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# Land at Stevenage Road, Hitchin, SG4 7JY

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**Noise Impact Assessment Report**  
Report 30033.NIA.01 REVB

**Bugler Homes Ltd**

| Report 30033.NIA.01                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                        |                                            |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|--------------------------------------------|
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| First Issue<br>20/11/2025                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Thomas Carvell AMIOA<br>Assistant Consultant                                           | Daniel Stuart MIOA<br>Principal Consultant |
| REVA<br>12/12/2025                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Thomas Carvell AMIOA<br>Assistant Consultant                                           | Daniel Stuart MIOA<br>Principal Consultant |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Amendments made to external amenity assessment.                                        |                                            |
| REVB<br>19/12/2025                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Thomas Carvell AMIOA<br>Assistant Consultant                                           | Daniel Stuart MIOA<br>Principal Consultant |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Amendments made to glazing plan in line with updated GA's.p Minor wording alterations. |                                            |
| REVC<br>19/12/2025                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Thomas Carvell AMIOA<br>Assistant Consultant                                           | Daniel Stuart MIOA<br>Principal Consultant |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Updated client name.                                                                   |                                            |
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| 30033.TH1-3      | Environmental Noise Time Histories                        |
| 30033.TH3 LA90   | Statistical analysis for representative daytime $L_{A90}$ |
| Figure 30033.SP1 | Glazing Configuration Plan                                |
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## 1.0 INTRODUCTION

KP Acoustics Ltd has been commissioned to assess the suitability of the Land at Stevenage Road, Hitchin, SG4 7JY for a residential development in accordance with the provisions of the National Planning Policy Framework (NPPF) and the Noise Policy Statement for England (NPSE).

The residential development comprises erection of 50no. residential dwellings (including affordable housing), new public open space, associated parking, landscaping and access.

This assessment considers road traffic noise from Stevenage Road as well as commercial noise from the nearby MOT garage to the east onto the proposed development.

This report presents the results of the environmental survey undertaken in order to measure prevailing background noise levels and outlines any necessary mitigation measures.

## 2.0 SITE SURVEYS

### 2.1 Site Description

The site is bounded by farmland to the north, Kingshott School to the west, residential dwellings to the east and to the south, and 2no. roads to the south comprising Stevenage Road and a through-road to Kingshott School. Entrance to the site is located to the south. At the time of the survey, the background noise climate was noted to be dominated by road noise from Stevenage Road.

### 2.2 Environmental Noise Survey Procedure

A noise survey was undertaken on the proposed site as shown in Figure 2.1. The location was chosen in order to collect data representative of the worst-case levels expected on the site due to all nearby sources.

Continuous automated monitoring was undertaken for the duration of the survey between 14:00 on 24/10/2025 and 14:00 on 27/10/2025.

Weather conditions were generally dry with light winds and therefore suitable for the measurement of environmental noise. The measurement procedure complied with ISO 1996-2:2017 Acoustics '*Description, measurement and assessment of environmental noise - Part 2: Determination of environmental noise levels*'.

### 2.3 Measurement Positions

Measurement positions are as described within Table 2.1 and shown within Figure 2.1.

| Icon                                                                              | Descriptor                       | Description                                                                                                                                                                  |
|-----------------------------------------------------------------------------------|----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | Site Boundary                    | -                                                                                                                                                                            |
|  | Commercial Noise Source          | M&L Autocare MOT Garage                                                                                                                                                      |
|  | Noise Measurement Position 1     | The microphone was installed on Heras fencing 2m above ground at the South of site, as shown in Figure 2.1.<br>The microphone was considered to be in free-field conditions. |
|  | Noise Measurement Position 2     | The microphone was installed on Heras fencing 2m above ground at the North of site, as shown in Figure 2.1.<br>The microphone was considered to be in free-field conditions. |
|  | Noise Measurement Position 3     | The microphone was installed on Heras fencing 2m above ground at the East of site, as shown in Figure 2.1.<br>The microphone was considered to be in free-field conditions.  |
|  | Noise-Sensitive Receiver (NSR) 1 | Ashbrook Cottages to the east.                                                                                                                                               |

Table 2.1 Measurement positions and descriptions

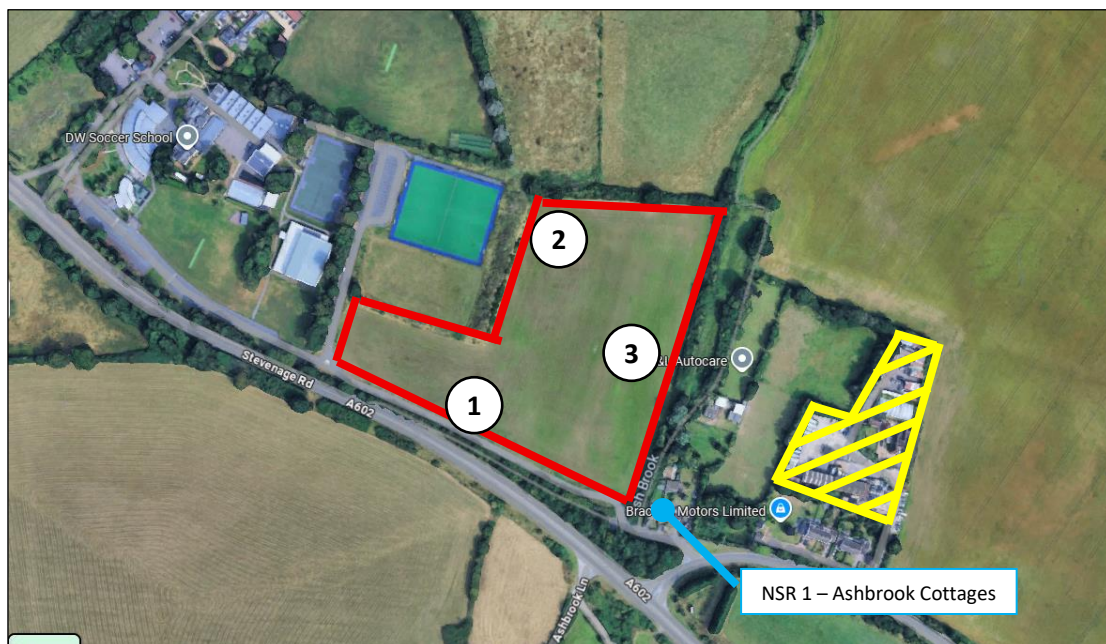


Figure 2.1 Site measurement positions (Image Source: Google Maps)



**Figure 2.2 Site layout (proposed)**

## 2.4 Equipment

The equipment calibration was verified before and after use and no abnormalities were observed. The equipment used is described within Table 2.2.

| Measurement instrumentation            |                                            | Serial no.   | Calibration Date | Cert no.    |
|----------------------------------------|--------------------------------------------|--------------|------------------|-------------|
| Noise Kit 26                           | NTI Audio XL2 Class 1 Sound Level Meter    | A2A-21130-E0 | 23/07/2024       | TCRT24/1572 |
|                                        | Free-field microphone NTI Acoustics MC230A | A25902       |                  |             |
|                                        | Preamp NTI Acoustics MA220                 | 5522         |                  |             |
|                                        | NTI Audio External Weatherproof Shroud     | -            | -                | -           |
| Noise Kit 28                           | NTI Audio XL2 Class 1 Sound Level Meter    | A2A-21140-E0 | 11/09/2025       | TCRT25/1689 |
|                                        | Free-field microphone NTI Acoustics MC230A | A23592       |                  |             |
|                                        | Preamp NTI Acoustics MA220                 | 10981        |                  |             |
|                                        | NTI Audio External Weatherproof Shroud     | -            | -                | -           |
| Noise Kit 21                           | NTI Audio XL2 Class 1 Sound Level Meter    | A2A-21099-E0 | 11/07/2024       | TCRT24/1525 |
|                                        | Free-field microphone NTI Acoustics MC230A | A23571       |                  |             |
|                                        | Preamp NTI Acoustics MA220                 | 10996        |                  |             |
|                                        | NTI Audio External Weatherproof Shroud     | -            | -                | -           |
| Larson Davis CAL200 Class 1 Calibrator |                                            | 17148        | 17/12/2024       | UCRT24/2677 |

**Table 2.2 Measurement instrumentation**

### 3.0 RESULTS

The  $L_{Aeq,5min}$ ,  $L_{Amax,5min}$  and  $L_{A90,5min}$  acoustic parameters were measured throughout the duration of the survey. Measured levels are shown as a time history in Figures 30033.TH1-3.

The measured noise levels, as shown in Table 3.1, are considered representative of the noise exposure levels expected to be experienced all facades of the proposed development.

| Time Period                                                                                                            | Noise Measurement Position 1<br>(Measured Noise level – dBA) | Noise Measurement Position 2<br>(Measured Noise level – dBA) | Noise Measurement Position 3<br>(Measured Noise level – dBA) |
|------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|--------------------------------------------------------------|--------------------------------------------------------------|
| Daytime $L_{Aeq,16hour}$                                                                                               | 64                                                           | 52                                                           | 56                                                           |
| Night-time $L_{Aeq,8hour}$                                                                                             | 59                                                           | 46                                                           | 50                                                           |
| Daytime representative $L_{A90,16hour}$                                                                                | 60                                                           | 46                                                           | 54                                                           |
| Night-time representative $L_{A90,8hour}$                                                                              | 45                                                           | 39                                                           | 43                                                           |
| Representative background noise level of Garage whilst not in operation (Saturday-Sunday 07:00-23:00), $L_{A90,5mins}$ | -                                                            | -                                                            | 50                                                           |

**Table 3.1 Site average noise levels for daytime and night time**

## 4.0 NOISE ASSESSMENT GUIDANCE

### 4.1 National Planning Policy Framework 2024 & Noise Policy Statement for England 2010

The National Planning Policy Framework (NPPF) has superseded and replaces Planning Policy Guidance Note 24 (PPG24), which previously covered issues relating to noise and planning in England. Paragraph 187 of NPPF 2024 states that planning policies and decisions should contribute to 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 soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans.”*

In addition, Paragraph 198 of the NPPF states 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
- Identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason

The Noise Policy Statement for England (NPSE) was developed by DEFRA and published in March 2010 with the aim to ‘Promote good health and good quality of life through the effective management of noise within the context of Government policy on sustainable development.’

Noise Policy Statement England (NPSE) noise policy aims are as follows:

*Through the effective management and control of environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development.*

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

The Noise Policy Statement England (NPSE) outlines observed effect levels relating to the above, as follows:

- 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.

As stated in The Noise Policy Statement England (NPSE), it is not currently possible to have a single objective based measure that defines SOAEL that is applicable to all sources of noise in all situations. Specific noise levels are not stated within the guidance for this reason, and allow flexibility in the policy until further guidance is available.

## 4.2 BS 8233:2014

BS 8233:2014 ‘Sound insulation and noise reduction for buildings’ describes recommended internal noise levels for residential spaces. These levels are shown in Table 4.1.

| Activity                   | Location         | 07:00 to 23:00 | 23:00 to 07:00 |
|----------------------------|------------------|----------------|----------------|
| Resting                    | Living Rooms     | 35 dB(A)       | -              |
| Dining                     | Dining Room/area | 40 dB(A)       | -              |
| Sleeping (daytime resting) | Bedrooms         | 35 dB(A)       | 30 dB(A)       |

**Table 4.1 BS8233 recommended internal background noise levels**

The external building fabric would need to be carefully designed to achieve these recommended internal levels.

In addition to guidance on internal levels, BS8233:2014 also states the following with regards to noise within external amenity spaces:

*‘For traditional external areas that are used for amenity space, such as gardens and 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*

*recognized 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.'*

As outlined above, the resulting noise levels in external amenity areas should not be a reason for refusal, providing that the noise levels are designed to be as low as practically possible within external amenity areas.

Expected levels within the proposed external amenity areas are outlined in Section 7.0 in more detail.

#### **4.3 WHO Guidelines for Community Noise (1999) & Night Noise Guidelines for Europe (2009)**

WHO Guidelines for Community Noise (1999) recommend that internal noise levels for individual events should not exceed 45dB  $L_{Amax}$  more than 10-15 times per night.

WHO Night Noise Guidelines for Europe (2009) presents guidelines for noise levels outside dwellings and discusses the relationship between these and the criteria for internal noise presented in Guidelines for Community Noise. The document states that the two should be considered complimentary and that the 1999 guidelines should be considered valid to achieve the 2009 guidelines.

#### **4.4 Approved Document O (ed. 2021)**

Approved Document O (ADO) supports Part O of Schedule 1 to the Building Regulations 2010. ADO introduces requirements for residential premises in order to prevent overheating from occurring. There are two specific requirements from ADO:

##### Requirement O1 (1):

To limit unwanted solar gains in summer and to provide adequate means to remove heat from the indoor environment.

##### Requirement O1 (2):

- (a) Account must be taken of the safety of the occupant, and their reasonable enjoyment of the residence.

(b) Mechanical cooling may only be used where sufficient heat cannot be removed from the indoor environment without it.

The statutory guidance to support Requirement O1(2)(a) contains requirements relating to noise at night.

#### 4.4.1 Application

The guidance within ADO applies to new residential buildings only and are defined within the following table:

| Title                      | Purpose for which the building is intended to be used.                                                                                                                                                                                                                                                                                                            |
|----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Residential (dwellings)    | Dwellings, which includes both dwellinghouses and flats.                                                                                                                                                                                                                                                                                                          |
| Residential (institutions) | Home, school or other similar establishment, where people sleep on the premises. The building may be living accommodation for the care or maintenance of any of the following. <ul style="list-style-type: none"> <li>A. Older and disabled people, due to illness or other physical or mental condition.</li> <li>B. People under the age of 5 years.</li> </ul> |
| Residential (other)        | Residential college, hall of residence and other student accommodation, and living accommodation for children ages 5 years or older.                                                                                                                                                                                                                              |

**Table 4.2 Residential buildings within the scope of ADO (ref. Table 0.1 of Approved Document O)**

Paragraphs 3.2 and 3.3 of ADO specifically refer to noise within bedrooms at night. Whilst any habitable room could be used as a bedroom, it is proposed that the scope is confined to those rooms specifically designated as bedrooms

#### 4.4.2 Internal Noise Level Targets

ADO sets internal noise level targets within Paragraph 3.3 of the document:

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

*a. 40dB  $L_{Aeq,T}$  averaged over 8 hours (between 11pm and 7am)*

*b. 55dB  $L_{AFmax}$  more than 10 times a night (between 11pm and 7am).”*

Where an openable window for the removal of excess heat is predicted to result in the above internal noise levels to be exceeded, then the overheating mitigation strategy must adopt one of the alternative means listed within Paragraph 2.10 of ADO (presented within Section 4.7.3 of this report). This constraint applies regardless of which method is used to demonstrate compliance with Requirement O1 (1).

#### 4.4.3 Methods to Remove Excess Heat

Paragraph 2.10 of ADO lists the means for removing excess heat from dwellings according to the following:

- Openable windows
- Ventilation louvres in external walls
- A mechanical ventilation system
- A mechanical cooling system

Where mitigation of impacts related to overheating is required, this must be led by an overheating specialist.

#### 4.5 BS4142: 2014 '*Methods for rating and assessing industrial and commercial sound*'

British Standard BS4142:2014 '*Methods for rating and assessing industrial and commercial sound*' describes a method for rating and assessing sound of an industrial and/or commercial nature, which includes:

- Sound from industrial and manufacturing processes
- Sound from fixed installations which comprise mechanical and electrical plant and equipment
- Sound from the loading and unloading of goods and materials at industrial and/or commercial premises, and
- Sound from mobile plant and vehicles that is an intrinsic part of the overall sound emanating from premises or processes.

This Standard compares the Rating Level due to the noise source/s under assessment for a one-hour period during the daytime (07:00 – 23:00 hours) and a fifteen-minute period during the night-time (23:00 – 07:00 hours) with the existing background noise level in terms of an  $L_{A90}$  when the noise source is not operating.

It should be noted that the Rating Level is the Specific Sound Level in question ( $L_{Aeq, T_r}$ ), including any relevant acoustic feature corrections, as follows:

- **Tonality** – '*For sound ranging from not tonal to prominently tonal the Joint Nordic Method gives a correction of between 0dB and +6dB for tonality. Subjectively, this can be converted to a penalty of 2dB for a tone which is just perceptible at the noise receptor, 4dB where it is clearly perceptible, and 6dB where it is highly perceptible*'

- **Impulsivity** – *‘A correction of up to +9dB can be applied for sound that is highly impulsive, considering both the rapidity of the change in sound level and the overall change in sound level. Subjectively, this can be converted to a penalty of 3dB for impulsivity which is just perceptible at the noise receptor, 6dB where it is clearly perceptible, and 9dB where it is highly perceptible’*
- **Intermittency** – *‘If the intermittency is readily distinctive against the residual acoustic environment, a penalty of 3dB can be applied’*
- **Other sound characteristics** – *‘Where the specific sound features characteristics that are neither tonal nor impulsive, though otherwise are readily distinctive against the residual acoustic environment, a penalty of 3dB can be applied’*

Once the Rating Level has been obtained, the representative background sound level is subtracted from the Rating Level to obtain an initial estimate of the impact, as follows:

- Typically, the greater this difference, the greater the magnitude of the impact
- A difference of around +10 dB or more is likely to be an indication of a significant adverse impact, depending on the context
- A difference of around +5 dB could be an indication of an adverse impact, depending on the context
- The lower the rating level is relative to the measured background sound level, the less likely it is that there will be an adverse impact or significant adverse impact. Where the rating level does not exceed the background sound level, this is an indication of the specific sound having a low impact, depending on the context

*NOTE: Adverse impacts may include but not be limited to annoyance and sleep disturbance. Not all adverse impacts will lead to complaints and not every complaint is proof of an adverse impact.*

The initial estimate of the impact may then be modified by taking consideration of the context in which the sound occurs.

## 5.0 EXTERNAL BUILDING FABRIC SPECIFICATION

Sound reduction performance calculations have been undertaken in order to specify the minimum performance required from glazed and non-glazed elements in order to achieve the recommended internal noise levels shown in Table 4.1, taking into account average and maximum noise levels monitored during the environmental noise survey.

$L_{Amax}$  spectrum values of night-time peaks have also been considered and incorporated into the glazing calculation in order to cater for the interior limit of 45 dB  $L_{Amax}$  for individual events, as recommended in WHO Guidelines.

As the exact room and glazing dimensions are currently unknown, glazing calculations have been undertaken based on the following assumptions:

- Each bedroom will span, at maximum 50% of the façade length;
- The glazed elements will make up 50% of the façade;
- The depth of the room has been assumed to be a minimum of 3m with a internal floor to ceiling height of 2.5m.

Please note that the glazed and non-glazed element calculations would need to be finalised once all design proposals are finalised.

### 5.1 Non-Glazed Elements

At this project stage, the exact construction of the non-glazed external building fabric is unknown, however, it is understood that it would be based upon the construction proposed in Table 5.1 and would be expected to provide the minimum figures shown in the following table when tested in accordance with the BS EN ISO 10140 series of standards.

| Element               | Sound Reduction Index , dB,<br>at Octave Band Centre Frequency, Hz |     |     |    |    |    |
|-----------------------|--------------------------------------------------------------------|-----|-----|----|----|----|
|                       | 125                                                                | 250 | 500 | 1k | 2k | 4k |
| Brickwork Cavity Wall | 41                                                                 | 43  | 48  | 50 | 55 | 55 |

**Table 5.1 Assumed sound reduction performance for non-glazed elements**

### 5.2 Glazed Elements

Minimum octave band sound reduction index (SRI) values required for all glazed elements to be installed are shown in Table 5.2. The performance is specified for the whole window unit, including the frame, seals, etc. as appropriate. Sole glass performance data would not demonstrate compliance with this specification.

The following glazing specifications for each façade would allow for **1no. trickle vent per room**. The trickle vent would need to meet or exceed the minimum octave band sound reduction index values as shown in Table 5.3. The corresponding glazing configuration map is shown in Figure 30033.SP1.

| Configuration                                                                                        | Sound Reduction Index , dB,<br>at Octave Band Centre Frequency, Hz |     |     |    |    |    | $R_w(C;C_{tr})$ ,<br>dB |
|------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------|-----|-----|----|----|----|-------------------------|
|                                                                                                      | 125                                                                | 250 | 500 | 1k | 2k | 4k |                         |
| Configuration 1<br> | 28                                                                 | 32  | 40  | 43 | 45 | 47 | 42(-1;-4)               |
| Configuration 2<br> | 24                                                                 | 20  | 25  | 35 | 38 | 35 | 31(-1;-4)               |

**Table 5.2 Example glazing performance**

The minimum trickle vent performances for the above glazing specifications at both facades are shown in Table 5.3.

| Configuration                                                                                          | Sound Reduction Index , dB,<br>at Octave Band Centre Frequency, Hz |     |     |    |    |    | $D_{n,e,w}$ , dB |
|--------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------|-----|-----|----|----|----|------------------|
|                                                                                                        | 125                                                                | 250 | 500 | 1k | 2k | 4k |                  |
| Configuration 1<br> | 32                                                                 | 31  | 39  | 47 | 44 | 50 | 43               |
| Configuration 2<br> | 29                                                                 | 22  | 32  | 30 | 29 | 23 | 23               |

**Table 5.3 Example trickle vent performance**

The nominated glazing supplier should verify that their proposed window system meets the attenuation figures shown at each centre frequency band as shown in Table 5.2.

All major building elements should be tested in accordance with the BS EN ISO 10140 series of standards.

Independent testing at a UKAS accredited laboratory will be required in order to confirm the performance of the chosen system for an 'actual' configuration.

## 6.0 OPENABLE WINDOWS FOR OVERHEATING RELIEF

Approved Document O (ADO) only applies to Bedrooms during night. The advice within this section would therefore only apply to Bedrooms during night-time hours (23:00-07:00) to ensure that the internal noise level targets of 40dB(A)  $L_{eq,T}$  and 55dB(A)  $L_{max}$  are not exceeded.

Table 6.1 presents the open area of the window as a % of the floor area which would need to be achieved to ensure that sufficient attenuation is provided from outside to inside. The corresponding glazing configuration map is shown in Figure 30033.SP1.

| Configuration                                                                                        | Sound Reduction<br>Required to Achieve<br>ADO Target Internal<br>L <sub>Aeq</sub> Noise Levels | Sound Reduction<br>Required to Achieve<br>ADO Target Internal<br>L <sub>Amax</sub> Noise Levels | Maximum Open Area of<br>the Window as a<br>Percentage of the Floor<br>Area to Achieve ADO<br>Target Internal Noise<br>Levels |
|------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|
| Configuration 1<br> | 19 dB                                                                                          | 21 dB                                                                                           | 0 %                                                                                                                          |
| Configuration 2<br> | 6 dB                                                                                           | 7 dB                                                                                            | 8 %                                                                                                                          |

**Table 6.1 Window open areas**

*Note: Acoustic open area is the measurable, cross-sectional, geometric area of an opening. For a partially open window, this is considered to be the lesser of either the size of the hole in the window frame that is left by the opening light, or the combined cross-sectional area around the opening light through which air must pass to move from outside to inside. The area around a hinged opening light includes the triangular areas on the sides adjacent to the hinge, and the rectangular area on the side opposite the hinge. This should not be used for comparing the air-flow performance of elements because this will also be dependent on factors such as depth (length of air-path), surface roughness and tortuosity.*

The overheating model should inform the design team whether the % open areas above would be sufficient to remove excess heat. In the event they are insufficient, other options to limit solar gains into the building should be investigated (such as those outlined in Section 2.7 of Approved Document O), or other means of removing excess heat should be explored (as outlined in Section 2.10 of the Approved Document).

Where the assessment has resulted in a maximum allowable free area of 0%, it should be noted that this does not mean that natural ventilation for overheating relief is not possible. The ADO assessment methodology assumes a maximum noise reduction through an open window, which could be improved upon by the use of specific window designs or other passive methods of cooling such as louvred wall vents.

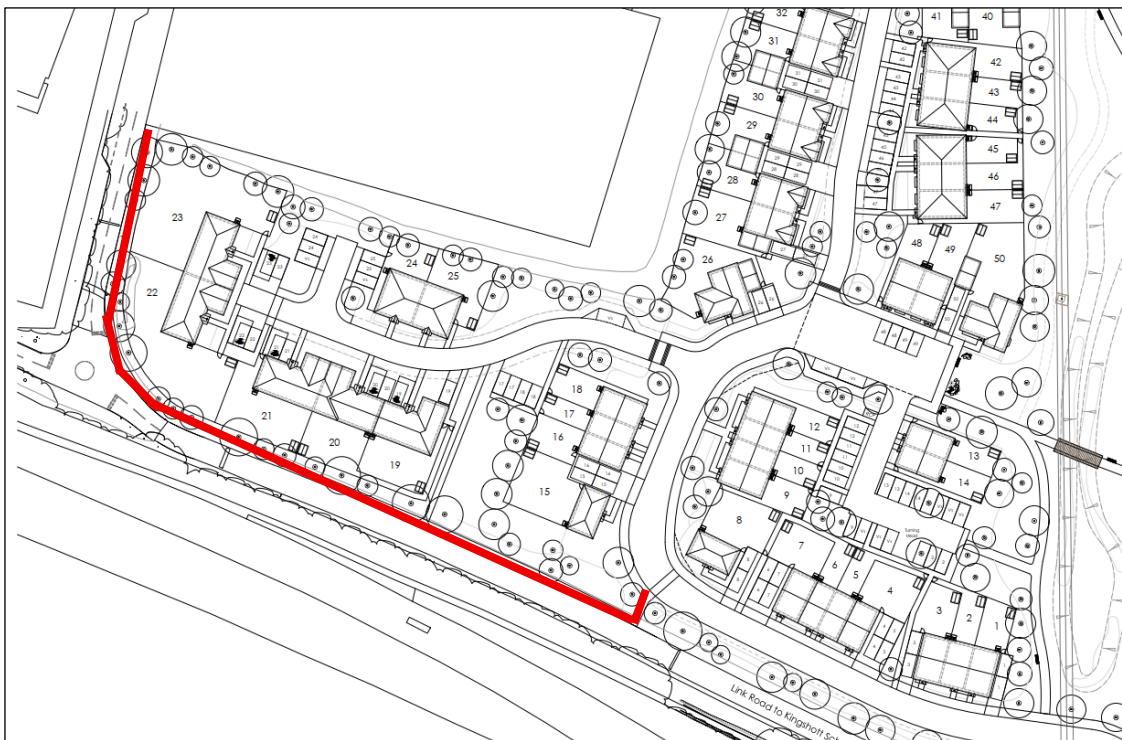
Where mitigation of impacts related to overheating is required, this must be led by an overheating specialist. We would be happy to review the acoustic implications of any proposed mitigation strategies, though this would require a more detailed assessment.

## 7.0 EXTERNAL AMENITY AREA ASSESSMENT

External amenity areas are proposed for all dwellings, most of which would be partially or fully screened due to the surrounding building envelope.

It is expected that noise levels in amenity spaces across the development would range from 41-59 dBA, with levels in the gardens of residential units to the west to reach the upper limit of this range.

To reduce noise levels in these amenity spaces to be within the 55 dBA upper limit target, it is recommended that fencing is installed around the gardens of residential units 15 and 19-23 as shown in Figure 7.1 below.



**Figure 7.1 Proposed Fencing**

The installed fencing should have the following properties:

- The barrier should be imperforate and have a minimum mass per square metre 15kg/m<sup>2</sup>.
- The height of the barrier should be such that the noise path from Stevenage Road would be out of line of sight from the amenity spaces, expected to be 2m above the ground at minimum.
- The barrier should span the length of the dwellings to the South, separating the dwellings from the road.

All other amenity spaces would be screened by other buildings and would therefore be out of direct line of sight of the road, and therefore noise levels would expect to be within the upper 55 dBA target as outlined in BS8233.

## 8.0 BS4142 ASSESSMENT – MOT GARAGE

A noise impact assessment of the M&L Autocare MOT Garage onto the proposed development has been undertaken in accordance with BS4142. It is understood that the opening hours of the garage are as follows:

| Day              | Hours       |
|------------------|-------------|
| Monday to Friday | 08:30-17:30 |
| Saturday         | Closed      |
| Sunday           | Closed      |

A representative background noise level of 50 dB  $L_{A90}$  has been identified from Table 3.1 during Saturday-Sunday. This period is representative of when the MOT garage is not in operation.

Table 8.1 shows a summary of the BS412 assessment with respect to the nearest dwellings of the development, which have been identified as the dwellings to the east and would be located approximately 200m away from the opening of the garage. Detailed calculations can be found in Appendix B.

A sound power level,  $L_w$ , of 90 dB has been used for the sound at the opening of the garage, which is representative of compressor noise from power tools in accordance with BS5228 ‘Code of practice for noise and vibration control on construction and open sites’. It has been assumed that the compressor will be in operation for 25% of the worst-case hour.

| Descriptor                                                   | Noise Level at Nearest Sensitive Receptor | Commentary                                                                                     |
|--------------------------------------------------------------|-------------------------------------------|------------------------------------------------------------------------------------------------|
| MOT Specific Sound Level at receptor, $L_{Aeq}$ , dB         | 42                                        | The nearest sensitive receiver would be expected to be at least 200m away from the MOT garage. |
| BS4142 Acoustic feature corrections – Intermittency, dB      | + 5                                       | The nature of the sound emitted from the MOT garage is expected to be intermittent, and tonal. |
| Rating Level, dB                                             | 47                                        |                                                                                                |
| Representative Background sound level $L_{Aeq, 16hour}$ , dB | 50                                        |                                                                                                |
| Excess of rating over background sound level, dB             | +0                                        |                                                                                                |

| Descriptor          | Noise Level at Nearest Sensitive Receptor | Commentary |
|---------------------|-------------------------------------------|------------|
| Adversity of Impact | Non-adverse                               | See below  |

**Table 8.1. BS4142 Assessment of M&L Autocare MOT Garage**

According to BS4142 guidance: *“Where the rating level does not exceed the background sound level, this is an indication of the specific sound having a low impact, depending on the context.”*

The proposed development is situated next to a busy road, namely Stevenage Road. Traffic noise is therefore likely to mask the noise caused by surrounding operations, and the impact of the MOT garage is therefore likely to be non-adverse.

## 9.0 CONCLUSION

An environmental noise survey has been undertaken at the Land at Stevenage Road, Hitchin, SG4 7JY allowing the assessment of daytime and night-time levels likely to be experienced by the proposed development.

Suitable glazing specifications have been proposed for each façade across the development to achieve the internal noise levels recommended in BS8233.

An assessment of openable windows as a ventilation strategy has been undertaken in accordance with Approved Document O. Calculations show that openable windows would not be an appropriate ventilation strategy for dwellings closest to Stevenage Road, however for dwellings further away it would be deemed suitable.

An assessment of the external amenity areas within the development has been undertaken.

“The building envelope provides attenuation for most amenity spaces, this will be supplemented with imperforate fencing to the properties in the western section of the site as specified in Section 7.0 to mitigate noise levels to meet the upper limit outlined in BS8233”.

The noise impact from the existing nearby MOT garage to the east was found to be non-adverse according to the BS4142 assessment methodology.

LAND AT STEVENAGE ROAD, HITCHIN, SG4 7JY - Position 1  
Environmental Time History  
24/10/2025 to 27/10/2025

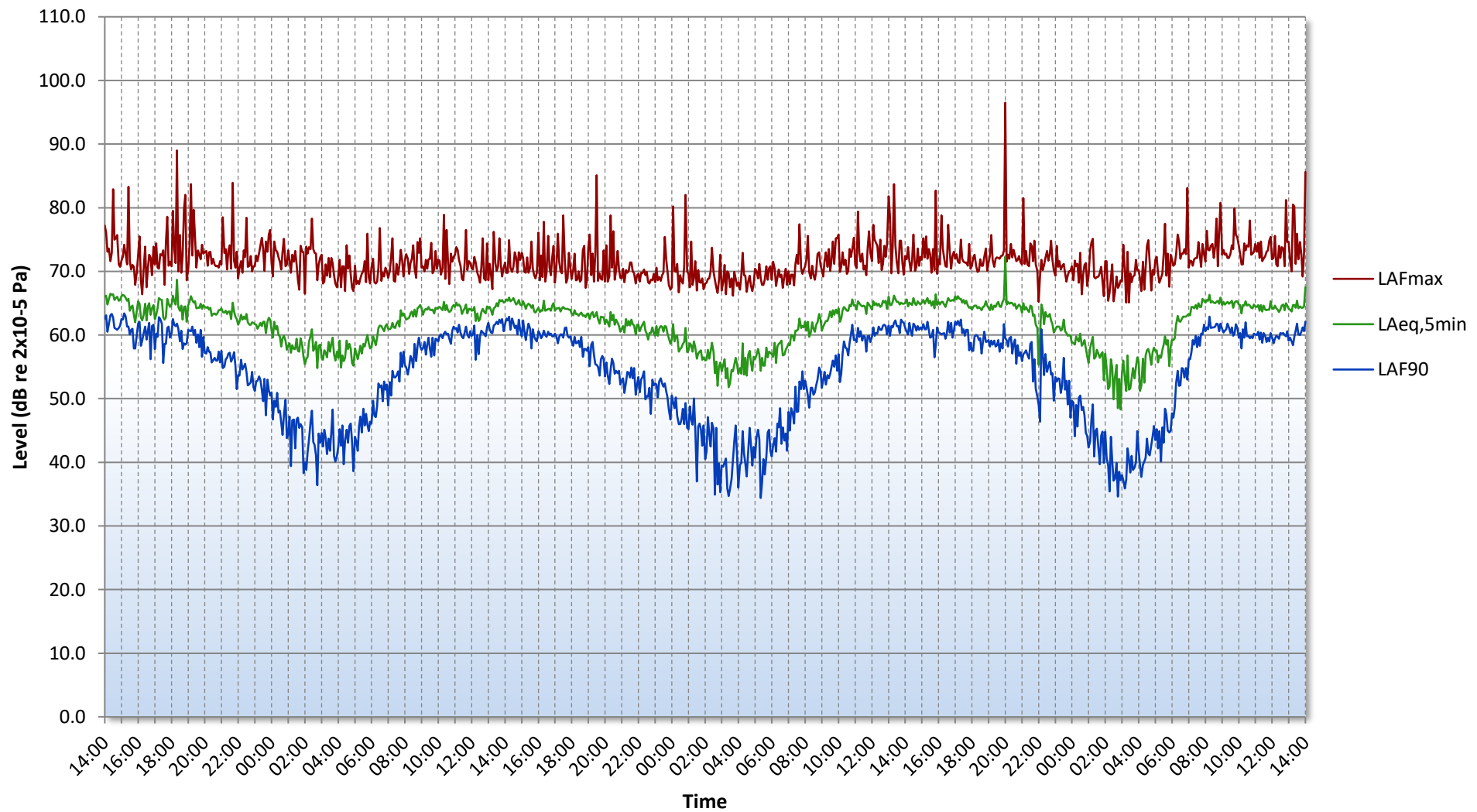


Figure 30033.TH1

LAND AT STEVENAGE ROAD, HITCHIN, SG4 7JY - Position 2  
Environmental Time History  
24/10/2025 to 27/10/2025

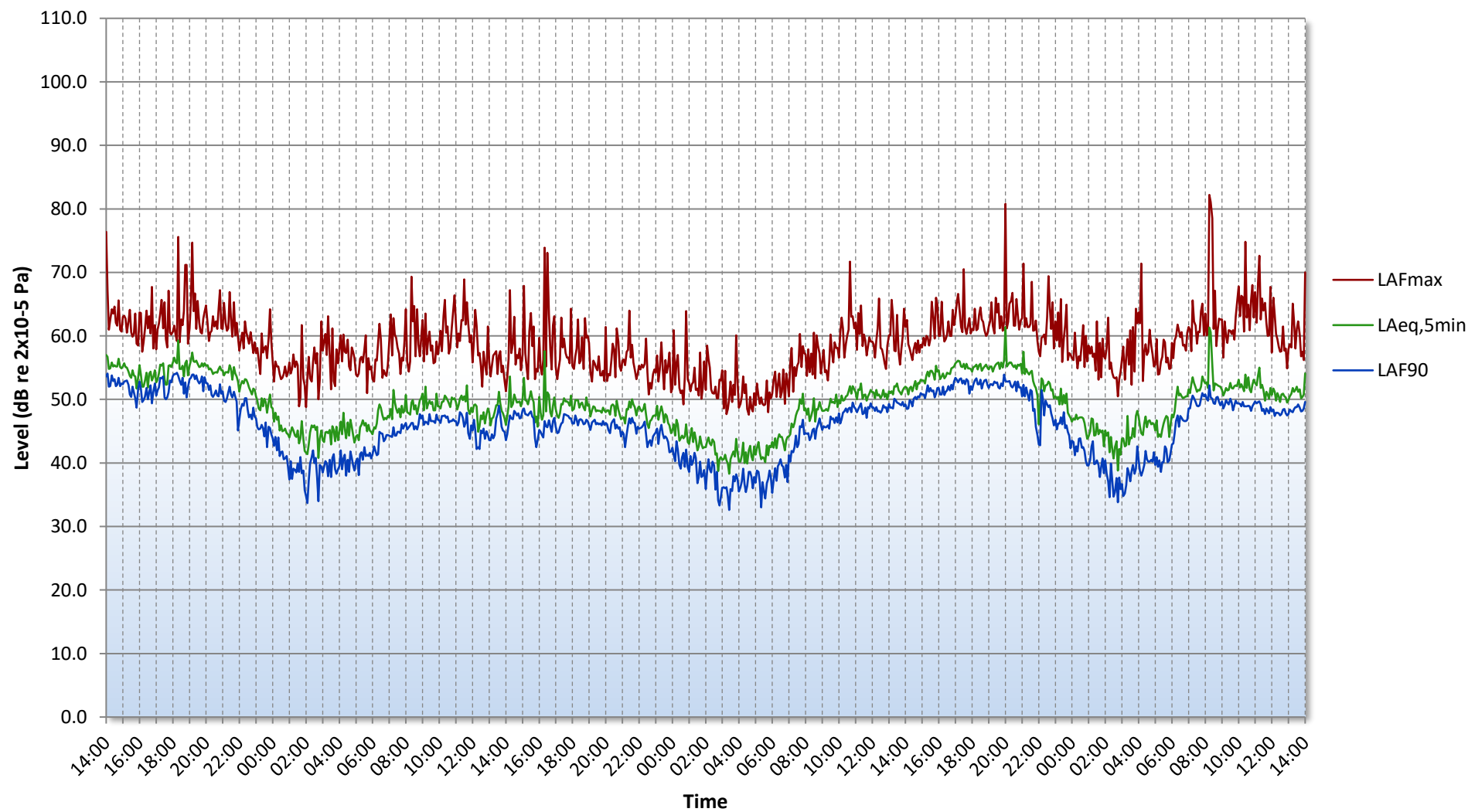


Figure 30033.TH2

LAND AT STEVENAGE ROAD, HITCHIN, SG4 7JY - Position 3  
Environmental Time History  
24/10/2025 to 27/10/2025

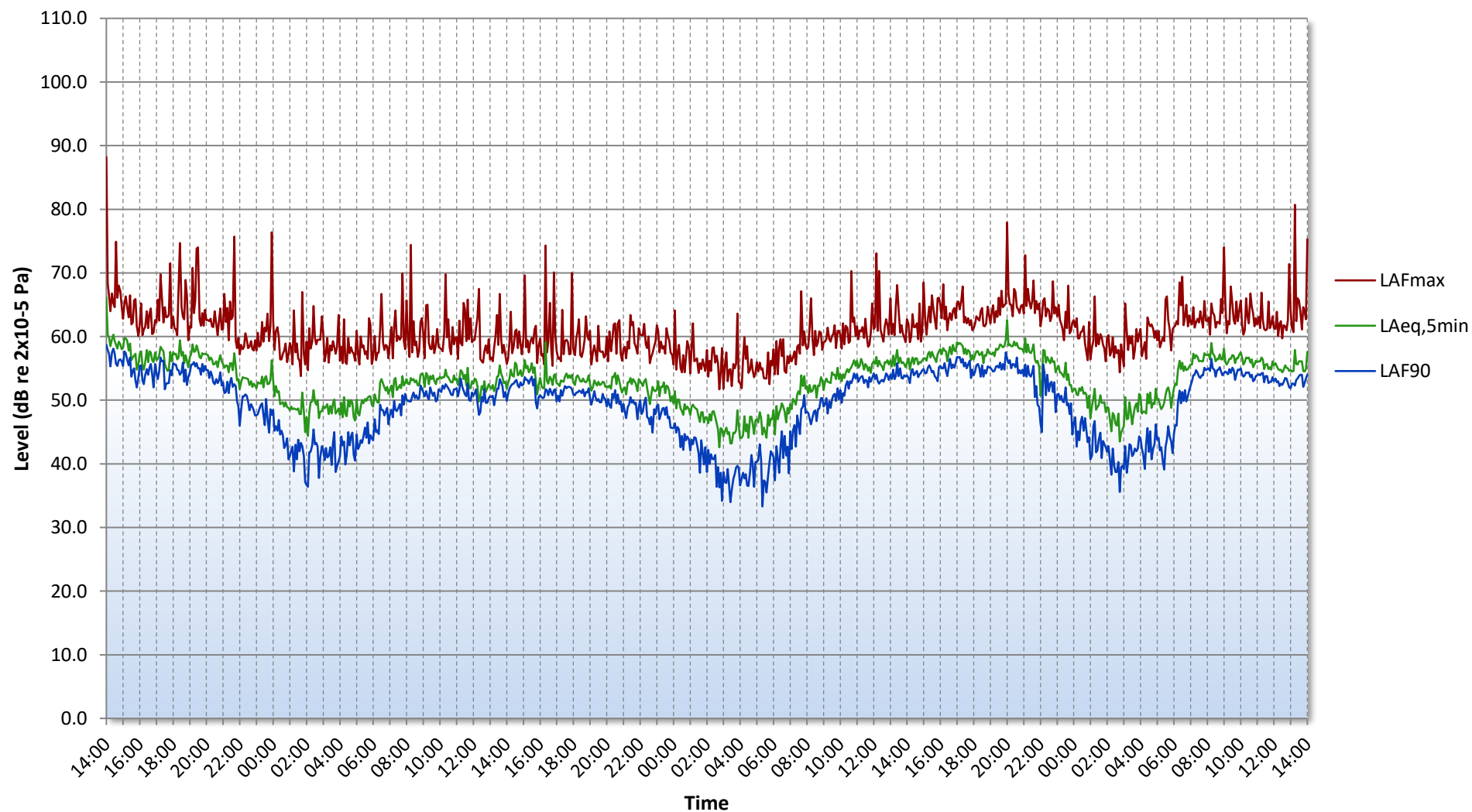


Figure 30033.TH3

LAND AT STEVENAGE ROAD, HITCHIN, SG4 7JY - Position 3  
Representative Daytime Background Noise Level  
25/10/2025 to 26/10/2025

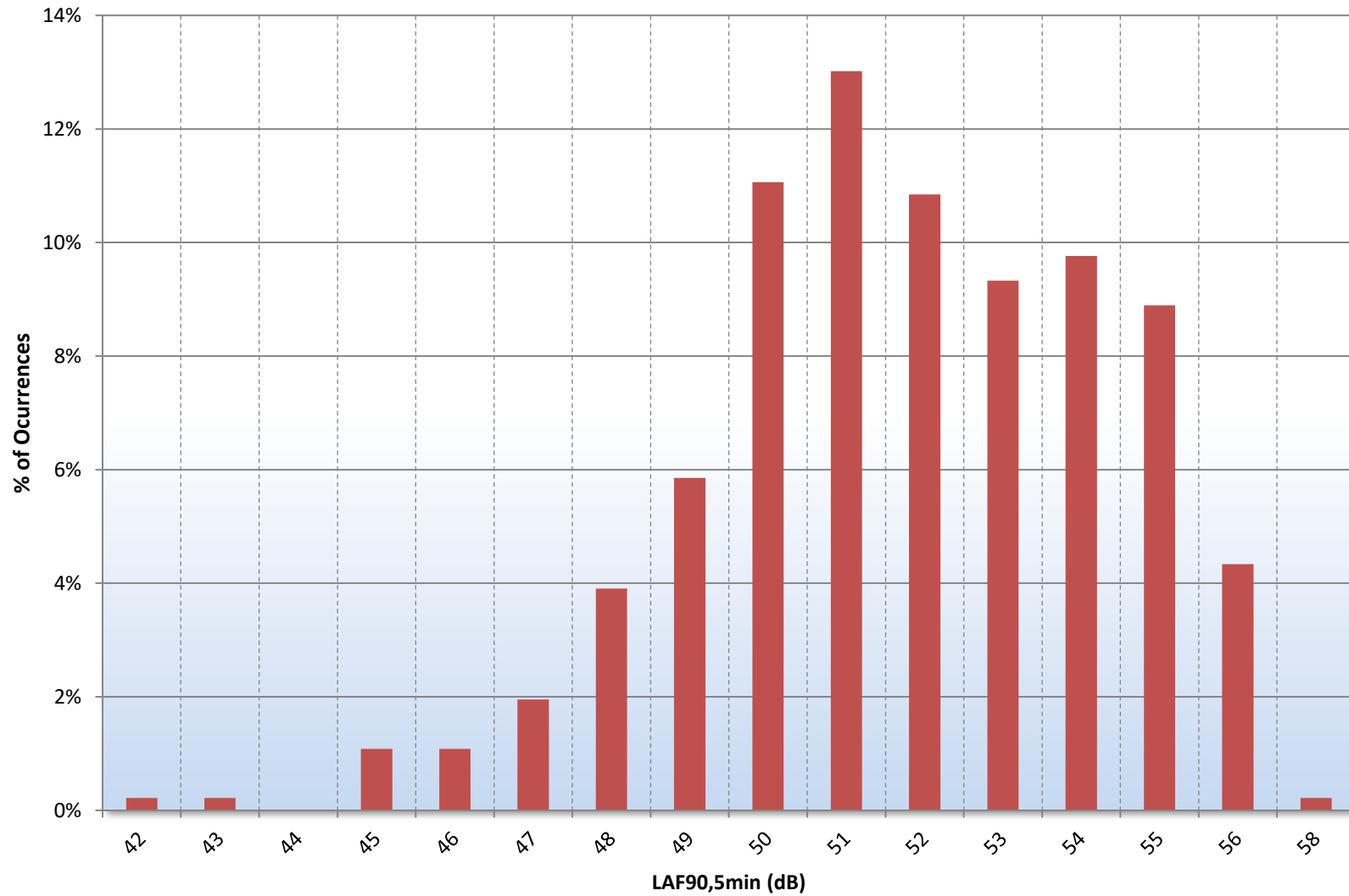
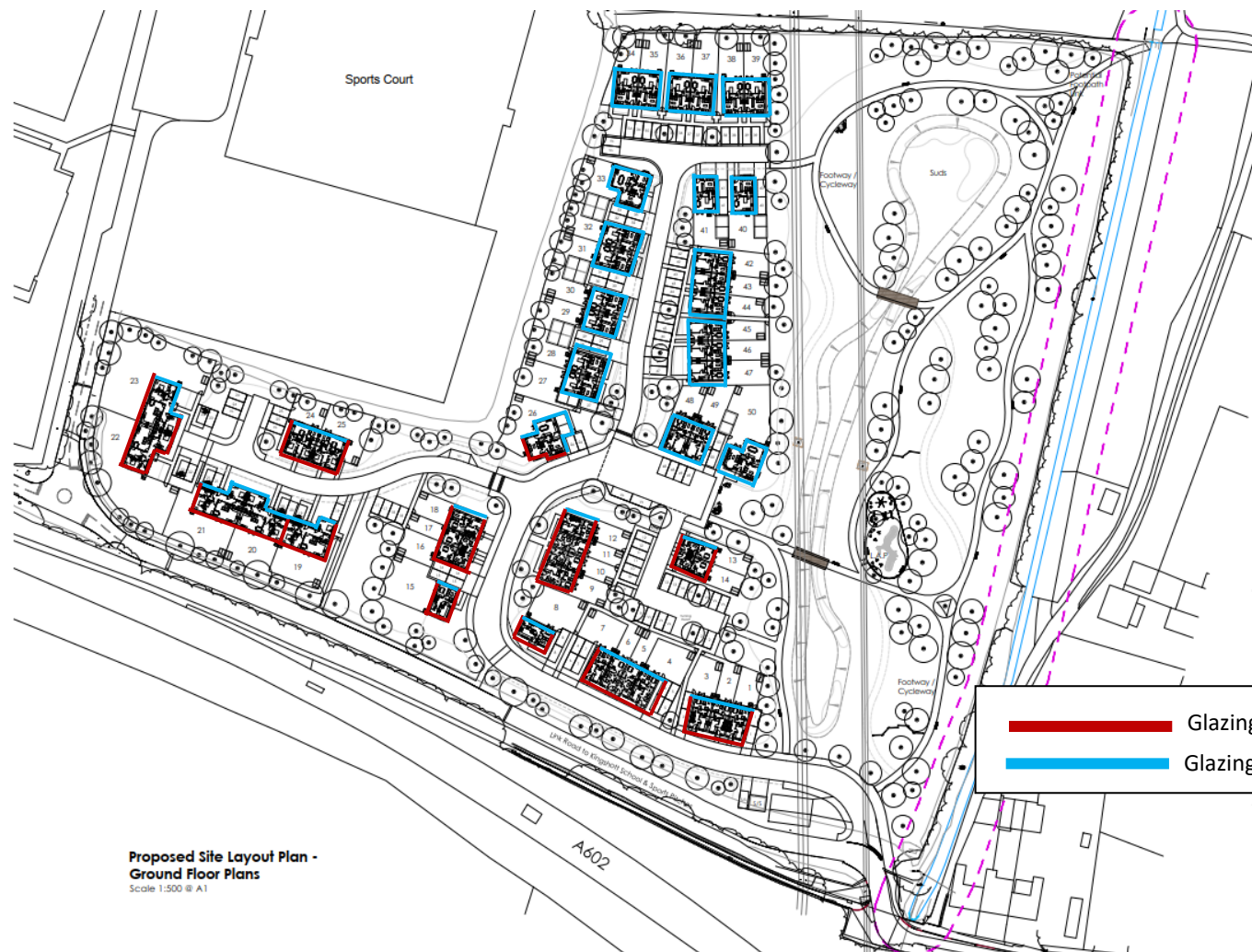


Figure 30033.Daytime L90.TH3



**Title:**

Stevenage Road - Glazing Type Location Plan

**Date:** December 2025

**FIGURE 30033.SP1**



## GENERAL ACOUSTIC TERMINOLOGY

### Decibel scale - dB

In practice, when sound intensity or sound pressure is measured, a logarithmic scale is used in which the unit is the 'decibel', dB. This is derived from the human auditory system, where the dynamic range of human hearing is so large, in the order of  $10^{13}$  units, that only a logarithmic scale is the sensible solution for displaying such a range.

### Decibel scale, 'A' weighted - dB(A)

The human ear is less sensitive at frequency extremes, below 125Hz and above 16Khz. A sound level meter models the ears variable sensitivity to sound at different frequencies. This is achieved by building a filter into the Sound Level Meter with a similar frequency response to that of the ear, an A-weighted filter where the unit is dB(A).

### $L_{eq}$

The sound from noise sources often fluctuates widely during a given period of time. An average value can be measured, the equivalent sound pressure level  $L_{eq}$ . The  $L_{eq}$  is the equivalent sound level which would deliver the same sound energy as the actual fluctuating sound measured in the same time period.

### $L_{10}$

This is the level exceeded for no more than 10% of the time. This parameter is often used as a "not to exceed" criterion for noise.

### $L_{90}$

This is the level exceeded for no more than 90% of the time. This parameter is often used as a descriptor of "background noise" for environmental impact studies.

### $L_{max}$

This is the maximum sound pressure level that has been measured over a period.

### Octave Bands

In order to completely determine the composition of a sound it is necessary to determine the sound level at each frequency individually. Usually, values are stated in octave bands. The audible frequency region is divided into 11 such octave bands whose centre frequencies are defined in accordance with international standards. These centre frequencies are: 16, 31.5, 63, 125, 250, 500, 1000, 2000, 4000, 8000 and 16000 Hertz.

Environmental noise terms are defined in BS7445, *Description and Measurement of Environmental Noise*.

## APPLIED ACOUSTIC TERMINOLOGY

### Addition of noise from several sources

Noise from different sound sources combines to produce a sound level higher than that from any individual source. Two equally intense sound sources operating together produce a sound level which is 3dB higher than a single source and 4 sources produce a 6dB higher sound level.

### Attenuation by distance

Sound which propagates from a point source in free air attenuates by 6dB for each doubling of distance from the noise source. Sound energy from line sources (e.g. stream of cars) drops off by 3dB for each doubling of distance.

### Subjective impression of noise

Hearing perception is highly individualised. Sensitivity to noise also depends on frequency content, time of occurrence, duration of sound and psychological factors such as emotion and expectations. The following table is a guide to explain increases or decreases in sound levels for many scenarios.

| Change in sound level (dB) | Change in perceived loudness |
|----------------------------|------------------------------|
| 1                          | Imperceptible                |
| 3                          | Just barely perceptible      |
| 6                          | Clearly noticeable           |
| 10                         | About twice as loud          |

### Transmission path(s)

The transmission path is the path the sound takes from the source to the receiver. Where multiple paths exist in parallel, the reduction in each path should be calculated and summed at the receiving point. Outdoor barriers can block transmission paths, for example traffic noise. The effectiveness of barriers is dependent on factors such as its distance from the noise source and the receiver, its height and construction.

### Ground-borne vibration

In addition to airborne noise levels caused by transportation, construction, and industrial sources there is also the generation of ground-borne vibration to consider. This can lead to structure-borne noise, perceptible vibration, or in rare cases, building damage.

### Sound insulation - Absorption within porous materials

Upon encountering a porous material, sound energy is absorbed. Porous materials which are intended to absorb sound are known as absorbents, and usually absorb 50 to 90% of the energy and are frequency dependent. Some are designed to absorb low frequencies, some for high frequencies and more exotic designs being able to absorb very wide ranges of frequencies. The energy is converted into both mechanical movement and heat within the material; both the stiffness and mass of panels affect the sound insulation performance.

# APPENDIX B.1 Land at Stevenage Road, Hitchin, SG4 7JY

## BS4142 ASSESSMENT

| Source: Kwik Fit MOT Garage<br>Receiver: West Façade of Proposed Development                   | dB(A) |
|------------------------------------------------------------------------------------------------|-------|
| Estimated Sound Power Levels, Lw                                                               | 90    |
| Conversion to Lp @ 1m                                                                          | 79    |
| Time Correction (Operational for 25% of the worst-case hour)                                   | 73    |
| Approximate area (S) of the façade overlooking receiver location (30m²)                        | 30    |
| Correction for area (S), dB                                                                    | 15    |
| Correction for reflections, dB                                                                 | 9     |
| Correction for distance, dB                                                                    | -46   |
| Correction due to no reverberant field externally + propagation effect of the wall surface, dB | -14   |
| BS4142 Acoustic Feature Correction - Intermittency and Tonality                                | 5     |
| Rating Level at 1m from Receiving Façade, dB                                                   | 42    |