

HINCHLEY ROAD, CHARLESTOWN - PROPOSED RESIDENTIAL DEVELOPMENT
NOISE IMPACT ASSESSMENT

On behalf of:
Miller Homes Ltd

HINCHLEY ROAD, CHARLESTOWN - PROPOSED RESIDENTIAL DEVELOPMENT

NOISE IMPACT ASSESSMENT

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Version	Date	Prepared by	Checked by	Notes
1	28/02/2025	George Zelenovic BSc MSc MIOA Consultant	Donald Quinn BSc FIOA Managing Director	First issue.
2	10/03/2025	George Zelenovic BSc MSc MIOA Consultant	Donald Quinn BSc FIOA Managing Director	Updated site layout
3	28/07/2025	George Zelenovic BSc MSc MIOA Consultant	Donald Quinn BSc FIOA Managing Director	Updated site layout
4	30/09/2025	David Thurstan BSc MIOA Principal Consultant	Donald Quinn BSc FIOA Managing Director	Incorporating further noise surveys and assessment, following feedback from MCC

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1.0 INTRODUCTION

- 1.1 Hepworth Acoustics Ltd was commissioned by Miller Homes Ltd to carry out a noise impact assessment in connection with a proposed planning application for residential development on land at Hinchley Road, Charlestown.
- 1.2 The location of the proposed residential development, which is currently vacant land, is shown in Figure 1. The site is bounded by Caspian Road, which is a lightly trafficked residential street, to the north-east; a sports pitch associated with Co-op Academy North Manchester to the north-west; and Hinchley Road, which is also a lightly trafficked residential street, to the south and east. There are existing residential dwellings bordering the site, or on the opposite side of the roads bordering the site to the north-east, east and south. The M60 motorway is located over 300m away beyond the existing dwellings to the north-east.
- 1.3 The assessment has been based on the layout shown on drawings provided by Miller Homes Ltd dated February 2025. The proposed layout of the development is shown in Figure 2.
- 1.4 This is an updated assessment, incorporating the findings of additional noise surveys at the site following feedback from Manchester City Council as described in Section 2.
- 1.5 The updated noise assessment has included:
- An inspection of the site and surrounding area;
 - Measurement of noise levels during representative periods on Sunday morning, weekday daytime, evening and at night;
 - Assessment of likely impact from existing sports pitch and the local road network;
 - Recommendation of appropriate mitigation measures.
- 1.6 The various noise units and indices referred to in this report are described in Appendix I. All noise levels mentioned in the text have been rounded to the nearest decibel, as fractions of decibels are imperceptible.

2.0 RESPONSE TO MANCHESTER CITY COUNCIL COMMENTS

- 2.1 Following issue of our previous report (reference P25-018-R01v3 dated July 2025), Manchester City Council (MCC) provided the comments set out below, which we have addressed in turn.

“1.The assessment was unable to capture actual noise levels from the sports pitches in use at the boundary of the proposed residential properties and as based the assessment on catalogue data and Sports England guidance which will not be sufficient. They will need assessment of noise levels at the boundary of the proposed residential properties during activities and matches / games taking place on the sports pitches. This will need to include a description of the activities taking place, time of day and actual distance from the proposed boundary. The assessment shall consider noise from ball impact / strikes, impact against the boundary and noise from participants. Worst case scenario should be considered with all pitches in use (if more than one) and adult participants. Whilst the pitches are not in use during the night time, they are likely to be in use during the evening between 19:00 and 22:00 during which time occupiers of residential are likely to be most exposed to noise so we will need assessment during Sunday mornings and evening time. The consultant will need to liaise with the sports pitch management to ensure visits and measurements can be obtained during such use.”

- 2.2 The previous assessment considered the typical operation of sports pitch facilities which would usually include use on Sunday mornings, and therefore as a robust worst case a survey was undertaken on a Sunday morning.
- 2.3 In the absence of measured noise levels from actual use of the in-situ sports pitches the assessment relied on Sports England guidance and previous noise levels measured at similar site. Whilst MCC commented that this was not sufficient, this approach of using source noise levels measured for similar activities from other similar sites is a common method of assessment and has been undertaken numerous times by Hepworth Acoustics in connection with similar planning applications, including residential development, and accepted by many other Local Authorities.
- 2.4 Nevertheless, as requested by the MCC, we contacted the Co-Op Academy North Manchester (who is the operator of the sports pitch) in order to facilitate noise measurements with the pitch in use during school hours and also evenings when third parties hire the pitch for training sessions. Based upon discussions with the Academy, it is understood that use of the pitch on a Sunday has ceased, although

it remains in use on weekday evenings (until 20:30 hours) and Saturdays (until 17:00 hours) booked by third parties.

"2. It is clear that mitigation will be required and a 2,2m high timber acoustic fence has been recommended for houses bordering the pitches. The assessment has been based on the pitch being 20m away from the boundary although earlier commentary suggested that the sports pitches are 10m away from the proposed boundary so the noise source will be closer and will need to form the basis of the recommendation although actual assessment of noise levels will be required as discussed in point 1 to confirm the size, height, material and performance of the barrier. This will need updating once additional measurements have been undertaken and actual noise levels have been established as per point 1. Once agreed, we will need a maintenance plan for the acoustic fence with details confirming how the end user will be made aware of the fence specification and details should they need to replace the panels in future."

2.5 There appears to be some confusion over the position of the source of noise in the context of the boundaries of the pitches and the development. The source noise levels used in the assessment were measured 10m from the edge of the pitch at another site. The boundary of the pitch (i.e. beyond the sideline) at Co-op Academy North Manchester is 6 metres from the boundary of the development site. The noise levels from use of the sports pitch are due to voices and impact originating over the whole area of the pitch. As a reasonable worst-case, as described in In para 4.2 of the our previous report, the noise propagation calculations were based upon the effective acoustic centre of the sports pitch being located 20 metres from the boundary and acoustic fencing and hence significantly closer than the actual centre of the pitch.

2.6 The previous report did set out the size, height, material and performance requirements for the acoustic barrier and this report intends to update the specification of the barrier where appropriate following further noise surveys of pitch activity.

"3. Only a brief Sunday morning measurement was undertaken which confirms noise was dominated by distant traffic from the M60 and noise levels upto 53dB recorded. We will need additional traffic noise assessment conducting around the site to confirm noise level at the façade of the proposed dwellings from traffic from surrounding roads, streets and noise from the M60 motorway. They will need noise measurements to include rush hour and the consultant refer to our guidance document. Based on the brief measurements undertaken so far, the internal noise criteria will not be met with windows open so a scheme of glazing and ventilation will need to be recommended once the

baseline noise study around the site has been completed. Where the internal noise criteria cannot be achieved with windows open, the alternative scheme of ventilation will need to be recommended to ensure occupant only need to open windows for purge ventilation rather than comfort ventilation. Any mechanical ventilation will need to be assessed and insulation recommendations providing where required to ensure that when in use, the equipment will not exceed the internal noise criteria."

- 2.7 As mentioned above the purpose of the Sunday survey was originally intended to determine potential noise impact from what was considered to be the main source of noise on the development, the sports pitch. The site is located within a residential suburban area at least 300 metres from the M60 motorway with local roads being residential streets providing access to the surrounding dwellings. Residential streets typically are low traffic roads when compared to A-roads or motorways and therefore typically do not generate significant levels of noise. For this reason the approach of the original noise assessment was to focus on the potentially most significant noise from the sports pitch.
- 2.8 Nevertheless, as requested by the MCC further noise surveys have been undertaken during suitable daytime and night-time periods including a rush hour period, the results of which are detailed in this report.
- 2.9 *"4. They will also need assessment during times the neighbouring school / college is, occupied to capture noise from activities at school / college pitches associate with their use and any plant that may be in use."*
- 2.10 As part of the further noise survey work described below, other potential source of noise have been investigated.

3.0 ACOUSTIC CRITERIA

NPPF:2024

- 3.1 Paragraph 198 of the National Planning Policy Framework (NPPF), December 2024 states that planning policies and decisions should *“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: a) mitigate and reduce to a minimum potential adverse impacts resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life;”*

NPSE:2010

- 3.2 The Noise Policy Statement for England (NPSE) 2010, which is referred to the in NPPF, includes three aims:
- i. Avoid significant adverse impacts on health and quality of life from environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development.
 - ii. Mitigate and minimise adverse impacts on health and quality of life from environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development.
 - iii. Where possible, contribute to the improvement of health and quality of life through the effective management and control of environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development.

- 3.3 No specific guidance is given in the NPPF on acoustic design criteria, therefore, the guidance discussed below has been used for acoustic design purposes.

Local Policy

- 3.4 Manchester’s Local Development Framework, Core Strategy, Development Plan was adopted in July 2012, where Policy DM1 Development Management, states that *“all development should have regard to the following specific issues...adequacy of internal accommodation and external amenity space”*. Under saved Unitary Development Plan (UDP) policies it is stated that *“new noise-sensitive*

developments...such as housing, will be permitted subject to their not being in locations which would expose them to high noise levels from existing uses or operations, unless the effects of the noise can realistically be reduced."

Manchester City Council Planning & Noise Technical Guidance 2022

3.5 This document provides guidance for assessing the potential impact on residential developments and recommends the following noise limits or acoustic design criteria:

- Bedrooms (night time - 23.00 - 07.00) 30 dB $L_{Aeq,T}$ (individual noise events should not normally exceed 45 dB $L_{Amax,F}$ by more than 10 times)
- Living Rooms (daytime - 07.00 - 23.00) 35 dB $L_{Aeq,T}$
- Gardens and terraces (daytime) 55 dB $L_{Aeq,T}$

3.6 These noise levels correspond to guidance set out in British Standard 8233: 2014, 'Guidance on sound insulation and noise reduction for buildings' and 'ProPG: Planning & Noise – New Residential Development' (2017).

BS 8233:2014

3.7 No specific guidance is given in the NPPF on acoustic design criteria, therefore, the guidance discussed below has been used for acoustic design purposes.

3.8 Guidance on acceptable noise levels in habitable rooms and private gardens is set out in British Standard 8233: 2014, 'Guidance on sound insulation and noise reduction for buildings'. BS 8233 recommends that it is desirable that noise from external sources does not exceed the guidelines values that are shown in Table 1 inside habitable rooms for daytime (07:00 – 23:00 hours) and night-time (23:00 – 07:00 hours) periods.

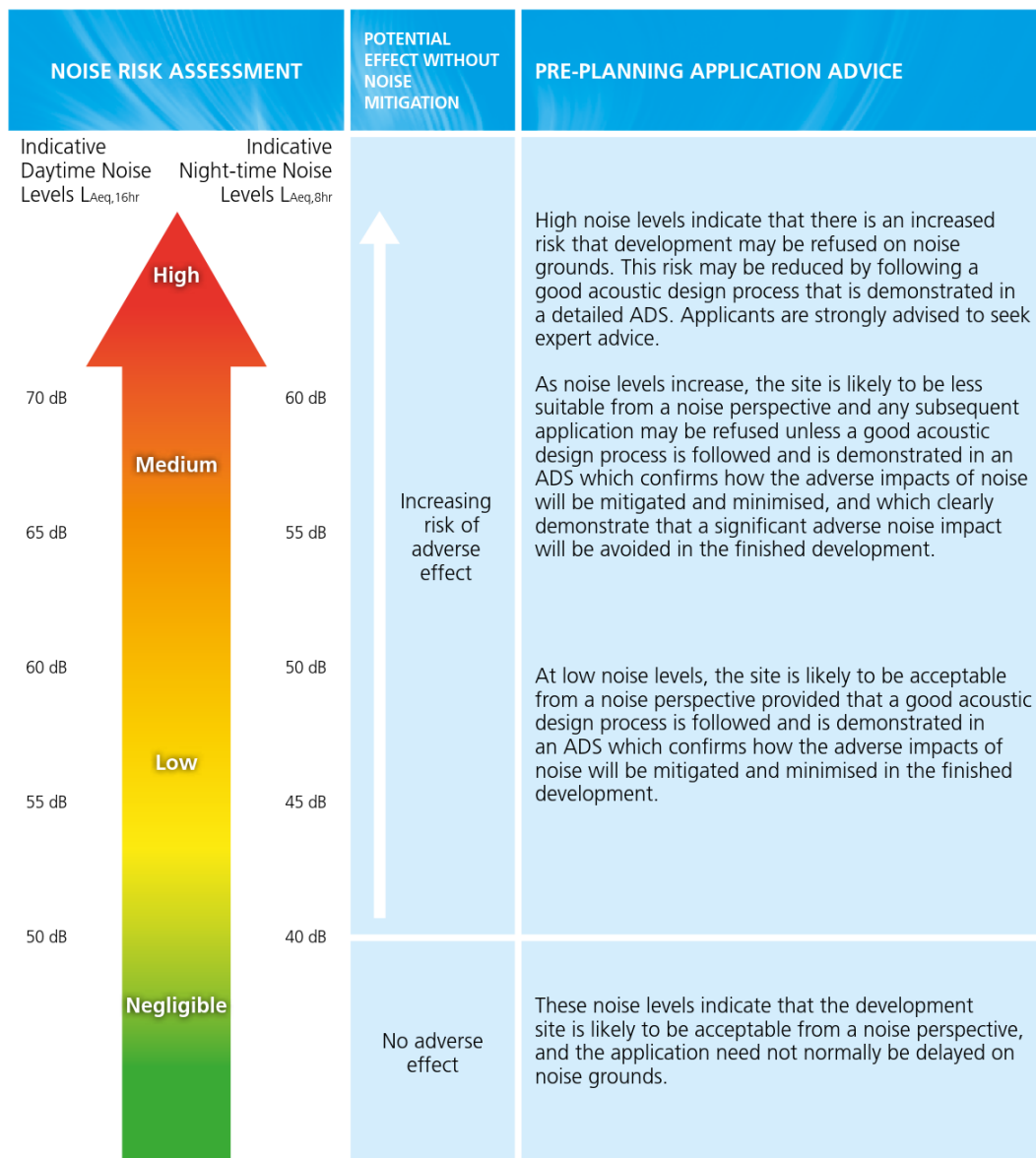
Table 1: BS 8233:2014 recommended acoustic design criteria (dB $L_{Aeq,T}$)

Activity	Location	Daytime 07:00 – 23:00 hours	Night-time 23:00 – 07:00 hours
Resting	Living room	35	-
Dining	Dining room/area	40	-
Sleeping (daytime resting)	Bedroom	35	30

- 3.9 BS 8233 also recognises that regular individual noise events at night can cause sleep disturbance. Peaks of noise from individual events are usually described in terms of L_{AFmax} values and these can be highly variable and unpredictable.
- 3.10 For private outdoor amenity spaces of the new houses (e.g. rear gardens) BS8233 states that *“it is desirable that the external noise level does not exceed 50 dB $L_{Aeq,16hr}$ with an upper guideline value of 55 dB $L_{Aeq,16hr}$ which would be acceptable in noisier environments”*. In Hepworth Acoustics experience, most local planning authorities have traditionally adopted, or accepted, the 55 dB(A) guideline value for rear gardens of proposed new residential developments near busy roads. The standard recognises that these guideline values are not achievable in all circumstances where development might be desirable and in such cases higher noise levels in gardens may be acceptable.

ProPG

- 3.11 There is also guidance in ‘ProPG: Planning & Noise – New Residential Development’ (2017), although this guidance does not constitute official government guidance and has no legal standing. The ProPG describes a staged approach to the assessment of noise impact on proposed new residential development sites. Stage 1 is an initial site noise risk assessment, indicating whether the proposed site is considered to pose a negligible, low, medium or high risk from a noise perspective.
- 3.12 The ProPG initial site noise risk assessment criteria are shown in Chart 1.

Chart 1: ProPG Stage 1: Initial Site Noise Risk Assessment Criteria**Figure 1 Notes:**

- Indicative noise levels should be assessed without inclusion of the acoustic effect of any scheme specific noise mitigation measures.
- Indicative noise levels are the combined free-field noise level from all sources of transport noise and may also include industrial/commercial noise where this is present but is "not dominant".
- $L_{Aeq,16hr}$ is for daytime 0700 – 2300, $L_{Aeq,8hr}$ is for night-time 2300 – 0700.
- An indication that there may be more than 10 noise events at night (2300 – 0700) with $L_{Amax,F} > 60$ dB means the site should not be regarded as negligible risk.

3.13 Chart 1 sets out indicative noise levels that define the element of risk of noise impact on proposed residential development land, ranging from 'Negligible' to 'High'.

3.14 The guidance states that these noise levels "should be interpreted flexibly having regard to the locality, the project and the wider context".

- 3.15 The ProPG criteria apply to residential development land that is exposed to transportation noise or mixed transportation noise and industrial/commercial noise where the latter is not the dominant noise source.
- 3.16 Stage 2 of the ProPG approach is a more detailed assessment in the form of an Acoustic Design Statement (ADS). However, the acoustic design criteria that are specified in ProPG, and which forms the basis of the ADS, are essentially the same as those recommended in BS8233, as summarised previously in Table 1 of this report.
- 3.17 Similarly to BS 8233, ProPG recognises that regular individual noise events at night can cause sleep disturbance. The ProPG guidance suggests that for design purposes, wherever practicable, peaks of noise inside bedrooms from external sources should not exceed 45 dB L_{AFmax} more than 10 times per night’.

Sport England ‘Artificial Grass Pitch (AGP) Acoustics – Planning Implications’

- 3.18 The Sport England Design Guidance Note provides guidance on the acoustics related planning implications of AGPs. The Guidance Note refers to both NPPF and NPSE documents but also draws attention to the fact that there is “*no specific noise criteria for an AGP*” or sports pitch. The guidance refers to World Health Organisation (WHO) 1999 ‘Guidelines for Community Noise’ and from this derives an appropriate daytime noise level outside a dwelling of 50 dB $L_{Aeq,1hr}$. Similarly, 50 dB is also recommended to avoid moderate annoyance in outdoor living spaces/external amenity areas. The assessment period has been reduced from 16 hours to 1 hour reflecting a “*typical time period for a community sports session*” and a robust assessment. These noise levels are also in line with the criteria of set out in BS8233.

Approved Document O of the Building Regulations (2021 Edition)

- 3.19 Requirement O1(2)(a) of ADO is reproduced below:

“O1 Overheating mitigation

(1) Reasonable provision must be made in respect of a dwelling, institution or any other building containing one or more rooms for residential purposes, other than a room in a hotel (“residences”) to –

- a. Limit unwanted solar gains in summer;*
- b. Provide an adequate means to remove heat from the indoor environment.*

(2) In meeting the obligations in paragraph (1) –

- a. Account must be taken of the safety of any occupant, and their reasonable enjoyment of the residence; and
- b. Mechanical cooling may only be used where insufficient heat is capable of being removed from the indoor environment without it."

"In the Secretary of State's view, requirement O1(2)(a) is met in a new residential building if the building's overheating mitigation strategy for use by occupants takes account of all of the following.

- a. Noise at night – paragraphs 3.2 to 3.4.
- b. Pollution – paragraph 3.5.
- c. Security – paragraphs 3.6 and 3.7.
- d. Protection from falling – paragraphs 3.8 to 3.10.
- e. Protection from entrapment – paragraph 3.11."

"3.1 The standards in this section may mean that the standards of the simplified method cannot be met. For example, if external noise is an issue, it is unlikely that windows would be opened by an occupant and therefore the minimum free areas of the simplified method cannot be met. In such cases, dynamic thermal modelling should be used.

3.2 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).

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

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

3.4 Where in-situ noise measurements are used as evidence that these limits are not exceeded, measurements should be taken in accordance with the Association of Noise Consultants' Measurement of Sound Levels in Buildings with the overheating mitigation strategy in use."

- 3.20 Hepworth Acoustics interpretation, to satisfy Requirement O1(2)(a) of ADO, noise ingress under overheating mitigation conditions needs to be *considered* at the Building Control application stage, taking into account the effects of the overheating mitigation strategy on noise ingress and the indoor limits in Table 2 need to be achieved.

Table 2: Requirement O1(2)(a) Indoor Noise Limits

Description	Limits
Average night-time noise level (23:00-07:00)	40 dB $L_{Aeq,8hr}$
Maximum noise levels exceeded no more than 10 times a night (23:00-07:00)	55 dB L_{AFmax}

- 3.21 The O1(2)(a) noise limits only apply in bedrooms (i.e. only rooms specifically intended for use as a bedroom in the design) during the night-time (23:00 – 07:00 hours) whilst the overheating mitigation strategy is in use (e.g. windows open to provide passive ventilative cooling).

Acoustic Design Criteria

- 3.22 For this development it is therefore recommended that the following noise criteria be adopted:
- Daytime noise 35 dB $L_{Aeq,16hr}$ inside living rooms & bedrooms, 40 dB $L_{Aeq,16hr}$ inside dining rooms;
 - Daytime noise 55 dB $L_{Aeq,16hr}$ in gardens;
 - Daytime noise 50 dB $L_{Aeq,1hr}$ in gardens; and
 - Night-time noise levels not exceeding 30 dB $L_{Aeq,8hr}$ & generally not exceeding 45 dB L_{AFmax} in bedrooms (i.e. no more than 10 times per night).
- 3.23 Noise mitigation recommendations are described in Section 5.0.

4.0 NOISE SURVEY

4.1 Noise measurements were carried out at three locations on the development land that are representative of the proposed dwellings at relevant points around the boundary of the site which will be closest to noise sources. The measurement locations are indicated in Figure 1 and are described below:

- Location 1: 10 metres from the edge of the sports pitch;
- Location 2: 5 metres from Hinchley Road;
- Location 3: Northern boundary.

4.2 Because the site is open land and hence not suitably secure to allow the installation of autmoated noise-logging equipment, attended noise surveys have been carried out. These were carried out during the daytime on Thursday 18 September, night-time/early morning on Friday 19 September 2025, with an evening noise survey undertaken during use of the sports pitch on Thursday 25 September 2025. Previously, ambient noise levels were also measured on Sunday morning 16 February 2025.

4.3 Further to the above measurements, a brief inspection the Co-Op Academy North Manchester southern campus, which includes a gym located to the south of the sports pitch, was carried out. The inspection found that there is no significant external plant associated with the gym and no noise break out from the building. Therefore, the focus of potential noise from the campus is from use of the sports pitch.

4.4 The purpose of the surveys was to determine the potential noise impact from the use of the sports pitch to the north west and also consider any potential noise impact of distant road traffic from the M60 motorway as well as the local road network (i.e. Hinchley Road, Ainsbrook Avenue etc).

4.5 The noise measurements were taken in free-field conditions at a microphone height of approximately 1.4m above the ground. Calibration checks were carried out both before and after the measurement periods with no variance in levels noted. Frequency analysis was also carried out.

4.6 The weather conditions during the noise survey were suitable for the purposes of the survey and subsequent assessment.

4.7 The results of the noise survey are summarised in Table 3, and the full results along with details of the equipment used, and the weather conditions during the survey periods, are shown in Appendix II.

Table 3: Summary of Noise Levels Measured (dB)

Location	$L_{Aeq,5 \text{ min}}$	$L_{A90,5 \text{ min}}$
1. 10m from sports pitch	49 – 66	46 – 54
2. 5m from Hinchley Road	36 – 59	36 – 49
3. Northern boundary	46 – 49	43 – 45

4.8 Noise measurements at Location 1 when the sports pitch was not in use were influenced by distant road traffic but also environmental noise sources such as leaf rustle from trees on the development land as well as birdsong which cannot be excluded from measurements.

4.9 When the sports pitch was in use, noise levels were dominated by activities on the pitch. During school hours the pitch is used for PE classes where the pitch is split into three smaller pitches with goal posts positioned along the longest sides. During lunch break (13:20 – 14:00 hours) the pitch is freely used by the students, with the most activity observed to occur in the area of the pitch closest to the measurement position. During the Thursday evening survey a third party training session was taking place. Noise associated with the use of the pitch was as expected, and included ball impacts (including mesh fence) and voices of the participants. The measured octave band noise levels are shown in Table 4 below.

Table 4: Measured sports pitch noise at 10 metres from the edge of the pitch (dB)

Description	Octave Band Centre Frequency (Hz)							A
	63	125	250	500	1k	2k	4k	
Pitch noise level during school lunch break, $L_{eq,1hr}$	55	51	45	48	57	55	45	60
Pitch noise level during evening training session, $L_{eq,1hr}$	55	50	49	50	53	46	36	55

Road Traffic Noise

4.10 At Location 2 noise levels were predominantly influenced by occasional vehicle pass-bys on Hinchley Road and distant road traffic from the M60 motorway. Other sources of noise included birdsong and occasional aircraft. Noise levels at Location 3 were from distant road traffic and birdsong.

4.11 As set out in the Manchester City Council Planning & Noise Technical Guidance document “*a noise survey for a residential development lying near a busy road should consider the noise levels around the development site during rush hour, during the day, and during the night*”. For the purposes of this assessment the early rush hour period is considered to be 06:30-07:30 hours, when local residents in the area are likely to be setting off to travel to work.

- 4.12 Daytime noise levels at Location 2 have been evaluated in accordance with the 'shortened measurement method' described in the Department of Transport document '*Calculation of Road Traffic Noise*' (CRTN), 1988. The memorandum was prepared to enable entitlement under the *Noise Insulation Regulations* 1975 to be determined, but as is stated in the document, the guidance is equally appropriate to the calculation of traffic noise for land use planning purposes.
- 4.13 The CRTN shortened measurement method involves taking noise measurements ($L_{A10,T}$) over representative sample time periods within any three consecutive hours between 10:00 and 17:00. By using the $L_{A10,3hr}$, as the arithmetic mean of the measured $L_{A10,T}$ values, the $L_{A10,18hr}$ value can then be calculated. The correction to obtain the $L_{A10,18hr}$ value from the $L_{A10,3hr}$ level is -1 dB.
- 4.14 The $L_{A10,18hr}$ values have then been converted into the equivalent $L_{Aeq,16hr}$ values by applying a correction of -2 dB in accordance with para. 6.2.2 of British Standard 8233.
- 4.15 The measured night-time $L_{Aeq,T}$ values have been averaged logarithmically to obtain a $L_{Aeq,2hr}$ value which has been taken as a conservative estimate of the night-time $L_{Aeq,8hr}$ value. Therefore, the '16 hour' daytime '8 hour' night-time and '1 hour' early rush hour road traffic noise exposure levels are shown in Table 5.

Table 5: Summary of road traffic noise exposure values (dB)

Location	Daytime	Rush hour (06:30-07:30)	Night-time	
	$L_{Aeq,16hr}$	$L_{Aeq,1hr}$	10 th highest $L_{Amax,F}$	$L_{Aeq,8hr}$
2. 5m from Hinchley Road	52	50	59	44

- 4.16 Noise levels measured at Location 2 were due to road traffic on Hinchley Road. As can be seen from Table 3, road traffic noise levels at Location 3 were significantly lower than at Location 2. From review and comparison of the measured noise levels at Locations 2 and 3 it is considered that motorway noise is likely <44 dB $L_{Aeq,T}$ in the daytime and <40 dB $L_{Aeq,T}$ during the early morning period. The noise from the motorway was very much a continuous background level, below that from road traffic on the local road network and other sources of noise such as birdsong and leaf rustle.
- 4.17 The implications of the noise survey results are set out in Section 5.0 and have been used to determine the type and extent of any noise mitigation measures necessary to achieve the adopted noise design criteria.

5.0 NOISE ASSESSMENT & RECOMMENDATIONS

Sports Pitch

- 5.1 The pitch is situated north-west of the site, with the end (i.e. short edge) of the pitch approximately 10 metres from the middle of the proposed gardens of the nearest proposed dwellings. Using the highest noise levels measured during the use of the sports pitch (i.e. a school lunch time period), it is concluded that noise levels within the gardens will exceed the adopted noise criterion by up to 9-10 dB without noise mitigation. Therefore, some mitigation will be required to reduce the potential noise during use of the pitch. This would be most effective in the form of an acoustic barrier.
- 5.2 In order to determine a suitable height for the barrier, we have carried out some screening attenuation calculations.
- 5.3 In calculating the necessary height for the acoustic barrier, it has been assumed the acoustic centre of the sports pitch noise is 20 metres from the barrier, this ensures there is a balance between the distance of the noise source from the dwelling and the effectiveness of the barrier. In practice, the sources that will result in the most significant levels outside the dwellings will probably be those closest to the boundary which will also be those that are most effectively attenuated by any barrier and hence assuming a source distance of 20 metres from the barrier is a robust approach.
- 5.4 Table 6 below shows the calculated noise levels in the rear garden of the nearest dwelling to the site assuming a 2.2m acoustic barrier, the recommend extents of which are shown in Figure 2.

Table 6: Calculated noise level at the garden of the nearest dwellings (dB)

Description	Octave Band Centre Frequency (Hz)							A
	63	125	250	500	1k	2k	4k	
In rear garden, $L_{Aeq,1hr}$	50	45	38	39	47	42	30	49

- 5.5 On this basis, a 2.2m acoustic barrier will reduce sports pitch noise levels outside the nearest dwellings to 49 dB $L_{Aeq,1hr}$. As mentioned above the highest measured noise levels from activity on the sport pitch were used in the assessment (i.e. during a school lunch period).
- 5.6 The is below the adopted external noise criterion for sports pitch noise. Furthermore it is below the existing measured ambient noise levels during a Sunday morning period, although the pitch is currently not in use on a Sunday this does provide a robust comparison of potential impact for weekend use.

- 5.7 It is useful to note that there are existing dwellings on Northwold Drive that are a similar distance away from the pitch to those that are proposed.

Initial Road Traffic Noise Risk Assessment

- 5.8 The road traffic noise exposure levels outside the proposed dwellings closest to Hinchley Road are between the 'Negligible' to 'Low' risk categories of ProPG in the daytime and at night. Areas of the site further away from Hinchley Road would be in the 'Negligible' risk category. It is considered that that the site is suitable for residential development, no specific noise mitigation measures are recommended for dwellings close to Hinchley Road.
- 5.9 However, it should be noted that six plots (closest to Hinchley Road) out of the 106 plots proposed on the development would be exposed daytime road traffic noise just above (by 2 dB) the MCC criterion to achieve the 35 dB $L_{Aeq,16hr}$ with windows open. However, further guidance within the Noise Technical Guidance 2022 document (para 5.3.1.4) suggests that external noise levels of 65 dB $L_{Aeq,T}$ can be controlled with a glazing specification of 30 dB and the use of acoustic trickle ventilation. The noise levels from residential streets on this site are much less than and internal noise levels can be achieved with standard thermal double glazing (typically providing a performance of 25 dB $R_w + C_{tr}$).

Approved Document O Assessment

- 5.10 The noise survey results have been used to determine which bedroom windows can remain open whilst still achieving the ADO indoor noise limits. The relevant threshold values are shown in Table 7.

Table 7: External Noise Threshold Categories (dB)

Description	Night-time (23:00-07:00 hours)	
	$L_{Aeq,8hr}$	L_{AFmax}
Windows can be modelled as open	≤50	≤65

- 5.11 On the basis that the measured night-time noise levels were found to be within these thresholds, windows can be modelled as open as part of the strategy to mitigate overheating in bedrooms for all dwellings on the development.

Noise Mitigation for the Sports Pitch

- 5.12 The acoustic barrier can be in the form of a solid brick wall or acoustic fence. Acoustic fencing must be imperforate (i.e. have no holes or gaps), have a surface mass no less than 10 kg/m² and be at least 20mm thick.
- 5.13 Suppliers of proprietary acoustic fences include GRAMM Barrier Systems Ltd (www.grammbarriers.com) Jacksons Fencing (www.jacksons-fencing.co.uk), Guardian Fencing (www.guardianfencing.com) and Ransfords (www.ransfords.co.uk).

Noise Mitigation for Dwellings Closest to Hinchley Road

- 5.14 The living rooms of plots 76 to 81 (i.e. closest to Hinchley Road), as indicated in Figure 2, should include acoustic trickle ventilation, instead of standard window frame slot vents, as a robust approach to meet MMC's internal noise criteria. It is recommended that either:
- Aereco EHA2 Acoustic Trickle Ventilator with acoustic canopy and sleeve (44 dB $D_{n,e,w}$); or
 - Rytons AAC125HP Super Acoustic Controllable LookRyt AirCore Ventilator (43 dB $D_{n,e,w}$); or
 - Another ventilation system with a good acoustic performance (i.e. above 39 dB $D_{n,e,w}$).
- 5.15 Ventilation proposals will need to be agreed with the Council at an early stage.

Planning Condition

- 5.16 The need to ensure that an adequate scheme of noise mitigation is implemented can be formalised by an appropriately worded planning condition that requires a scheme of noise mitigation measures as described in this report to be implemented prior to occupation of relevant dwellings.

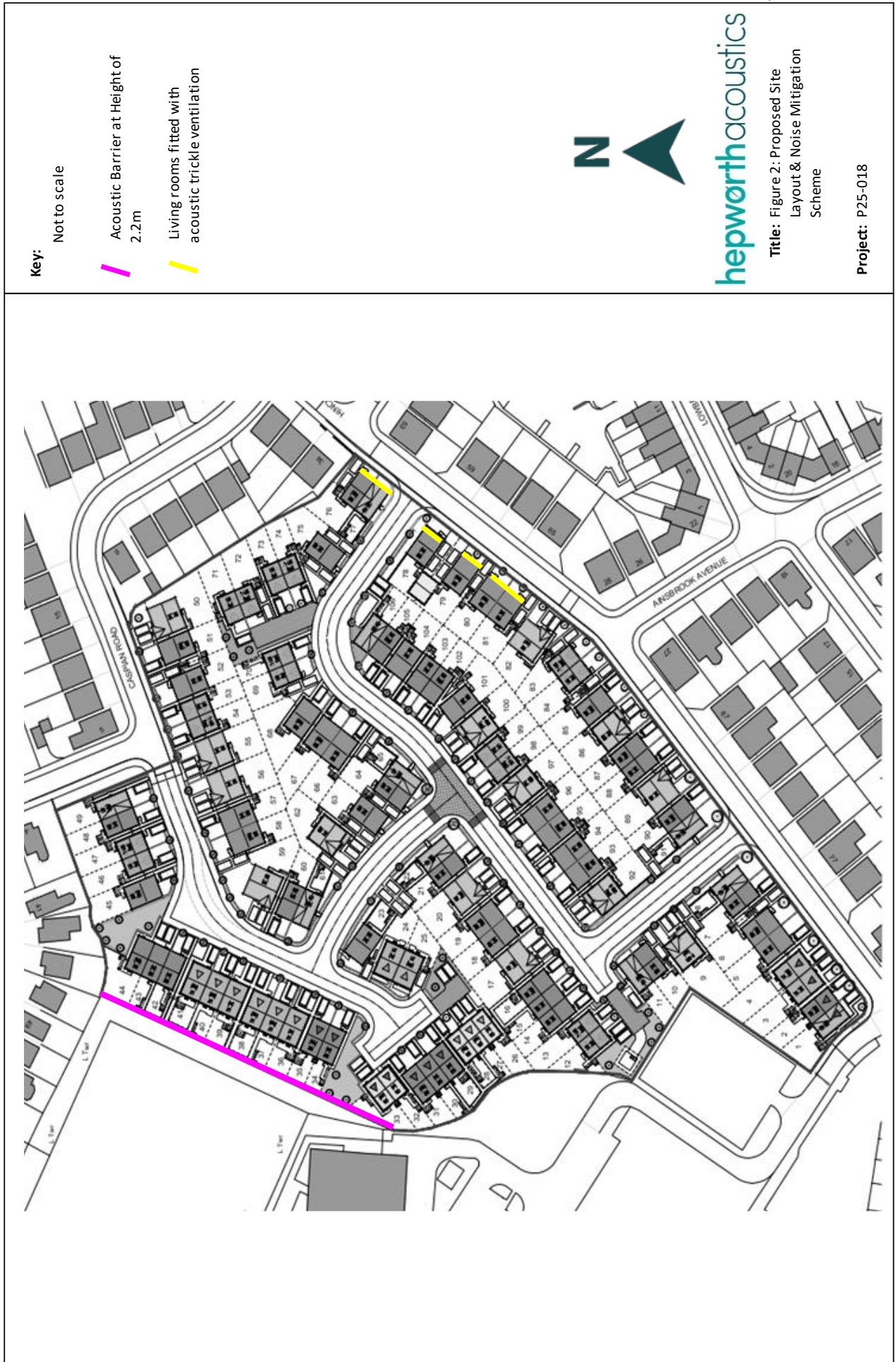
Conclusion

- 5.17 Subject to the implementation of the recommendations for mitigation measures made above we conclude that potential noise impact from existing the sports pitch should not result in any unacceptable harm to residential amenity by reason of noise disturbance.
- 5.18 Furthermore, 'significant adverse impacts' would be avoided and 'adverse impacts' would be mitigated/minimised, bringing the development in line with the aims of the Noise Policy Statement for England (NPSE) 2010 and local policy.

6.0 SUMMARY

- 6.1 A noise impact assessment has been undertaken for the proposed residential development at Hinchley Road, Charlestown.
- 6.2 The impact of noise from an adjacent sports pitch and from road traffic on the surrounding network has been assessed for the proposed residential development at Hinchley Road, Charlestown.
- 6.3 The results of the noise surveys have indicated that road traffic noise levels on the site are low and no specific noise mitigation measures are warranted.
- 6.4 An ADO assessment has indicated that windows can be modelled as open as part of the strategy to mitigate overheating in bedrooms.
- 6.5 Given the proximity of the sports pitch to the proposed dwellings, an appropriate scheme of noise mitigation measures (i.e. an acoustic fence) has been recommended to adequately protect the amenity of the new residents and also safeguard the use of the sports pitch.
- 6.6 The implementation of an adequate scheme of noise mitigation measures can be ensured by the use of appropriately worded planning conditions.





Appendix I: Noise Units & Indices

Sound and the decibel

A sound wave is a small fluctuation of atmospheric pressure. The human ear responds to these variations in pressure, producing the sensation of hearing. The ear can detect a very wide range of pressure variations. In order to cope with this wide range of pressure variations, a logarithmic scale is used to convert the values into manageable numbers. Although it might seem unusual to use a logarithmic scale to measure a physical phenomenon, it has been found that human hearing also responds to sound in an approximately logarithmic fashion. The dB (decibel) is the logarithmic unit used to describe sound (or noise) levels. The usual range of sound pressure levels is from 0 dB (threshold of hearing) to 120dB (threshold of pain).

Due to the logarithmic nature of decibels, when two noises of the same level are combined together, the total noise level is (under normal circumstances) 3 dB(A) higher than each of the individual noise levels e.g. 60 dB(A) plus 60 dB(A) = 63 dB(A). In terms of perceived 'loudness', a 3 dB(A) variation in noise level is a relatively small (but nevertheless just noticeable) change. An increase in noise level of 10 dB(A) generally corresponds to a doubling of perceived loudness. Likewise, a reduction in noise level of 10 dB(A) generally corresponds to a halving of perceived loudness.

The ear is not equally sensitive to sound at all frequencies. It is less sensitive to sound at low and very high frequencies, compared with the frequencies in between. Therefore, when measuring a sound made up of different frequencies, it is often useful to 'weight' each frequency appropriately, so that the measurement correlates better with what a person would actually hear. This is usually achieved by using an electronic filter called the 'A' weighting, which is built into sound level meters. Noise levels measured using the 'A' weighting are denoted dB(A) or dBA.

Frequency and Hertz (Hz)

As well as the loudness of a sound, the frequency content of a sound is also very important. Frequency is a measure of the rate of fluctuation of a sound wave. The unit used is cycles per second, or hertz (Hz). Sometimes large frequency values are written as kiloHertz (kHz), where 1 kHz = 1000 Hz.

Young people with normal hearing can hear frequencies in the range 20 Hz to 20 kHz. However, the upper frequency limit gradually reduces as a person gets older.

Glossary of Terms

When a noise level is constant and does not fluctuate, it can be described adequately by measuring the dB(A) level. However, when the noise level varies with time, the measured dB(A) level will vary as well. In this case it is therefore not possible to represent the noise climate with a simple dB(A) value. In order to describe noise where the level is continuously varying, a number of other indices can be used. The indices used in this report are described below.

- $L_{Aeq,T}$ This is the A-weighted 'equivalent continuous noise level' which is an average of the total sound energy measured over a specified time period. In other words, $L_{Aeq,T}$ is the level of a continuous noise which has the same total (A-weighted) energy as the real fluctuating noise, measured over the same time period. It is increasingly being used as the preferred parameter for all forms of environmental noise.
- L_{AFmax} This is the maximum A-weighted noise level that was recorded during the measurement period in terms of 'Fast' time weighting.
- $L_{A10,T}$ A-weighted 10 Percentile Level: The A-weighted sound level exceeded for 10% of a measurement time period (T). $L_{A10,T}$ is often used for calculations of road traffic noise, such as in 'Calculation of Road Traffic Noise' (CRTN) 1988.
- $L_{A90,T}$ This is the A-weighted noise level exceeded for 90% of the time period. $L_{A90,T}$ is used as a measure of background noise.
- C_{tr} Transport Noise Spectral Adaptation Term: A term used with single figure broadband sound insulation metrics (e.g. R_w , $D_{n,e,w}$ or $D_{nT,w}$) to account for the spectral composition of typical transport noise sources.
- R Sound Reduction Index: A laboratory measure of the sound insulation performance of a building element or construction arrangement (e.g. a wall) in a stated frequency band.
- R_w Weighted Sound Reduction Index: A single figure frequency weighted laboratory sound insulation performance metric of a building element or construction arrangement (e.g. a wall).
- $D_{n,e}$ Element Normalised Level Difference: A laboratory value quantifying the sound insulation performance of a building element (such as an air vent) in a stated frequency band.
- $D_{n,e,w}$ Weighted Element Normalised Level Difference: A frequency weighted single figure laboratory value quantifying the sound insulation performance of a building element, such as an air vent.

Appendix II: Noise Survey Results

Date(s)	Sunday 16 February 2025; Thursday 18, Friday 19, Thursday 25 September 2025
Equipment	B&K 2250 'Class 1' sound analyser (serial no. 3011706) with tripod and associated calibrator NTi XL2 'Class 1' sound level meters (s/n: A2A-20361-E0 & A2A-20228-E0) with tripod and associated calibrator
Weather	Sunday – Dry, ~3°C, clear skies with southeasterly breeze <5 m/s Thursday - Dry, ~19-20°C, clear skies with southwesterly breeze <5 m/s Friday - Dry, ~17°C, clear skies with southerly breeze <5 m/s Thursday - Dry, ~19-20°C, clear skies with southwesterly breeze <5 m/s

Location 1: 10 metres from Sports Pitch**Thursday 18 September 2025**

Time		Measured Noise Levels (dB)			Comments
Start	End	L_{AFmax}	$L_{Aeq,T}$	$L_{A90,T}$	
13:05	13:10	68.3	55.9	50.1	Sports pitch in use for PE lesson, distant road traffic, birdsong, leaf rustle
13:10	13:15	62.9	52.6	48.0	Sports pitch in use for PE lesson, distant road traffic, birdsong, leaf rustle
13:15	13:20	63.6	52.5	48.2	Distant road traffic, birdsong, leaf rustle
13:20	13:25	69.2	54.5	50.4	Distant road traffic, birdsong, leaf rustle
13:25	13:30	81.7	63.1	53.1	Sports pitch in use school lunch break, distant road traffic, birdsong, leaf rustle
13:30	13:35	82.0	64.1	52.8	Sports pitch in use school lunch break, distant road traffic, birdsong, leaf rustle
13:35	13:39	83.0	65.6	53.5	Sports pitch in use school lunch break, distant road traffic, birdsong, leaf rustle
13:50	13:55	80.6	64.5	53.5	Sports pitch in use school lunch break, distant road traffic, birdsong, leaf rustle
13:55	14:00	68.1	55.1	50.3	Sports pitch in use school lunch break, distant road traffic, birdsong, leaf rustle
14:00	14:05	65.2	51.5	47.0	Sports pitch in use school lunch break, distant road traffic, birdsong, leaf rustle
14:05	14:10	58.2	48.5	45.8	Distant road traffic, birdsong, leaf rustle
14:10	14:15	55.1	52.7	52.1	Distant road traffic, birdsong, leaf rustle

Thursday 25 September 2025

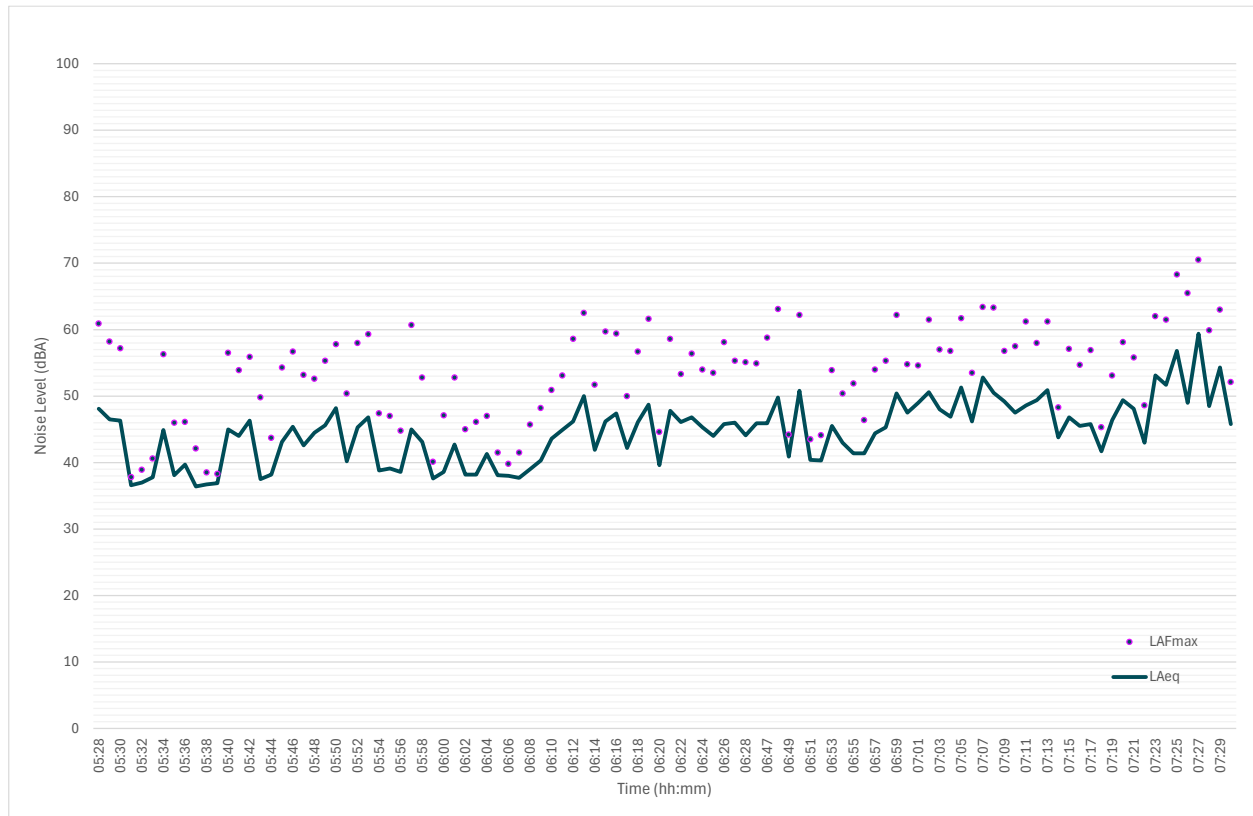
Time		Measured Noise Levels (dB)			Comments
Start	End	L_{AFmax}	$L_{Aeq,T}$	$L_{A90,T}$	
19:20	19:25	60.9	53.0	51.2	Sports pitch in use, distant road traffic
19:25	19:30	66.8	53.9	51.3	
19:30	19:35	71.4	53.9	51.9	
19:35	19:40	63.8	53.8	51.4	
19:40	19:45	62.4	53.8	52.0	
19:45	19:50	67.2	54.5	52.0	
19:50	19:55	68.1	55.0	52.5	
19:55	20:00	76.1	55.1	52.5	
20:00	20:05	67.4	54.0	51.7	
20:05	20:10	74.9	56.0	52.3	
20:10	20:15	67.9	55.8	52.2	
20:15	20:20	67.1	56.0	52.2	
20:20	20:25	72.4	56.8	52.6	
20:25	20:30	65.6	56.0	53.7	

Sunday 16 February 2025

Time		Measured Noise Levels (dB)			Comments
Start	End	L_{AFmax}	$L_{Aeq,T}$	$L_{A90,T}$	
09:59	10:04	58.0	51.0	49.1	Distant road traffic on M60 and more local roads, birdsong, occasional leaf rustle
10:04	10:09	60.2	51.3	49.3	
10:09	10:14	63.1	52.8	49.9	
10:14	10:19	67.0	53.1	50.7	
10:19	10:24	61.5	52.6	50.6	
10:24	10:29	59.0	52.4	50.5	
10:29	10:34	62.1	52.6	50.7	
10:34	10:39	61.4	52.8	50.7	
10:39	10:44	62.2	51.4	49.7	
10:44	10:49	57.6	50.9	49.4	
10:49	10:54	57.5	51.1	48.5	
10:54	10:59	62	52	49	

Location 2: 5 metres from Hinchley Road**Thursday 18 September 2025**

Time		Measured Noise Levels (dB)			Comments
Start	End	L_{AFmax}	$L_{A10,T}$	$L_{Aeq,T}$	
11:55	12:00	52.2	49.5	45.6	Distant road traffic, birdsong
12:00	12:05	61.3	51.0	48.7	Road traffic on Hinchley Road, distant road traffic, birdsong
12:05	12:10	64.6	57.5	53.5	Road traffic on Hinchley Road, distant road traffic, birdsong
12:10	12:15	51.5	48.8	47.7	Distant road traffic, birdsong
12:20	12:25	55.4	52.7	47.9	Distant road traffic, birdsong
12:25	12:29	66.3	58.2	53.7	Road traffic on Hinchley Road, distant road traffic, birdsong
12:52	12:55	66.1	56.9	52.7	Road traffic on Hinchley Road, distant road traffic, birdsong
12:55	13:00	69.1	59.8	55.7	Road traffic on Hinchley Road, distant road traffic, birdsong
13:00	13:02	63.6	56.9	52.9	Road traffic on Hinchley Road, distant road traffic, birdsong
13:41	13:45	65.5	58.8	54.7	Road traffic on Hinchley Road, distant road traffic, birdsong
13:45	13:50	67.2	58.1	54.8	Road traffic on Hinchley Road, distant road traffic, birdsong
14:21	14:25	63.3	58.3	54.3	Road traffic on Hinchley Road, distant road traffic, birdsong
14:25	14:30	69.0	57.9	54.2	Road traffic on Hinchley Road, distant road traffic, birdsong
14:30	14:35	66.4	57.1	54.1	Road traffic on Hinchley Road, distant road traffic, birdsong
14:35	14:40	49.6	48.7	48.0	Distant road traffic, birdsong

Friday 19 September 2025**Location 3: Northern boundary****Thursday 18 September 2025**

Time		Measured Noise Levels (dB)			Comments
Start	End	L_{AFmax}	$L_{A10,T}$	$L_{Aeq,T}$	
14:10	14:15	59.7	49.5	47.4	Distant road traffic, birdsong
14:15	14:20	58.7	52.1	49.3	
14:20	14:25	49.8	48.7	46.1	