sound which contains the same acoustic energy as the noise being assessed over a specific time period, T.

The  $L_{Amax}$  is the maximum value that the A-weighted sound pressure level reaches during a measurement period.  $L_{Amax F}$ , or Fast, is averaged over 0.125 of a second and  $L_{Amax S}$ , or Slow, is averaged over 1 second. All  $L_{Amax}$  values referred to in this report are Fast.

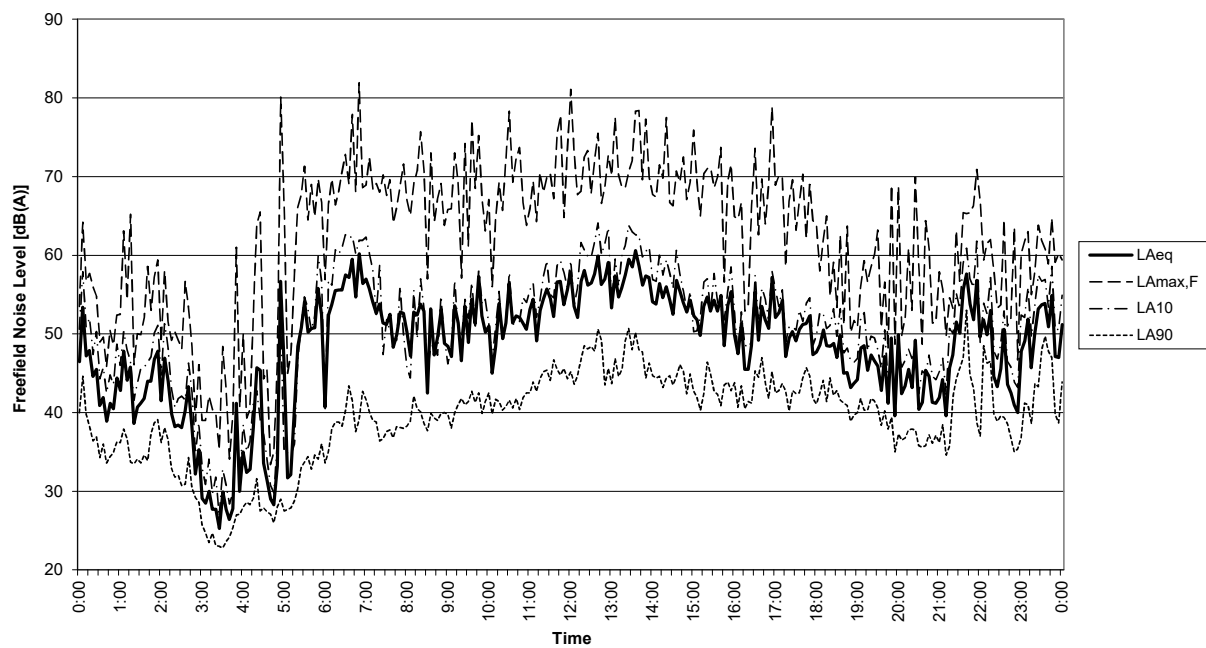
The  $L_{A90}$  is the noise level exceeded for 90% of the measurement period. It is generally used to quantify the background noise level, the underlying level of noise that is present even during the quieter parts of measurement period.

**Appendix B**  
**Results of Unattended Noise Survey**

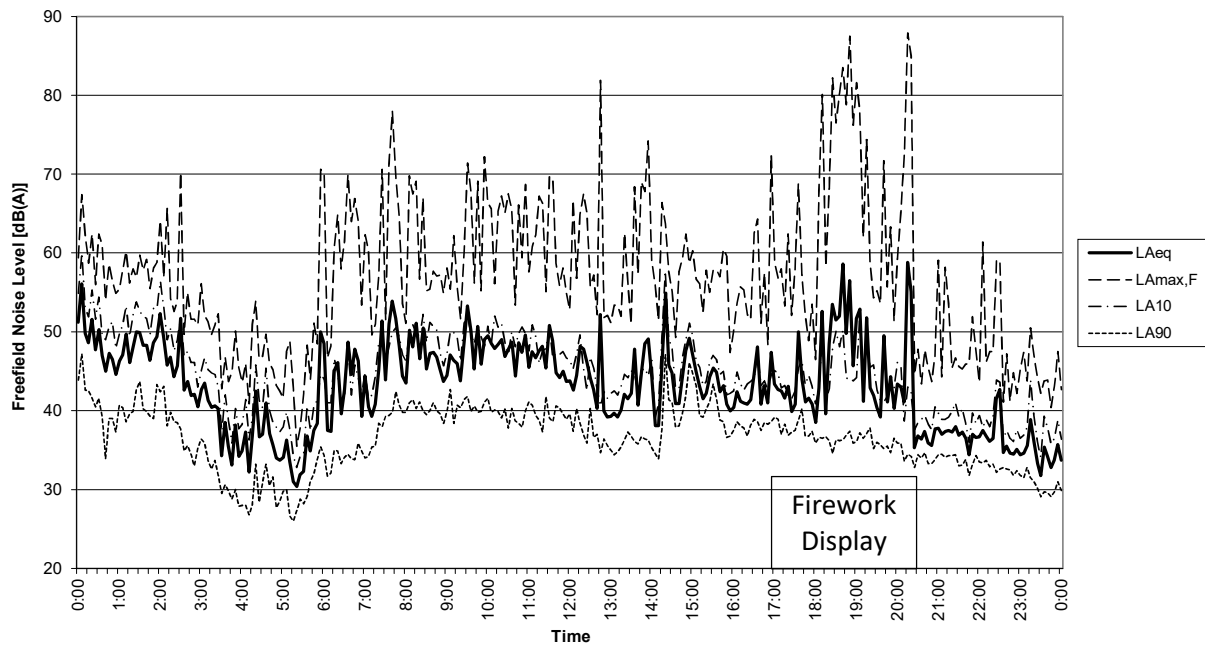
Thursday 30/10/25



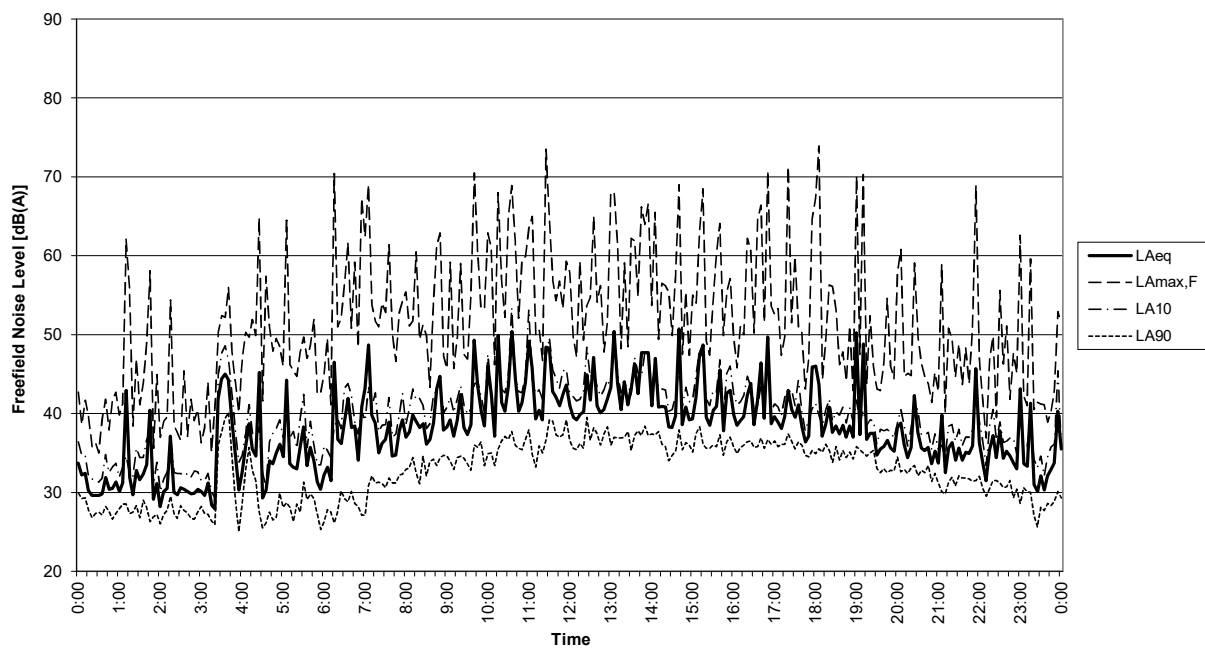
Friday 31/10/25



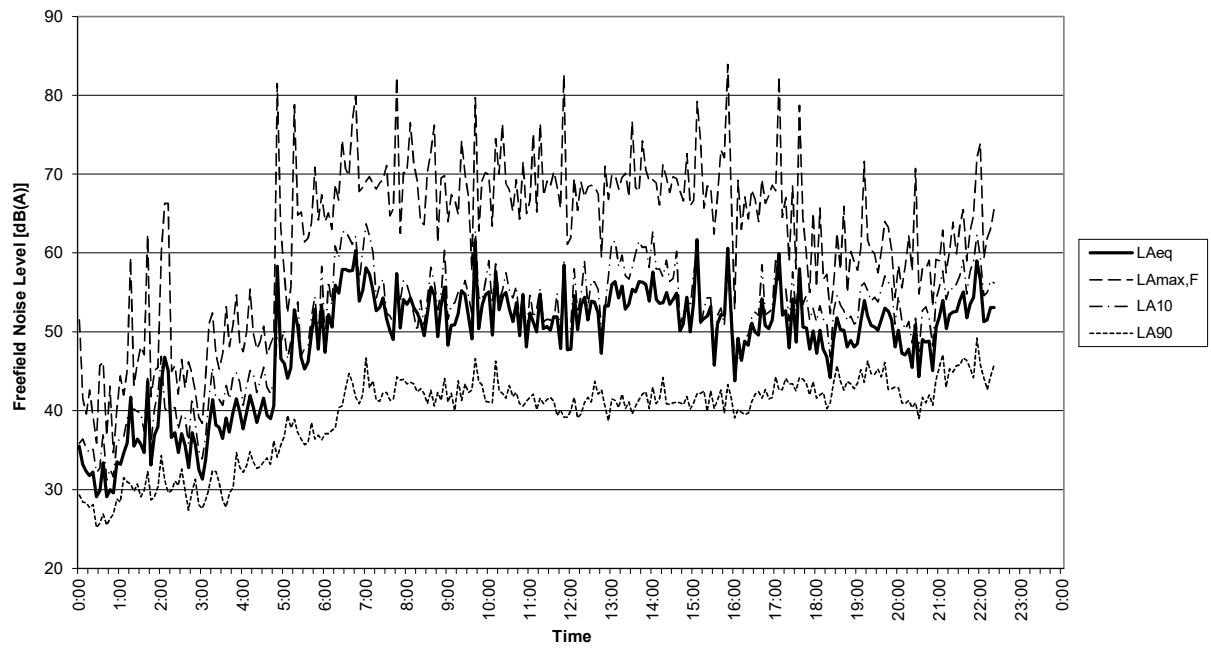
Saturday 1/11/25



Sunday 2/11/25



Monday 3/11/25



## **Appendix C**

### **Calculation Details**

**Proposed Development off Spitfire Road, Calne**  
Calculation of Internal Noise Levels

Position : Properties Adjacent to Abberd Lane

Prepared By: LPJ - 25/11/25

**PROPOSED GLAZING & STANDARD VENTS**

|     |                          |    |
|-----|--------------------------|----|
| Sf  | Facade Area (inc Window) | 10 |
| Swi | Window Area              | 2  |
| Sew | Sf-Swi                   | 8  |
| Srr | Area of Ceiling          | 12 |
| S   | Sf+Srr                   | 22 |
| A0  | Ref Absorption Area      | 10 |

|                 |                           |   | Overall<br>A-Wtd | 1/3 Octave Band Leq |            |            |            |            |            |                             |                      |
|-----------------|---------------------------|---|------------------|---------------------|------------|------------|------------|------------|------------|-----------------------------|----------------------|
|                 |                           |   |                  | 125                 | 250        | 500        | 1000       | 2000       | 4000       |                             |                      |
| Source Level    | L <sub>eq</sub> Freefield | A | 51               | 48                  | 47         | 46         | 48         | 44         | 39         | Equivalent Freefield Level  | ( 54 dB LAeq Façade) |
| Window Vent     | Dn,e                      |   |                  | 34                  | 34         | 33         | 27         | 32         | 34         | Standard Titon Trickle Vent |                      |
|                 | B                         |   |                  | 0.00018             | 0.00018    | 0.00023    | 0.00091    | 0.00029    | 0.00018    |                             |                      |
| Glazing         | Rwi                       |   |                  | 22                  | 20         | 32         | 41         | 45         | 38         | 4-16-4 Glazing              |                      |
|                 | C                         |   |                  | 0.00057             | 0.00091    | 0.00006    | 0.00001    | 0.00000    | 0.00001    |                             |                      |
| Wall            | Rew                       |   |                  | 41                  | 45         | 45         | 54         | 58         | 58         |                             |                      |
|                 | D                         |   |                  | 2.888E-05           | 1.15E-05   | 1.15E-05   | 1.448E-06  | 5.763E-07  | 5.763E-07  |                             |                      |
| Ceiling         | Rrr                       |   |                  | 30                  | 42         | 50         | 54         | 54         | 54         |                             |                      |
|                 | E                         |   |                  | 0.0005455           | 3.442E-05  | 5.455E-06  | 2.171E-06  | 2.171E-06  | 2.171E-06  |                             |                      |
| 10Log (B+C+D+E) |                           |   |                  | -28.765095          | -29.446355 | -35.198121 | -30.372625 | -35.339908 | -37.030854 |                             |                      |
| A (Furnished)   |                           |   |                  | 11                  | 14         | 16         | 16         | 15         | 15         |                             |                      |
| 10*log (S/A)    |                           |   |                  | 3.0103              | 1.9629465  | 1.383027   | 1.383027   | 1.6633142  | 1.6633142  |                             |                      |
| Leq,2           |                           |   |                  | 25.6                | 22.5       | 15.4       | 21.6       | 13.2       | 7.1        |                             |                      |
| A-Weighting     |                           |   |                  | -16.1               | -8.6       | -3.2       | 0          | 1.2        | 1          |                             |                      |
| LAeq,2          |                           |   |                  | 9.5                 | 13.9       | 12.2       | 21.6       | 14.4       | 8.1        |                             |                      |
|                 |                           |   | Day<br>23        | Night<br>19         |            |            |            |            |            |                             |                      |
| LAeq, Internal  |                           |   |                  |                     |            |            |            |            |            |                             |                      |
| Reduction       |                           |   | -28              |                     |            |            |            |            |            |                             |                      |

**Proposed Development off Spitfire Road, Calne**  
Calculation of Internal Noise Levels

Position : Properties Adjacent to Abberd Lane

Prepared By: LPJ - 25/11/25

**PROPOSED GLAZING & STANDARD VENTS**

|     |                          |    |
|-----|--------------------------|----|
| Sf  | Facade Area (inc Window) | 10 |
| Swi | Window Area              | 2  |
| Sew | Sf-Swi                   | 8  |
| Srr | Area of Ceiling          | 12 |
| S   | Sf+Srr                   | 22 |
| A0  | Ref Absorption Area      | 10 |

|                                        |                       | Overall<br>A-Wtd | 125        | 250        | 500        | 1000       | 2000       | 4000       |                                                 |
|----------------------------------------|-----------------------|------------------|------------|------------|------------|------------|------------|------------|-------------------------------------------------|
| Source Level                           | $L_{max}$ Freefield A | 71               | 69         | 66         | 66         | 69         | 63         | 56         | Equivalent Freefield Level ( 74 dB LAeq Façade) |
| Window Vent                            | Dr,e                  |                  | 34         | 34         | 33         | 27         | 32         | 34         | Standard Titon Trickle Vent                     |
|                                        | B                     |                  | 0.00018    | 0.00018    | 0.00023    | 0.00091    | 0.00029    | 0.00018    |                                                 |
| Glazing                                |                       |                  | 22         | 20         | 32         | 41         | 45         | 38         | 4-16-4 Glazing                                  |
|                                        |                       |                  | 0.00057    | 0.00091    | 0.00006    | 0.00001    | 0.00000    | 0.00001    |                                                 |
| Wall                                   | Rew                   |                  | 41         | 45         | 45         | 54         | 58         | 58         |                                                 |
|                                        | D                     |                  | 2.888E-05  | 1.15E-05   | 1.15E-05   | 1.448E-06  | 5.763E-07  | 5.763E-07  |                                                 |
| Ceiling                                | Rrr                   |                  | 30         | 42         | 50         | 54         | 54         | 54         |                                                 |
|                                        | E                     |                  | 0.0005455  | 3.442E-05  | 5.455E-06  | 2.171E-06  | 2.171E-06  | 2.171E-06  |                                                 |
| 10Log (B+C+D+E)                        |                       |                  | -28.765095 | -29.446355 | -35.198121 | -30.372625 | -35.339908 | -37.030854 |                                                 |
| A (Furnished)                          |                       |                  | 11         | 14         | 16         | 16         | 15         | 15         |                                                 |
| 10*log (S/A)                           |                       |                  | 3.0103     | 1.9629465  | 1.383027   | 1.383027   | 1.6633142  | 1.6633142  |                                                 |
| $L_{max,2}$                            |                       |                  | 46.5       | 41.3       | 34.8       | 43.0       | 32.6       | 24.0       |                                                 |
| A-Weighting                            |                       |                  | -16.1      | -8.6       | -3.2       | 0          | 1.2        | 1          |                                                 |
| $L_{Amax,2}$                           |                       |                  | 30.4       | 32.7       | 31.6       | 43.0       | 33.8       | 25.0       |                                                 |
| <b><math>L_{Amax, Internal}</math></b> |                       | <b>44</b>        |            |            |            |            |            |            |                                                 |
| <b>Reduction</b>                       |                       | <b>-27</b>       |            |            |            |            |            |            |                                                 |