

Noise Impact Assessment for Change of Use

The Woolcomber, Hinckley, LE10 2PH

July 2026

Document History

Revision	Issue Date	Changes
First Issue	29/06/2026	N/A

Document Approvals

Role	Name	Signature	Date
Preparation	Harry Russell-Lees		29/06/2026
Review & Approval	William Lowe BA (Hons), MIOA		29/06/2026

Contact Details

Email	Website
will@lrlacoustics.co.uk harry@lrlacoustics.co.uk	lrlacoustics.co.uk

Disclaimer

This report has been prepared by LRL Acoustics in accordance with the agreed terms and conditions governing the provision of acoustic consultancy services. This report has been produced solely for the exclusive use of the Client and for the specific purpose for which it was commissioned. It may not be relied upon by any third party for any purpose whatsoever. LRL Acoustics accepts no duty of care, liability, or responsibility to any party other than the Client in respect of the contents of this report, nor in relation to any reliance placed upon it.

Should the Client elect to make this report available to any third party, it shall be provided in its entirety and without amendment. No warranty, representation, or professional liability shall be extended to any third party by LRL Acoustics unless expressly agreed in writing and signed by an authorised representative of LRL Acoustics.

Table of Contents:

1. Introduction & Context	4
2. Proposed Development	7
3. Relevant Planning Policy, Guidance & Assessment Methodology	10
4. Noise Sensitive Receptors	11
5. Baseline Noise Survey	12
6. Noise Associated with Ground Floor Change of Use	16
7. BS4142 – Commercial Noise Assessment	19
8. Assessment of Operational Traffic Noise	22
9. Internal Ambient Noise Assessment (BS 8233)	26
10. Agent of Change	29
11. Conclusions	30
12. Appendix A: Relevant Planning Policy and Guidance	32
13. Appendix B: Sound Insulation Testing Results	41
14. Appendix C: Time History Graph	42

1. Introduction & Context

Purpose and Objective

- 1.1 LRL Acoustics Ltd has been commissioned by Keshco LTD to undertake this Noise Impact Assessment in support of a planning application for the change of use of The Woolcomber, 30 Atkins Way, Burbage, Hinckley (LE10 2PH) from a public house (Sui Generis) to commercial, business and service use (Class E), including a single-storey rear warehouse extension, and the conversion of the first floor to create 4 residential flats (Class C3).
- 1.2 Pre-application advice was sought on 3rd March 2026. A response was issued by Hinckley & Bosworth Borough Council (HBBC) on 1st May 2026 under reference 26/10029/PREHMO. The EHO stated that a noise assessment is required to support the submission on the following grounds:
 - Both *"internal noise transfer between the commercial and residential use and the potential impact of the commercial use on existing residential premises should be considered"*;
 - The assessment *"should include any plant equipment and hours of use/deliveries etc."*; and
 - Any forthcoming application must *"demonstrate that the residential amenity of existing neighbouring residents and future occupants of the scheme are protected and take into account the comments raised by the Councils Environmental Health Officer."*
- 1.3 Accordingly, this assessment considers whether the proposed change of use would introduce any unacceptable noise impacts on existing neighbouring residential properties or future occupants of the development, having regard to the existing lawful use of the site, the prevailing acoustic environment and relevant national planning policy.

Site Description & Context

- 1.4 The Site is located approximately 1,500 metres south of Hinckley town centre, off Atkins Way.
- 1.5 The surrounding area is predominantly residential in character, situated within an established housing estate with a number of mixed use, commercial and residential properties opposite.
- 1.6 The Site is bounded by Atkins Way to the north-west, Far Lash to the east, an electricity substation adjacent to the south-east boundary, and residential boundaries to the south-west.

- 1.7 The nearest noise-sensitive receptors (NSRs) are located at the 4 proposed first-floor residential flats within the site boundary itself, and the immediate neighbouring residential dwellings which have been considered within this assessment.
- 1.8 Figure 1.1 shows a detailed satellite image of the site context and the immediate neighbouring properties.



Figure 1.1: Site Location Map

Site Context

- 1.9 The existing lawful use of the site is if for a public house (Sui Generis) which is understood to have operated from 1960's and ceasing trading mid 2025.
- 1.10 A review of the old company website (thewoolcomberpub.co.uk) indicates that the former pub was open to the public 12:30 to 00:30 on Saturdays, 13:00 to 23:00 on Sundays, 15:00 to 23:00 on Mondays, Wednesdays and Thursdays, 14:00 to 00:30 on Fridays, and closed on Tuesdays. As such, the premises would have operated during both daytime (07:00–23:00) and night-time (23:00–07:00) periods. It is also understood that the existing use sold food and drink to members of the public and hosted a number of frequent karaoke and live music event.
- 1.11 The permitted use would therefore have been expected to generate noise associated with customer activities, including customer arrival and departure, external and internal patron noise, vehicle movements, and other activities typically associated with the operation of a

public house serving food and drink. In addition, noise associated with servicing activities would also be expected, including deliveries, refuse and recycling collections, and the operation of building services plant.

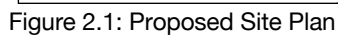
- 1.12 An inspection of the site identified existing plant associated with the former use. This includes a ground-mounted J & E Hall refrigeration/cellar cooling condenser unit, together with associated legacy wall-mounted ancillary equipment located along the western façade at ground floor level. In addition, historic kitchen ventilation louvres, extract duct penetrations, and weathered cowls were observed on the southern façade at approximately 2.5 metres above ground level, as illustrated in Figure 1.2 below:

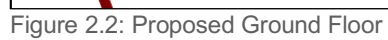


Figure 1.2: Historic Plant

- 1.13 We are unaware of any historic noise complaints made in relation to the operational plant during the building's tenure as a public house.
- 1.14 Any future use of the site should therefore take account of this existing site context.

2.1 The proposed development comprises a change of use and structural reconfiguration of the existing property from a vacant public house (Sui Generis) to a commercial retail unit (Class E) on the ground floor, alongside the creation of 4 self-contained residential flats (Class C3) on the first floor. The development also incorporates a single-storey flat-roofed warehouse extension to the rear of the building. Figures 2.1, 2.2 and 2.3 show the proposed site plans.





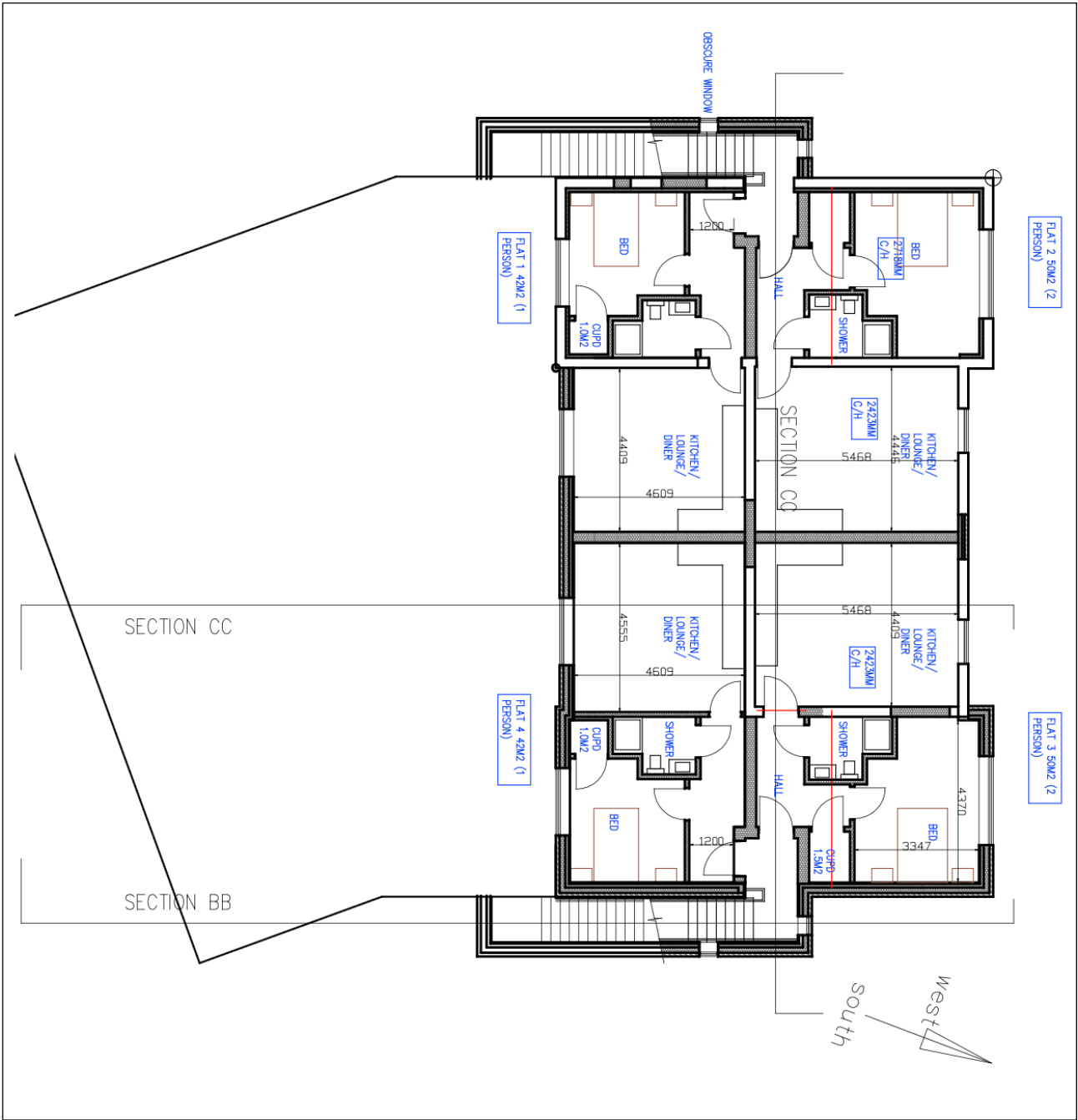


Figure 2.3: Proposed First Floor

3. Relevant Planning Policy, Guidance & Assessment Methodology

3.1 The assessment has been informed by the relevant legislative context, national and local planning policy, and applicable technical guidance, including:

- National Planning Policy Framework (NPPF)
- Noise Policy Statement for England (NPSE)
- Planning Practice Guidance (PPG) – Noise
- HBBC Site Allocations and Development Management Policies DPD (Policy DM7: Preventing Pollution and Flooding and DM10: Development and Design)
- British Standard BS 4142:2012+A1:2019 – Methods for rating and assessing industrial and commercial sound
- British Standard BS 8233:2014 – Guidance on sound insulation and noise reduction for buildings
- ProPG: Planning & Noise (2017) Professional Practice Guidance
- Acoustics, Ventilation and Overheating (AVO) Guide
- Approved Document E of the Building Regulations 2010
- Approved Document O of the Building Regulations 2021

Methodology

- 3.2 Given any future fixed plant and associated retail activities are inherently of a commercial nature, the methodology presented within BS 4142:2012+A1:2019 has been adopted to assess the commercial sound impact on all nearby noise-sensitive receptors.
- 3.3 An assessment of residential suitability has been completed in line with BS 8233:2014 'Guidance on sound insulation and noise reduction for buildings'.
- 3.4 To determine the suitability of the first-floor residential use, the internal noise transfer through the existing separating floor assembly has been assessed in general accordance with Approved Document E.

4. Noise Sensitive Receptors

- 4.1 In accordance with the assessment methodology set out in BS 4142:2014+A1:2019, the NSRs considered within the assessment are those most likely to experience the highest levels of sound from the proposed or existing site activities.
- 4.2 The nearest and most relevant NSRs have been identified through a review of the surrounding land uses, supported where necessary by site observations. Figure 4.1 below identifies the NSRs considered within the assessment, these are described in Table 4.1.



Figure 4.1: Noise Sensitive Receptors

Receptor Reference	Description
NSR1	Proposed first-floor residential flats (located directly above the proposed ground-floor Class E retail unit).
NSR2	Existing residential property at No. 28 Atkins Way, located directly adjacent to the south-west site boundary.
NSR3	Existing residential property at No. 2 Campton Close, located directly adjacent to the south-west site boundary.
NSR4	Existing residential property at 4 Far Lash, located approximately 15 meters south from the south eastern site boundary.

Table 4.1: Description of Noise Sensitive Receptors

5. Baseline Noise Survey

- 5.1 Existing baseline noise levels have been established by means of an unattended noise survey undertaken over a 4-day period between 12/06/2026 and 16/06/2026. Noise measurements were completed at a single monitoring location, as illustrated in Figure 5.1 and describe in Table 5.1 below.



Figure 5.1: Noise Measurement Location

Monitoring Location Reference	Description
A1	The measurement microphone was fixed to a tripod in broadly free-field conditions at a height of approximately 1.5 m above the existing first-floor flat roof area of the property.

Table 5.1 Description of Measurement Location

- 5.2 The following measurement instrumentation was used for the survey:

Location	Description	Manufacturer	Model	Serial No.	Calibration Date
A1	Sound Level Meter	Svantek	971a	154392	16/01/2025
	Microphone		ACO 7152	94563	
	Preamplifier		SV18	163765	
	Calibrator		SV33B	151866	13/08/2025

Survey Procedure

- 5.3 The sound level meter was configured to measure the L_{A90} , L_{Aeq} , and L_{Amax} (Fast) noise indices over consecutive 15-minute intervals. The instrument was also set to record corresponding one-third octave band spectra, to carry out high-resolution logging at 100 ms intervals, and to obtain continuous audio recordings to facilitate source identification.
- 5.4 A field calibration was undertaken prior to the commencement of the survey and repeated upon completion. No significant calibration drift was observed, with the measurement instrumentation remaining within a tolerance of ± 0.5 dB.

Site Observations

- 5.5 During site visits undertaken to install and retrieve monitoring equipment, existing ambient noise levels were observed to be dominated by local road traffic, primarily from the surrounding road network, in particular, Far Lash.
- 5.6 Noise emissions from the nearby electrical distribution substation were not audible during the survey periods at the monitoring location (A1) or at the site boundary.
- 5.7 Noise from other commercial premises in the vicinity of the site was also not perceptible during the survey.

Weather

- 5.8 During site attendance, weather conditions were noted to be dry with light winds and were therefore considered suitable for environmental noise monitoring.
- 5.9 Detailed meteorological data has been sourced from the Weather Underground website, and taken from the nearest available monitoring station (HINCK13).
- 5.10 A summary of the relevant weather data is presented below in Table 5.3.

2026	Temp. (°C)	Humidity (%)	Wind Speed (km/h)	Wind Direction	Pressure (hPa)		Rainfall (mm)
June	Avg	Avg.	Avg.	Avg.	Max	Min	total
12	18	77	9	WSW	1024	1020	1.02
13	15	68	10	W	1026	1024	0
14	15	71	5	WSW	1026	1022	0
15	14	82	7	SW	1023	1014	0
16	19	75	5	SW	1019	1014	0

Table 5.3: Weather Data

5.11 A review of the weather data collected at local weather station (HINCK13) shows, wind speeds were less than 5 m/s across variable directions, with minimal precipitation. Weather conditions were therefore considered suitable for environmental noise monitoring.

Sound Survey Results

5.12 Time history graphs presenting the A-weighted L_{90} , L_{eq} and L_{max} noise levels measured during each consecutive 15-minute survey interval are provided in Appendix C.

5.13 The measurement data have been post-processed to derive the typical daytime ($L_{Aeq,16hr}$) and night-time ($L_{Aeq,8hr}$) ambient noise levels, which are summarised in Table 5.4 below.

Measurement Location	Date	Daytime $L_{Aeq, 16hr}$	Night-time $L_{Aeq, 8hr}$
A1	12/06/2026	49	48
	13/06/2026	48	45
	14/06/2026	48	49
	15/06/2026	51	48
	16/06/2026	48	-

Table 5.4: Measurement Results

Background Noise Levels

5.14 Used to inform the BS4142 assessment, the measurement data has been statistically analysed to assist in the determination of 'representative' daytime and night-time background (LA_{90}) noise levels at each monitoring location as shown in Figure 5.2:

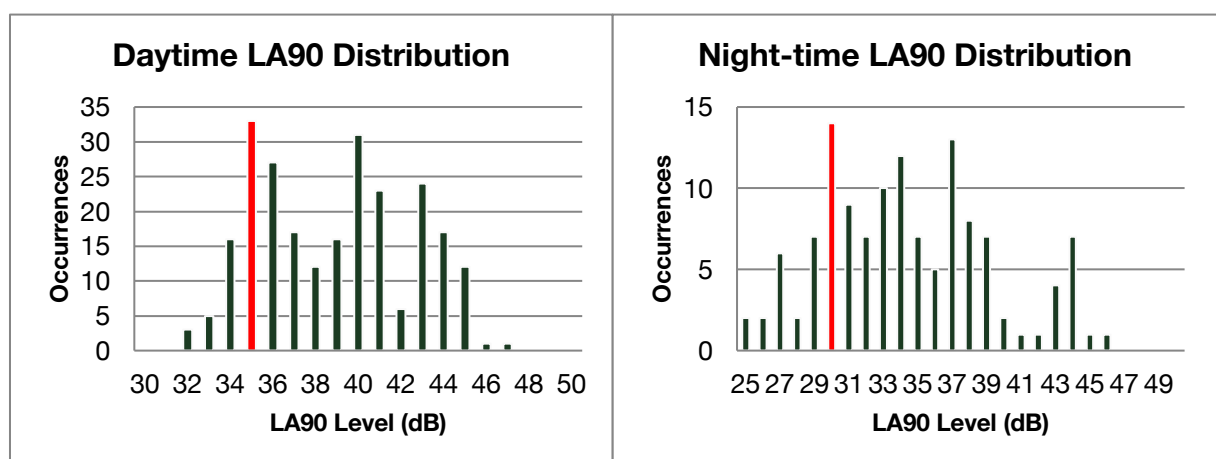


Figure 5.2: Statistical Analysis of Background Noise Levels

5.15 In accordance with the guidance set out in BS 4142, a background noise level should be selected and not be defined solely by reference to either the minimum or modal value. Representative background noise levels have therefore been selected through cumulative

percentage analysis. The selected daytime and night-time representative background noise levels at each monitoring location are presented in Table 5.5 below.

Measurement Location	Daytime $L_{A90, 1 \text{ hour}}$	Night-time $L_{A 90, 15 \text{ min}}$
A1	35	30

Table 5.5: Representative Background Noise Levels

- 5.16 As presented in Table 5.5, the representative background noise levels at location A1 have been determined as 35dB $L_{A90,1hr}$ (daytime) and 30dB $L_{A90,15min}$ (night-time). These values correspond to the 25th. - 30th percentile of the measured data and therefore represent noise levels that were exceeded for 70-75% of the monitoring period.
- 5.17 In light of the above, it is considered that the representative background sound levels provide a robust and conservative basis for assessment.

6. Noise Associated with Ground Floor Change of Use

Investigative Sound Insulation Tests

- 6.1 The proposed development will create a new commercial-to-residential separation between the proposed first-floor residential flats (Class C3) and the ground-floor commercial retail unit (Class E). The co-location of these uses is standard across many mixed-use developments within the UK and does not raise any inherent incompatibility concerns, provided appropriate acoustic mitigation is integrated into the dividing structures.
- 6.2 In order to determine existing levels of sound insulation between the ground floor of the proposed commercial unit and the residential unit above, sound insulation tests were completed in general accordance with BS EN ISO 140-4:1998 *“Acoustics - Methods of Measurement of Sound Insulation in Buildings and of Building Elements. Part 4: Field Measurements of Airborne Sound Insulation Between Rooms”* and Annex B of Approved Document E of the Building Regulations 2010 (as amended).

Test Procedure

- 6.3 Two tests were completed. Test A used the existing ground floor pub as the “source” room and the master bedroom of the flat above as the “receive” room. Test B used the office as the “source” room and the living room of the flat above as the “receive” room as detailed in Table 6.1 below:

Test Ref.	Source Room (Ground Floor)	Receive Room (1 st Floor)
A	Main Pub Area	Bedroom
B	Office Area	Lounge

Table 6.1: Sound Insulation Testing Locations

- 6.4 Pink noise was generated via an amplified loudspeaker set at two separate source locations within the ground-floor commercial space. Sound pressure levels, background noise, and reverberation times (T_{60}) were measured across a minimum of five distinct microphone positions within the receive room to calculate the standardised level differences.
- 6.5 The following technical instrumentation was used to conduct the testing:

Description	Manufacturer	Model	Serial No.	Calibration Date
Sound Level Meter	Svantek	971A	154392	16/01/2025
Microphone		ACO 7152	94563	
Preamplifier		SV18	163765	
Calibrator		SV33B	151866	13/08/2025
Speaker		Dodec 103	D2256	-

Table 6.2: Sound Insulation Testing Instrumentation

Test Results

- 6.6 A summary of the measured airborne sound insulation performance is presented in Table 6.3 below:

Test Ref.	Measured Sound Level Difference, $D_{nT,w}$ (dB)	Rating Level, C_{tr}	Measured Standardised Sound Level Difference, $D_{nT,w} + C_{tr}$ (dB)
A	36	8	28
B	40	8	32

Table 6.3: Sound Insulation Testing Results

- 6.7 The detailed one-third octave band data sheets and shifted reference curves are provided in Appendix B.

Discussion

- 6.8 Approved Document E (ADE) of the Building Regulations 2010 sets out the statutory requirements for separating structures. For dwellings created by a material change of use, ADE requires separating floors to achieve a minimum airborne sound insulation performance of $D_{nT,w} + C_{tr} \geq 43$ dB.

- 6.9 However, paragraph 0.8 of ADE cautions that:

“A higher standard of sound insulation may be required between spaces used for normal domestic purposes and communal or non-domestic purposes. In these situations the appropriate level of sound insulation will depend on the noise generated in the communal or non-domestic space.”

- 6.10 Retail use is not generally characterised by sustained high internal noise levels comparable to uses such as licensed premises, restaurants, gyms or entertainment venues. No evidence has been identified to indicate that the proposed retail use would generate internal noise levels requiring enhanced airborne sound insulation beyond the minimum performance specified by

ADE. Accordingly, the minimum airborne sound insulation requirement of $D_{nT,w} + C_{tr} \geq 43$ dB is considered appropriate for the proposed separating floor.

- 6.11 The existing separating floor assembly achieved airborne sound insulation performances of 28 dB and 32 dB $D_{nT,w} + C_{tr}$, with both locations failing to meet the minimum statutory Building Regulations requirement of 43 dB.
- 6.12 Consequently, the existing floor construction is not considered sufficient to provide adequate separation between the proposed commercial and residential uses without further acoustic enhancement. A minimum improvement of approximately 15 dB (based on the worst-case measured performance of 28 dB) would therefore be required to achieve compliance with the relevant performance standard.
- 6.13 In light of the above, the final detailed design would need to incorporate appropriate acoustic upgrading measures to ensure compliance with Approved Document E of Building Regulations 2010 to safeguard future residential occupiers from noise associated with ground-floor commercial activity.

7. BS4142 – Commercial Noise Assessment

- 7.1 As previously described, the proposed development comprises the change of use of the ground floor to a commercial retail unit (Use Class E), together with the construction of a single-storey, flat-roofed warehouse extension to the rear of the building.
- 7.2 Operational activities associated with the proposed retail use are expected to include customer and staff movements, stock deliveries and handling, shelf replenishment, the temporary storage of retail goods within the ancillary warehouse area, and the operation of fixed building services plant.
- 7.3 Customer and staff movements, shelf replenishment, and internal stock handling are typical of a small-scale retail operation, will occur predominantly within the building envelope, and are not expected to result in a material noise impact at nearby noise-sensitive receptors. The potential noise effects associated with delivery activity are considered separately in Section 8.
- 7.4 Of the operational noise sources identified above, the proposed fixed building services plant, including refrigeration and mechanical services equipment, has the greatest potential to affect nearby noise-sensitive receptors. Accordingly, a detailed assessment of plant noise emissions has been undertaken and is presented below.

Plant Noise Assessment

- 7.5 In light of the above, and in response to the pre-application advice issued by HBBC, an assessment of noise from future building services plant has been undertaken in line with the methodology outlined in BS 4142:2014+A1:2019 to safeguard the amenity of safeguard the nearby noise sensitive receptors.

Source Noise Level

- 7.6 At the time of preparing this report, the detailed mechanical specifications and equipment selections for the ground-floor Class E retail unit have not yet been finalised by the operator. Notwithstanding this, effective control over the proposed development can be retained by ensuring that noise emission from any plant associated with the proposed development are designed in accordance with appropriate noise emission design targets. Compliance with such noise limits can be controlled and enforced through the use of a suitably worded planning condition.
- 7.7 Accordingly, this assessment has established noise emission criteria based on the prevailing background noise environment, which should be used to inform the selection, design, and specification of any future plant and equipment.

Hours of Operation

- 7.8 It is understood that any proposed building services plant, including air conditioning and mechanical ventilation units, will operate as required during opening hours only which are understood to be during daytime hours i.e. 07.00 – 23.00 hours. Other plant, including refrigeration and freezer equipment, is expected to operate continuously on a 24-hour basis.
- 7.9 As any future plan will therefore be in operation during both daytime (07.00 – 23.00) and night-time (23.00 – 07.00) periods and appropriate noise emission criteria have therefore been established for each period.

Plant Noise Criteria

- 7.10 As set out in Section 5, background noise levels have been established following statistical analysis of the measurement data obtained at monitoring location A1.
- 7.11 The representative background noise levels for both daytime and night-time periods are taken to be:
- **Daytime (07:00 to 23:00): 35dB L_{A90}**
 - **Night-time (23:00 to 07:00): 30dB L_{A90}**
- 7.12 To ensure a robust design that prevents creeping ambient noise levels, the local authority requires that the rating level ($L_{Ar,Tr}$) of all external plant, inclusive of any acoustic character corrections for tonality, impulsivity, or intermittency, should not exceed the existing representative background noise level (L_{A90}).
- 7.13 In light of the above, the cumulative sound rating level ($L_{Ar,Tr}$) from all proposed building services plant must not exceed the maximum allowable limits detailed in Table 7.1 below:

Period	Representative Background Noise Level, L_{A90} (dB)	Maximum Allowable Cumulative Rating Level, $L_{Ar,Tr}$ (dB) at Receptor
Daytime (07:00 – 23:00)	35	35
Night-time (23:00 – 07:00)	30	30

Table 7.1: BS4142 Assessment

- 7.14 The above targets should be achieved at a distance of 1m from the nearest windows of any adjoining dwelling (proposed or existing) with all plant operating normally.

7.15 The adoption of the environmental design targets set out should ensure that building services installation associated with the proposed development would not cause an adverse impact on any existing dwelling in the vicinity of the site.

7.16 If required, standard mitigation measures should be used where necessary to ensure compliance with the aforementioned design targets, including:

- Plant location and orientation i.e. Siting condenser blocks to maximise structural acoustic screening to NSRs;
- At source mitigation i.e. Installing inline silencers/attenuators on the atmospheric side of supply and extract fans and utilising acoustic enclosures or localised acoustic screening partitions around refrigeration condenser packs; and
- Programming night-time low-noise operations or eco-modes on air conditioning systems.

Vibration Isolation

7.17 In order to minimise the risks of vibration and structureborne sound transmission from any proposed plant, it is recommended that:

- All plant is installed on proprietary anti-vibration mountings offering a minimum isolation efficiency of 95% under proposed operating conditions;
- Flexible connections are made between fans and ductwork;
- Ductwork suspended from the first floor structure and fixed to external walls are resiliently supported to avoid vibration transmission;
- Duct penetrations are appropriately sealed to minimise flanking sound transmission/vibration transmission;
- Electrical connections to plant are made via looped flexible conduit.

Conclusion

7.18 In summary, provided that all building services plant is designed to comply with the recommended noise criteria, the proposed development is not expected to give rise to adverse noise impacts at nearby existing and proposed noise-sensitive receptors.

8. Assessment of Operational Traffic Noise

- 8.1 Average daytime vehicle trip data has been provided by the projects Transport Consultant, KMC Transport and is set out below in Table 8.1 below:

Scenario	Total Vehicles			HGVs		
	Arrival	Departure	Two-way	Arrival	Departure	Two-way
Existing	35	34	68	1	1	1
Proposed	177	177	354	1	1	1
Net Change	143	143	286	0	0	0

Table 8.1: Average Weekday Vehicle Trip Data

- 8.2 As seen from Table 8.1 above, average weekday vehicle trip data indicates that the proposed commercial unit will give rise to a net increase of 286 two-way vehicle movement per day, including 1 HGV two-way movement.

HGV Delivery Noise Assessment

- 8.3 It is understood that any delivery will be made between the hours of 07:00–19:00, Monday to Saturday. No deliveries will be made on Sundays. Each delivery is anticipated to have a typical duration of approximately 30 minutes and will comprise vehicle arrival, manoeuvring, engine idling, unloading via tail lift, pallet handling and vehicle departure.
- 8.4 As the operator is not yet in situ, and in the absence of any quantitative data, reference sound level data for a rigid HGV arrival and unloading event has been sourced from the empirical datasets within BS 5228-1:2009+A1:2014 (Annex C). These are presented in Table 8.2 below:

Activity	Assumed Source Level (LAeq) @ 10m	Duration
HGV arrival / manoeuvring	68 dB	5 min
Engine idling	73 dB	5 min
Tail lift operation	65 dB	5 min
Pallet unloading	55 dB	10 min
HGV departure	68 dB	5 min

Table 8.2: Assumed Source Noise Level

- 8.5 The individual activities have been combined using logarithmic energy summation to derive an equivalent continuous sound level for the complete delivery event of 68 dB $L_{Aeq, 30 \text{ min}}$ at 10m.

- 8.6 Assuming a typical delivery event duration within the standard 1-hour daytime assessment reference period, the time-corrected specific sound level is calculated at 65 dB $L_{Aeq, 1 \text{ hour}}$ at 10m.
- 8.7 The calculated specific noise level at 10m has been corrected to account for distance attenuation and any barrier effects. The resulting incident specific noise level predicted at each NSRs are presented in Table 8.3 below:

Receptor Reference	Specific Sound Level ($L_{Aeq, 1 \text{ hour}}$) (dB)
NSR1	63
NSR2	51
NSR3	55
NSR4	54

Table 8.3: Specific Noise Level Associated with HGV Activities

- 8.8 Based on the specific noise levels and representative background sound levels, an initial BS 4142 assessment has been completed and is presented in Table 8.4 below. Character corrections have been applied to account for the intermittency and transient acoustic characteristics of unloading activities (e.g., tail lifts, roll cage clatter).

Receptor Reference	Specific Sound Level (L_s) (dB)	Character Penalty (dB)	Rating Level ($L_{Ar,T}$) (dB)	Daytime Background Level (L_{A90}) (dB)	Excess over Background (dB)
NSR1	63	+3	66	35	+31
NSR2	51	+3	54	35	+19
NSR3	55	+3	58	35	+23
NSR4	54	+3	57	35	+22

Table 8.4: BS4142 Assessment (HGV Noise)

- 8.9 The results of the initial BS 4142 assessment indicate that rating levels exceed the representative background sound level at all receptor locations. In isolation and considering the magnitude of exceedance, this would typically indicate a significant adverse impact.
- 8.10 In accordance with BS4142:2014+A1:2019, the significance of any operational noise impact should not be determined solely by comparing the rating level with the background sound level. The standard recognises that the context within which the sound occurs is an important consideration and required the assessment to take account of those factors that may influence the perception and significance of the sound at nearby noise-sensitive receptors.
- 8.11 The following contextual matters are considered relevant to this assessment:

Temporal and operational characteristics

- 8.12 The proposed development would generate a maximum of one HGV delivery per day during the daytime period (07:00–19:00, Monday to Saturday), with each delivery having a duration of approximately 30 minutes. Any associated exceedance in background sound level would therefore be short in duration, intermittent and confined to daytime hours.

Existing and historical land use context

- 8.13 There is no net increase in HGV movements compared with the lawful historical use of the site, with the frequency and nature of HGV deliveries remaining materially unchanged. As such, HGV movements will not lead to an increase in risk of causing adverse impact beyond which would exist if the existing use (public house) were to continue to operate.

Conclusions

- 8.14 In summary, although HGV delivery noise exceeds the representative background sound level, deliveries will be limited to a single short-duration daytime event and will not represent an increase over the site's lawful historic use. The proposed development is therefore not expected to result in a material adverse noise impact at nearby noise-sensitive receptors.

Operational Traffic

- 8.15 As seen from Table 8.1, the proposed development is expected to generate a net increase of approximately 286 two-way customer vehicle movements per weekday. These movements are anticipated to be distributed across the two access routes serving the site, Atkins Way and Far Lash. Assuming an even distribution, this would equate to approximately 143 additional vehicle movements per day on each route.
- 8.16 As a general principle, road traffic flows must increase by approximately 25% to produce a change of around 1 dB in road traffic noise levels. Based on the forecast increase of 143 vehicle movements per day on each access road, existing baseline traffic flows would need to be < 550 vehicles per day for an increase of this magnitude to result in a 1 dB change in noise level.
- 8.17 It is noted that Atkins Way and Far Lash form part of the established local road network that serve a wider residential area. It is therefore reasonable to assume that existing baseline traffic flows on both routes exceed 550 vehicles per day.
- 8.18 In light of the above, any traffic noise increase due to additional customer vehicle movements associated with the proposed development are expected to be negligible, with any increase in

ambient noise levels ($L_{Aeq,16hr}$) likely to be less than 1 dB and therefore not acoustically significant.

9. Internal Ambient Noise Assessment (BS 8233)

- 9.1 To evaluate the suitability of the proposed first-floor residential flats against prevailing environmental noise (predominantly local road traffic), and ensure a good standard of residential amenity, an assessment has been undertaken in accordance with BS 8233:2014.

Acoustic Design Criteria

- 9.2 BS 8233:2014 provides guideline values for internal ambient noise levels within residential properties to ensure suitable resting and sleeping conditions. The relevant criteria are detailed in Table 9.1.

Activity	Location	07.00 to 23.00 hours	23.00 to 07.00 hours
Resting	Living Room	35dB $L_{Aeq,16hour}$	--
Dining	Dining Room/Area	40dB $L_{Aeq,16hour}$	--
Sleeping (daytime resting)	Bedroom	35dB $L_{Aeq,16hour}$	30dB $L_{Aeq,8hour}$

Table 9.1: Internal Noise Criteria BS 8233

- 9.3 Table 9.1 above indicates that daytime noise levels should be controlled below 35 dB $L_{Aeq, 16hour}$ and night-time levels in bedrooms should be below 30 dB $L_{Aeq, 8hour}$. These values are considered to represent a “Lowest Observed Effect Level” (LOAEL), in line with national planning policy guidance.
- 9.4 At night, WHO/ProPG guidance indicated that an LOAEL would be indicated when an event sound level of 45 dB L_{Amax} , fast is not exceeded more than 10-15 times per night.

Site Suitability for Residential Development

- 9.5 The baseline noise survey recorded maximum daytime levels of 51 dB $L_{Aeq,16hr}$ and night-time levels of 49 dB $L_{Aeq,8hr}$ at the first-floor elevation (Location A1).
- 9.6 When the above “worst case” noise levels are compared to the ProPG “Stage 1 Initial Site Noise Risk Assessment” guidance a ‘negligible’ to ‘low’ risk assessment level is indicated for daytime periods and a ‘low’ risk assessment level is indicated for night-time periods.
- 9.7 For “low” risk sites, ProPG states:

“At low noise levels, the site is likely to be acceptable from a noise perspective provided that a good acoustic design process is followed and is demonstrated in an ADS which confirmed

how the adverse impacts of noise will be mitigated and minimised in the finished development.”

- 9.8 In light of the above, it is concluded that the site is of “low” risk and should be suitable for residential development. Specific glazing and ventilation requirements are discussed below.

Glazing and Ventilation Requirements

- 9.9 It is understood that the proposed dwellings will be fitted with thermally efficient double glazed windows designed to achieve compliance with the applicable requirements of Part L (Conservation of Fuel and Power) of the Building Regulations.
- 9.10 It is also understood that the proposed dwellings will at a minimum incorporate background ventilators (trickle vents) within the window frames, with intermittent mechanical extract ventilation provided to kitchens, bathrooms and other wet rooms, to achieve compliance with the ventilation requirements of Approved Document F of the Building Regulations. This minimum Building Regulations compliant specification has been adopted as the basis of the façade sound insulation assessment.
- 9.11 Assuming a minimum façade specification comprising standard thermally efficient double glazing with a sound insulation performance of approximately R_w 29 dB (BS EN 12758:2019) together with standard background ventilators providing a minimum performance of approximately $D_{n,e,w}$ 32 dB, the resulting façade sound insulation performance for a typical ventilated residential dwelling is considered sufficient to provide an overall façade attenuation of approximately 25 dB under ventilated conditions i.e. trickle vents open.
- 9.12 On this basis, predicted internal noise levels are approximately 26 dB $L_{Aeq,16hour}$ during the daytime and 24 dB $L_{Aeq,8hour}$ during the night-time.
- 9.13 These levels are 9 dB below the daytime guideline value of 35 dB $L_{Aeq, 16 hours}$ and 6 dB below the night-time guideline values of 30 dB $L_{Aeq, 8 hour}$. It is therefore concluded that the minimum Building Regulations compliant glazing and ventilation specification will provide adequate protection against external noise intrusion, achieving the internal noise guideline values of BS 8233:2014.

Acoustics and Overheating

- 9.14 In accordance with Approved Document O of the Building Regulations, compliance with the overheating requirements for the proposed dwellings will need to be demonstrated.

- 9.15 The relationship between BS 8233 and Approved Document O is addressed within the AVO Guide, which provides a framework for considering the interaction between environmental noise, ventilation and overheating in residential developments.
- 9.16 Based on the measured noise levels of 51 dB $L_{Aeq,16hr}$ during the daytime and 49 dB $L_{Aeq,8hr}$ at night, the development is classified as “Low Risk” in line with the Stage 1 screening assessment described in the AVO Guide for during both the daytime and night-time periods. Accordingly, environmental noise is not expected to represent a significant constraint on the development of an appropriate overheating mitigation strategy.
- 9.17 The above conclusions relate solely to the acoustic implications of ventilation and overheating. Compliance with the overheating requirements of Approved Document O should be demonstrated separately through an overheating assessment.

External Amenity

- 9.18 BS 8233:2014 provides guidance in relation to noise levels within external amenity areas where such areas are provided as part of a residential development.
- 9.19 The proposed development does not include dedicated private external amenity areas. Future occupants would be expected to have access to existing public realm and local green spaces in the surrounding area.
- 9.20 In this context, detailed quantitative assessment of external amenity noise levels is not considered necessary.

10. Agent of Change

- 10.1 Paragraph 200 of the National Planning Policy Framework (NPPF) (2024) sets out the 'agent of change' principle, requiring new development to be appropriate for its location and to take account of existing businesses and community facilities.
- 10.2 The surrounding area, whilst predominantly residential, comprises a number of commercial uses along Atkins Way opposite the proposed development.
- 10.3 Baseline noise surveys include contributions from all existing sources within the local environment, including nearby commercial premises.
- 10.4 Site observations confirmed that noise from neighbouring commercial uses is not dominant within the prevailing ambient noise climate.
- 10.5 The proposed development includes mitigation measures, which are designed to control external environmental noise at the building façade. These measures will also assist in limiting any residual influence from existing neighbouring commercial activities.
- 10.6 Existing residential receptors are already located in closer proximity to surrounding commercial uses, indicating a degree of established mixed-use compatibility within the area.
- 10.7 In this context, it is considered that the proposed development can be accommodated within the existing acoustic environment without resulting in an unacceptable acoustic conflict with neighbouring commercial uses, subject to the mitigation proposed.

11. Conclusions

- 11.1 An environmental noise survey has been undertaken to establish the existing acoustic environment and determine representative background noise levels for the site.
- 11.2 Based on the representative background noise levels identified during the survey, noise emissions from proposed fixed building services plant can be effectively controlled through the application of cumulative rating level limits in accordance with BS 4142:2014+A1:2019. Subject to these limits being achieved, fixed plant noise is not expected to adversely affect the amenity of nearby noise-sensitive receptors.
- 11.3 Investigatory sound insulation testing has confirmed that the existing separating floor construction does not achieve the performance required by Approved Document E. Accordingly, a structural acoustic upgrade is required. Implementation of the recommended upgrade, providing a minimum improvement of 15 dB, will enable the separating floor to achieve the required standard of acoustic performance and provide suitable sound insulation between the ground-floor commercial unit and the first-floor residential dwellings.
- 11.4 An assessment of noise associated with HGV deliveries has been undertaken. Whilst individual delivery events are predicted to exceed existing background noise levels, such events will be limited to approximately one delivery per day, will be of short duration, and will not represent a material increase over the established lawful commercial use of the site. Accordingly, HGV delivery noise is not expected to give rise to significant adverse effects on residential amenity.
- 11.5 An assessment of traffic noise associated with the proposed commercial use has also been completed. The predicted increase in vehicular movements is low in the context of existing traffic activity and is not expected to result in a perceptible or significant change in environmental noise levels. It is therefore concluded that traffic associated with the proposed development will not adversely affect the amenity of existing nearby residential properties and is consistent with national and local planning policy objectives relating to noise.
- 11.6 The potential risk of the site for residential development has been assessed in line with Stage 1 of ProPG guidance. This concludes that the site constitutes an initial negligible to low risk during the daytime period and a low risk during the night-time.
- 11.7 The internal ambient noise assessment demonstrates that the proposed residential accommodation is suitable from an acoustic perspective. Standard Building Regulations-compliant glazing and ventilation are predicted to achieve the internal noise guideline values of BS 8233:2014, providing an appropriate standard of residential amenity. Environmental

noise is not expected to constrain the proposed development or the achievement of compliance with Approved Document O in respect of overheating.

- 11.8 Subject to the implementation of the mitigation measures identified within this report, including the recommended acoustic upgrade to the separating floor and the control of fixed plant noise, the proposed development is not expected to give rise to significant adverse effects on the health or quality of life of existing or future occupants as a result of commercial operations or environmental noise.
- 11.9 It is therefore concluded that the proposed development complies fully with noise-related national planning directives and local policy.

12. Appendix A: Relevant Planning Policy and Guidance

National Planning Policy

National Planning Policy Framework

- 12.1 The revised NPPF was updated in December 2024 and sets out the government's planning policies for England and how these are expected to be applied. This document replaces the first NPPF published in March 2012 and includes minor clarifications to the revised version published in July 2018, February 2019, July 2021, and 2023.
- 12.2 Where issues of noise impact are concerned the NPPF provides brief guidance in Chapter 15 'Conserving and enhancing the natural environment' as follows:

Paragraph 187:

'Planning policies and decisions should contribute to and enhance the natural and local environment by preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability.'

Paragraph 198:

'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:

- 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;
- b) identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason; and
- c) limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation.'

Paragraph 200:

'Planning policies and decisions should ensure that new development can be integrated effectively with existing businesses and community facilities (such as places of worship, pubs,

music venues and sports clubs). Existing businesses and facilities should not have unreasonable restrictions placed on them as a result of development permitted after they were established. Where the operation of an existing business or community facility could have a significant adverse effect on new development (including changes of use) in its vicinity, the applicant (or 'agent of change') should be required to provide suitable mitigation before the development has been completed.'

Noise Policy Statement for England (NPSE)

12.3 The NPSE sets out the Government's policy on noise and includes the long-term vision of promoting good health and a good quality of life through the effective management of noise within the context of Government policy on sustainable development.

12.4 This long-term vision is supported by the following aims:

12.5 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.

12.6 There are two established concepts from toxicology that are currently being applied to noise impacts, for example, by the World Health Organisation. They are:

- 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.

12.7 Extending these concepts further, NPSE leads to the concept of a significant observed adverse effect level:

- SOAEL (Significant Observed Adverse Effect Level) – this is the level above which significant adverse effects on health and quality of life occur.

12.8 NPSE acknowledges that it is not possible to have a single objective noise-based measure that defines NOEL, LOAEL and SOAEL that is applicable to all sources of noise in all situations. It is therefore suggested that more specific advice from other applicable noise standards and

guidance could be employed to determine suitable noise level criteria within the overall principles of the NPSE.

12.9 National Planning Practice Guidance

12.10 The application of national planning is amplified in the government's "National Planning Practice Guidance" (NPPG). This seeks to help clarify understanding the perception of noise effects, outcomes and actions that should be taken to align decision making with the NPPF. In line with the NPPF concept of basing decision making on the identification of "significant" or "other" impacts on health and quality of life, the NPPG aligns its guidance with the NPSE.

12.11 The table below summarises this guidance.

Perception	Examples of Outcomes	Increasing Effect Level	Action
Not noticeable	No Effect	No Observed Effect	No specific measures required
No Observed Adverse Effect Level (NOAEL)			
Present not intrusive	Noise can be heard, but does not cause any change in behaviour, attitude or other physiological response. Can slightly affect the acoustic character of the area but not such that there is a perceived change in the quality of life.	No Observed Adverse Effect	No specific measures required
Lowest Observed Adverse Effect Level (LOAEL)			
Present and intrusive	Noise can be heard and causes small changes in behaviour, attitude or other physiological response, e.g. turning up volume of television; speaking more loudly; where there is no alternative ventilation, having to close windows for some of the time because of the noise. Potential for some reported sleep disturbance. Affects the acoustic character of the area such that there is a small actual or perceived change in the quality of life.	Observed Adverse Effect	Mitigate and reduce to a minimum
Significant Observed Adverse Effect Level (SOAEL)			
Present and disruptive	The noise causes a material change in behaviour, attitude or other physiological response, e.g. avoiding certain activities during periods of intrusion; where there is no alternative ventilation, having to keep windows closed most of the time because of noise. Potential for sleep disturbance resulting in difficulty in getting to sleep, premature awakening and difficulty in getting back to sleep. Quality of life diminished due to change in acoustic character of the area.	Significant Observed Adverse Effect	Avoid

Present and very disruptive	Extensive and regular changes in behaviour, attitude or other physiological response and/or an inability to mitigate effect of noise leading to psychological stress or physiological stress, e.g. regular sleep deprivation/awakening; loss of appetite, significant, medically definable harm, e.g. auditory and non-auditory	Unacceptable Adverse Effect	Prevent
-----------------------------	---	-----------------------------	---------

Local Planning Policy

Hinckley & Bosworth Borough Council

12.12 The local planning requirements for noise control are governed by the Hinckley & Bosworth Borough Council Site Allocations and Development Management Policies DPD (adopted 2016). Specifically, Policy DM7 (Preventing Pollution and Flooding) and DM10 (Development and Design) serves as the primary mechanisms for managing the acoustic environment. The purpose of this policy is to protect human health, local quality of life, and natural ecosystems from the adverse effects of environmental pollution, which explicitly encompasses noise, structure-borne vibration, and obtrusive light intrusion.

12.13 Under Policy DM7 and DM10, the Council dictates that all new developments must demonstrate that they will not adversely affect the amenity of nearby land uses or future occupiers. For noise-sensitive developments (such as residential schemes), the policy requires evidence that the proposed structures are situated and insulated appropriately to secure acceptable internal and external living conditions. Conversely, for noise-generating developments (such as commercial or industrial applications), the developer must show that all reasonable steps have been taken through design, layout, physical orientation, and technological solutions to mitigate noise at the source.

Industry Guidance

BS 4142: 2014+A1:2019 “Methods for Rating and Assessing Industrial and Commercial Sound”

12.14 BS 4142 provides a rating and assessment methodology for assessing the potential adverse impact of industrial and commercial noise sources on neighbouring dwellings.

12.15 The assessment procedure initially compares the ‘Rating Level’ of the source with the ‘Background Noise Level’ when the source is not present.

12.16 The ‘Rating Level’ (L_{Ar}) referred to is the specific noise level of the noise source under investigation (in terms of the L_{Aeq} noise index), to which corrections are applied if the noise

has certain audible characteristics. The following corrections (based on a subjective assessment of noise source characteristics is given:

Character Correction				
Feature / Perception	Tonality	Impulsivity	Intermittency	Other acoustic characteristics
Just Perceptible	+2dB	+3dB	When the specific sound has identifiable On/Off conditions that are readily distinctive. +3dB	+3dB
Clearly Perceptible	+4dB	+6dB		
Highly Perceptible	+6dB	+9dB		

12.17 The 'Background Noise Level' (LA90) represents the noise level that is exceeded for 90% of the stated measurement period. For assessment purposes, the background noise level needs to be determined without the noise source under investigation operating.

12.18 The time of operation needs to be taken into account. During the day (normally taken to be 07.00 to 23.00 hours) a one-hour measurement period is considered appropriate. During the night (normally taken to be 23.00 – 07.00 hours) a 15-minute time period is normally used.

12.19 The following guidance is then offered based on the outcome of this initial assessment:

- 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 is likely to 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 the specific sound source will have an adverse impact or a significant adverse impact. Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact, depending on the context.

12.20 National planning policy directs that adverse noise impacts should be mitigated and reduced to a minimum and that "significant" noise impacts should be avoided. If the guidance of BS 4142:2014 + A1: 2019 is aligned with these objective, it can be concluded that:

- A "significant" noise impact (i.e. sound above a SOAEL) is likely where the rating level (LAr,T) of noise is 10dB or more above the background noise level (LA90,T); and

- A “low” noise impact (i.e. sound above a LOAEL) is likely where the rating level does not exceed the background level.

12.21 A note accompanying the guidance of BS 4142: 2014 + A1: 2019 states:

“Adverse impacts include, but are not limited to, annoyance and sleep disturbance. Not all adverse impacts will lead to complaints and not every complaint is proof of an adverse impact.”

12.22 The initial estimate of the impact should then be modified to account for its context. Such considerations include:

- The absolute level of the sound - the magnitude of the overall impact might be greater for an acoustic environment where the residual sound level is high than for an acoustic environment where the residual sound level is low. Where background sound levels and rating levels are low, absolute levels might be as, or more, relevant than the margin by which the rating level exceeds the background. This is especially true at night.
- Where residual sound levels are very high, the residual sound might itself result in adverse impacts or significant adverse impacts, and the margin by which the rating level exceeds the background might simply be an indication of the extent to which the specific sound source is likely to make those impacts worse.
- The character and level of the residual sound compared to the character and level of the specific sound.
- The sensitivity of the receptor and whether dwellings or other premises used for residential purposes will already incorporate design measures that secure good internal and/or outdoor acoustic conditions.

BS 8233: 2014; “Sound Insulation and Noise Reduction for Buildings

12.23 BS 8233: 2014 “Sound Insulation and Noise Reduction for Buildings” offers the following design guidance for indoor ambient noise levels within dwellings:

Activity	Location	07.00 to 23.00 hours	23.00 to 07.00hours
Resting	Living Room	35dB L _{Aeq,16hour}	--
Dining	Dining Room/Area	40dB L _{Aeq,16hour}	--
Sleeping (daytime resting)	Bedroom	35dB L _{Aeq,16hour}	30dB L _{Aeq,8hour}

12.24 A note accompanying the above Table states:

“Regular individual noise events (for example, scheduled aircraft or passing trains) can cause sleep disturbance. A guideline value may be set in terms of SEL or L_{Amax,F} depending on the character and number of events per night. Sporadic noise events could require separate values.”

12.25 Despite identifying that maximum values ‘may’ be set, guidance values for differing types of noise/frequency of events is not given. It can, however, be noted that the recommendations of BS8233 are aligned with guidance set out in the World Health Organisation’s “Guidelines for Community Noise”. On that basis, it would seem appropriate to seek to limit night-time noise intrusion such that maximum noise levels do not normally exceed a maximum internal value of 45dB L_{Amax,fast}. Section 3.4 of the WHO guidelines implies that ‘not normally’ might reasonably be taken to infer an occurrence of not more than 10-15 times per night.

12.26 A further note to the above Table indicates that where “development is considered necessary or desirable”, the above guideline values can be relaxed by 5dB and “reasonable” internal conditions still be achieved.

Professional Planning Guidance (ProPG)

12.27 ProPG Planning and Noise provides professional practice guidance in relation to new residential development exposed to noise from transport sources. It provides practitioners with a recommended approach to the management of noise within the planning system in England.

12.28 A two-stage process is suggested:

- Stage 1 – Initial Noise Risk Assessment
- Stage 2 – Detailed assessment (Acoustic Design Statement), required where the Stage 1 risk is identified above negligible.

12.29 The guidance reflects the Government’s overarching National Planning Policy Framework, the Noise Policy Statement for England, and Planning Practice Guidance - Noise and draws on other authoritative sources of guidance. It provides advice for Local Planning Authorities and developers, and their professional advisors, on achieving good acoustic design in and around new residential developments.

AVO: Acoustics, Ventilation and Overheating Residential Design Guide

12.30 The AVO guide recommends an approach to acoustic assessments for residential development that takes into consideration the interdependence of provisions for acoustics,

ventilation and overheating. The application of the AVO Guide is intended to demonstrate good acoustic design in accordance with ProPG. A two-stage assessment approach is advised as:

- Stage 1: Site Risk Assessment
- Stage 2: Detailed Assessment of Adverse Effect

12.31 The guide provides a means of assessment to satisfy the need to consider acoustics, ventilation and overheating at the planning stage. It also assists in educating clients, environmental health officers, planning officers and other stakeholders of the interdependence of design for acoustics, ventilation and overheating.

Approved Document O ‘Overheating’

12.32 Approved Document O of the Building Regulations requires that residential designs limit unwanted solar gains in summer and provide adequate means to remove excess heat from the indoor environment.

12.33 Section 3 of Approved Document O addresses environmental noise. It dictates that in locations where external noise is a known risk, the overheating mitigation strategy cannot solely rely on open windows if doing so results in high internal noise levels during sleeping hours (23:00 to 07:00).

12.34 Windows are deemed "likely to be closed" if internal bedroom noise levels exceed either of the following acoustic thresholds:

- 40dB LAeq,8hr
- 55dB LAFmax occurring more than 10 times a night.

12.35 Where an open window strategy for heat removal causes these thresholds to be breached, the building design must adopt an alternative, acoustically attenuated mechanical or passive cooling strategy to prevent overheating.

Approved Document E ‘Resistance to the Passage of Sound’

12.36 Approved Document E (ADE) of the Building Regulations outlines the statutory requirements for ensuring "reasonable resistance to sound" within residential buildings, schools, and newly formed dwellings. The purpose of the document is to protect occupants from the adverse effects of noise, safeguarding health, well-being, and internal comfort. It applies broadly to separating walls, floors, and stairs between dwellings, as well as partitions separating domestic properties from communal or non-domestic spaces. The framework governs new build

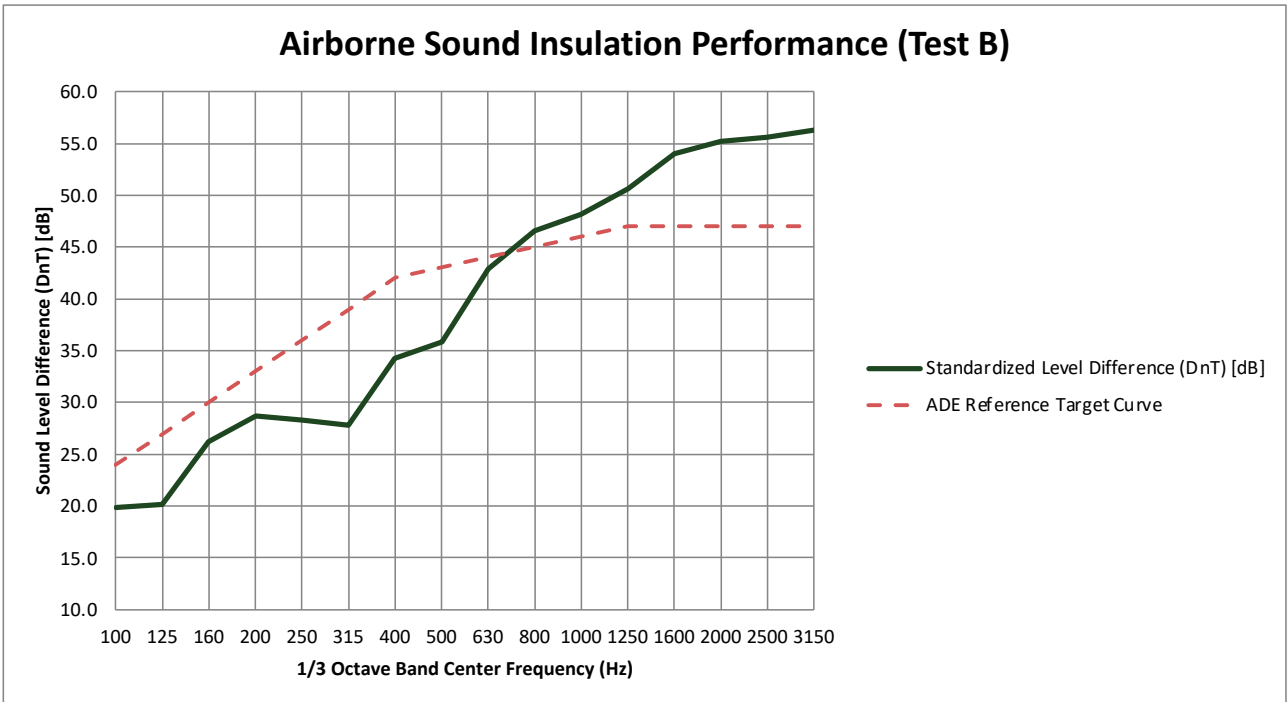
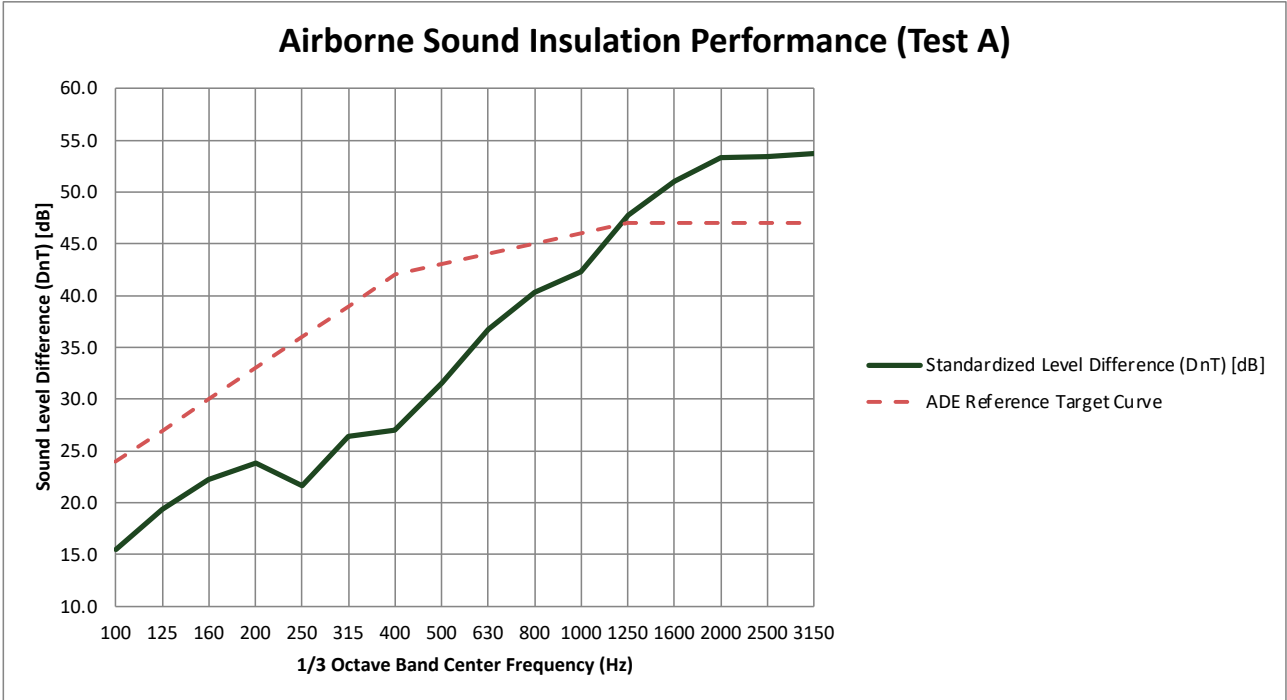
constructions, major structural alterations, and material changes of use where an existing building is converted into residential units.

12.37 To regulate noise transmission effectively, ADE focuses on two primary acoustic mechanisms: airborne sound insulation and impact sound insulation. Airborne insulation targets sound that travels through the air, such as speech, television audio, and music, and applies to both separating walls and floors. Impact insulation targets structure-borne vibration generated by direct physical contact, such as footsteps or moving furniture, and applies strictly to separating floors and stairs. Compliance with these criteria is typically verified on-site through standardized Pre-Completion Testing (PCT), although new builds can alternatively bypass testing by utilizing pre-certified, high-performance structural configurations known as 'Robust Details'.

12.38 The specific performance standards required to achieve compliance depend on the classification of the building works. For new build residential properties, separating walls and floors must achieve a minimum airborne performance of 45 dB DnT,w+Ctr and a maximum impact sound transmission of 62 dB LnT,w.

12.39 For properties undergoing a material change of use or conversion, the thresholds are adjusted to a minimum of 43 dB for airborne sound and a maximum of 64 dB for impact sound. Additionally, the document explicitly cautions that an even higher standard of insulation may be required when a domestic dwelling shares a dividing structure with a commercial or non-domestic space, depending entirely on the nature and intensity of the noise generated below or adjacent.

13. Appendix B: Sound Insulation Testing Results



14. Appendix C: Time History Graph

