



MEC
Consulting Group

ACOUSTICS

The Common, Barwell
Acoustics Assessment
September 2026

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REPORT REF: 30795-ENV-0401 Rev A

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EXECUTIVE SUMMARY

Site Address	The Common, Barwell.
Site Description and Setting	The Site, comprised of green field, is bound by Dawsons Lane to the north, with existing residential located beyond; Ploor Platt allotments and the former Inglenook Farm camping site to the east; further green field and existing residential to the south, with Leicester Road located beyond; and green field, existing residential and the Dawsons Lane Enterprise Centre to the west, with The Common located beyond. The principal sources of noise are predicted to be from road traffic using Leicester Road and The Common, coupled with any contributions from the neighbouring Dawsons Lane Enterprise Centre.
Proposed Development	Development proposals comprise the erection of residential dwellings, with associated infrastructure and access via The Common.
Road Traffic Assessment	<u>Road Traffic</u> Based on the modelled sound levels, the most exposed receptor to The Common and Leicester Road falls within the ProPG risk category of 'Low' risk during the daytime, for which the guidance states <i>"the Site is likely to be acceptable from a noise perspective provided that a good acoustic design process is followed"</i>. The noise exposure increases to a 'Medium' risk during the night-time, for which the guidance requires that <i>"the Site should follow a good acoustic design process which confirms how the adverse impacts of noise will be mitigated and minimised"</i>. <u>External Sound Levels</u> Based on the planning layout, modelling demonstrates that all garden sound levels exposed to road traffic noise will satisfy BS 8233's criterion of 55 dB L_{Aeq,16hr} without recourse for additional mitigation, with the vast majority of garden areas across the Site satisfying BS 8233's lower-level criterion of 50 dB. Nevertheless, it is recommended that any garden area with a direct or partial indirect line of sight to the roads have 1.8m high close boarded timber fencing along garden boundaries used for amenity to minimise impacts in accordance with BS 8233. <u>Internal Sound Levels</u> With regards to internal acoustic conditions, all dwellings will satisfy the criteria in BS 8233 and ProPG through the provision standard double glazing and direct airpath window mounted trickle vents for the majority of the Site, with acoustic window mounted trickle vents required for the most exposed dwellings.
Acoustics-led Overheating Assessment	An initial AVOG Level 1 Assessment demonstrates that at the most exposed to The Common and Leicester Road, an AVOG Level 2 assessment is optional due to the 'Low' risk grading. The Level 2 Assessment indicates that, internal sound levels using a room specific Mechanical Ventilation (MV) system would lie substantially below the Lowest Observed Adverse Effect Level.
BS 4142 Assessment	<u>Dawsons Lane Enterprise Centre</u> Assessment indicates that, with no mitigation in place, the Rating Level at the most exposed receptors due to operational noise exceeds the background sound level by up to +26 dB, which is an indication of the specific sound source having a 'Significant Adverse' impact, depending on context, during both the day and night-time. With mitigation in place, the Rating Level reduces substantially, though continues to exceed the background sound level at the most exposed receptors by up to +19 dB. When taking into account contextual considerations and internal and external acoustic conditions, residential amenity can be protected through pragmatic mitigation measures.
Conclusions	It is considered that with the implementation of the recommended mitigation strategy, the Site is suitable for residential development.
Recommendations	1.8m high close boarded timber fencing along garden boundaries with a direct or partial indirect line of sight to the roads. 2.2m high acoustic fencing for gardens adjacent to Dawsons Lane Enterprise Centre - Provision of glazing and ventilation systems meeting the minimum acoustic performance requirements specified in the report. - Overheating strategy to be determined at Building Control stage based upon the outcome of any Dynamic Thermal Modelling undertaken to satisfy the requirements of AD-O.
This summary should be read in conjunction with the full report and reflects an assessment of the site based on information received by MEC at the time of production.	

CONTENTS

1.0	INTRODUCTION	5
2.0	STANDARDS AND GUIDANCE	7
3.0	ENVIRONMENTAL SOUND SURVEY	12
4.0	ASSESSMENT METHODOLOGY	18
5.0	ROAD TRAFFIC ASSESSMENT	23
6.0	ACOUSTICS-LED OVERHEATING ASSESSMENT	25
7.0	BS 4142 ASSESSMENT	29
8.0	MITIGATION	32
9.0	CONCLUSIONS	34

APPENDICES

A.	PLANNING LAYOUT
B.	ACOUSTICS GLOSSARY
C.	ENVIRONMENTAL SOUND SURVEY DATA
D.	DAWSONS LANE ENTERPRISE CENTRE SITE MAP
E.	SOUND LEVEL CONTOUR MAPS
F.	GHA TABLE
G.	MITIGATION REQUIREMENT DRAWINGS
H.	GLAZING AND VENTILATION PERFORMANCE REQUIREMENTS

1.0 INTRODUCTION

- 1.1 MEC Consulting Group Ltd (MEC) has been commissioned by David Wilson Homes, to undertake an Acoustics Assessment aimed at discharging the planning condition pertaining to the planning permission for the proposed residential development at The Common, Barwell (hereafter referred to as 'the Site').

Existing Site

- 1.2 The Site, comprised of green field, is bound by Dawsons Lane to the north, with existing residential located beyond; Floor Platt allotments and the former Inglenook Farm camping site to the east; further green field and existing residential to the south, with Leicester Road located beyond; and green field, existing residential and the Dawsons Lane Enterprise Centre to the west, with The Common located beyond.
- 1.3 The principal sources of noise are predicted to be from road traffic using Leicester Road and The Common, coupled with any contributions from the neighbouring Dawsons Lane Enterprise Centre.
- 1.4 An approximate redline boundary is presented in Figure 1.1 below.

Figure 1.1: Approximate Redline Boundary



Development Proposals

- 1.5 Development proposals comprise the erection of residential dwellings, with associated infrastructure and access via The Common.
- 1.6 The planning layout is presented in **Appendix A**.

Assessment Scope

1.7 Planning condition 20 requires the following:

“The details to be submitted in accordance with condition 1, to be approved in writing by the Local Planning Authority shall include a scheme of noise mitigation for internal protecting the proposed dwellings that are located within that part of the site identified in the Noise Impact Assessment by Spectrum Acoustic consultants dated 18 December 2023 as requiring protection, from noise from commercial operations and road traffic. The development shall thereafter be carried out in accordance with the approved details.”

1.8 In order to discharge the condition, the following scope of works has been undertaken:

- An environmental sound survey has been undertaken within the Site in order to determine the prevailing acoustic conditions;
- An acoustic model has been created in order to predict sound levels across the Site for comparison against relevant criteria contained within ProPG¹ and the British Standards BS 8233² and BS 4142³;
- An acoustics-led overheating assessment has been undertaken to determine the number of dwellings that can achieve internal sound levels outlined in AVOG⁴, with additional consideration given to the acoustic criteria contained in AD-O⁵; and
- Where required, appropriate mitigation measures have been provided to demonstrate compliance with the relevant standards.

1.9 The conclusions of this report aim to demonstrate to the Local Planning Authority that external and internal acoustic conditions will be compliant with the relevant British Standards and Acoustic Guidance.

Disclaimer

1.10 MEC has completed this report for the benefit of the individuals referred to in Paragraph 1.1 and any relevant statutory authority which may require reference in relation to approvals for the proposed development. Other third parties should not use or rely upon the contents of this report unless explicit written approval has been gained from MEC.

1.11 MEC accepts no responsibility or liability for:

- The consequence of this documentation being used for any purpose or project other than that for which it was commissioned;
- The issue of this document to any third party with whom approval for use has not been agreed.

¹ Professional Practice Guidance on Planning and Noise, May 2017.

² BS 8233:2014 ‘Guidance on sound insulation and noise reduction for buildings’

³ BS 4142:2014 +A1:2019 ‘Methods for rating and assessing industrial and commercial sound.’

⁴ Acoustics Ventilation and Overheating, Residential Design Guide, V1.1. January 2020.

⁵ The Building Regulations 2010, Overheating, Approved Document ‘O’.

2.0 STANDARDS AND GUIDANCE

General

2.1 An acoustic glossary is provided in **Appendix B** to assist the reader.

Summary of Guidance and Standards

2.2 The following guidance and standards relevant to the assessment are outlined below:

- National Planning Policy Framework (NPPF) 2026;
- Noise Policy Statement for England (NPSE) 2010;
- Professional Practice Guidance on Planning and Noise (ProPG) 2017;
- BS 8233:2014 '*Guidance on sound insulation and noise reduction for buildings*';
- Acoustics Ventilation and Overheating Guide (AVOG) 2020; and
- BS 4142:2014+A1:2019 '*Methods for rating and assessing industrial and commercial sound*'.

2.3 For conciseness, the guidance and standards most appropriate to this assessment are summarised in this section.

Professional Practice Guidance on Planning and Noise – ProPG

2.4 ProPG seeks to secure good acoustic design for new residential developments. The guidance includes a framework to enable situations where noise is not an issue but to help identify the extent of risk at noisier sites. The guidance does not constitute an official government code of practice and neither replaces nor provides an authoritative interpretation of the law or government policy.

2.5 The guidance is restricted to sites that are exposed predominantly to noise from transportation sources. Where industrial or commercial noise is present on the site but is “not dominant”, its contribution may be included in the noise level used to establish the degree of risk. However, if the industrial/commercial source is dominant, an assessment in accordance with BS 4142 should be conducted.

2.6 A two-stage approach is considered whereby:

- Stage 1 – an initial noise risk assessment of the proposed development site is undertaken;
- Stage 2 – a systematic consideration of internal and external noise levels is considered ensuring good acoustic design and consideration of other relevant issues is recognised.

2.7 ProPG also references the World Health Organisation (WHO) guidance on maximum noise levels at night. Guidance from the WHO states that indoor sound pressure levels should not exceed approximately 45 dB L_{AFmax} more than 10 – 15 times per night. ProPG indicates that individual noise events do not exceed 45 dB L_{AFmax} more than 10 times a night and therefore this is considered as criteria in addition to that outlined in Table 2.1.

- 2.8 Whilst ProPG does not define a measurement interval for the assessment of L_{AFmax} levels, research⁶ has been undertaken which indicates that, for Maximum Event Level assessments, a sampling interval of between 1 and 3 minutes relates most closely to how awakening events are experienced by people in reality when compared to longer sampling periods.
- 2.9 For brevity, within the study, the majority of people (circa 75-85%) under test returned to a sleep state by approximately 2.5 minutes after the initial awakening event.
- 2.10 In summary, a longer sampling period can result in the under assessment of the 10th highest maximum level, therefore, based upon research and the recommendation of the Institute of Acoustics (IOA), a sample measurement of 1 minute has been used to inform this assessment.
- 2.11 Upon completion of the ProPG's Stage 1 and 2 assessments, the findings should enable one of four possible recommendations to be presented to the decision maker, namely, to grant permission without conditions, grant with conditions, 'avoid' or 'prevent'.

BS 8233:2014 'Guidance on sound insulation and noise reduction for buildings'

- 2.12 BS 8233 provides recommendations for the control of noise in and around buildings.
- 2.13 The guidance provided includes appropriate internal and external noise level criteria which are applicable to residential buildings exposed to steady external noise sources. It is stated in the British Standard that it is desirable for internal ambient noise levels to not exceed the criteria set out in Table 2.1.

Table 2.1: BS 8233: 2014 Table 4 – Indoor Ambient Noise Levels for Dwellings

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

- 2.14 Additional guidance in BS 8233 indicates that appropriate ventilation should be provided, if relying on closed windows to meet the guide values, and that such ventilation should not compromise the façade insulation and resulting noise levels.
- 2.15 BS 8233 additionally includes guidance on external amenity areas whereby it states that external noise levels should not exceed 50 dB $L_{Aeq, T}$ with an upper guideline of 55 dB $L_{Aeq, T}$ which would be acceptable in noisier environments.
- 2.16 Furthermore, due to the nationwide difficulty in satisfying the external criteria outlined above, the standard provides an over-arching consideration of how to treat external amenity areas as follows:

⁶ Paxton et al., Assessing L_{max} for residential development: The AVO Guide Approach, Institute of Acoustics, 2019

“... it is also recognized that these guideline values are not achievable in all circumstances where development might be desirable. In higher noise areas, such as city centres or urban areas adjoining the strategic transport network, a compromise between elevated noise levels and other factors, such as the convenience of living in these locations or making efficient use of land resources to ensure development needs can be met, might be warranted. In such a situation, development should be designed to achieve the lowest practicable levels in these external amenity spaces, but should not be prohibited.”

Acoustics Ventilation and Overheating Guide (AVOG) 2020

- 2.17 AVOG outlines a methodology for the assessment of airborne sound during overheating conditions, and emphasises the co-dependency of acoustics, ventilation and overheating design.
- 2.18 Many developments require closed windows to provide good internal acoustic conditions which is in direct contrast to residents opening windows to keep a building cool. These opposing requirements are becoming a significant issue in residential building design as only one environmental comfort is then possible: either comfortable noise levels with windows closed or thermal comfort with windows open.
- 2.19 AVOG prescribes a two-level assessment procedure, the first stage is based upon external sound levels and provides a risk of adverse acoustic conditions during periods of overheating. The second stage is a formal assessment which considers both internal acoustic conditions and increased ventilation during overheating concurrently, and is typically reserved for detailed design stage.
- 2.20 A Level 2 AVOG assessment gives consideration to internal noise levels on a sliding scale depending on the likelihood and duration of overheating, with the potential for internal adverse effect levels described as follows:
- NOAEL – No Observed Adverse Effect Level (no effect can be detected, typically BS 8233 criteria);
 - LOAEL – Lowest Observed Adverse Effect Level (adverse effects start to be detected); and
 - SOAEL – Significant Observed Adverse Effect Level (significant adverse effects on health and quality of life occur).
- 2.21 An interpretation of the sliding scale within AVOG is presented in Table 2.2.

Table 2.2: AVOG Level 2 Criteria

Effect Level	Internal Noise Level Criteria	
	Daytime $L_{Aeq,16hr}$	Night-time $L_{Aeq,8hr}$
NOAEL	< 35	< 30
LOAEL	35	30
SOAEL	40 – 50	35 – 42
Note: As internal noise levels rise from LOAEL to SOAEL, there is an increasing risk of an adverse effect level and mitigation measures may be required. Furthermore, SOAEL is dependent on how often overheating is likely to occur as higher noise levels may only be tolerable for shorter periods.		

- 2.22 With regards to maximum event exposure during periods of overheating, and whilst AVOG does present a fixed external criterion of 65 dB L_{AFmax} , the more stringent internal criterion of 55 dB L_{AFmax} contained within

AD-O for Building Control purposes, will be used to define mitigation where it is found that maximum event levels drive the acoustic design.

BS 4142:2014+A1:2019 'Methods for rating and assessing industrial and commercial sound'

2.23 BS 4142 describes methods for rating and assessing industrial and/or commercial sound and includes, but is not limited to, the assessment of:

- Sound from industrial and manufacturing processes;
- Sound from fixed installations which comprise mechanical and electrical equipment;
- Sound from the (un)loading of goods and materials at industrial/commercial premises; and
- Sound from mobile plant and vehicles that is an intrinsic part of the overall sound emanating from premises or processes such as that from forklift trucks on or around an industrial and/or commercial site.

2.24 The methods described in BS 4142 use outdoor sound levels to assess the likely effects of sound on people who are typically outside residential premises. Although indoor effects can be indicated where the façade composition is known. A summary of the approach set out in BS 4142 is set out below:

- Establish or predict the specific sound level of the source(s) by considering both the ambient (includes the source to be assessed) and residual (excludes the source to be assessed but includes all remaining sources) sound level;
- Measure the representative background sound levels, typically by measuring close to the receptor location;
- Rate the specific sound level to account for any distinguishing characteristics (see below);
- Estimate the impact by subtracting the background sound level from the rating level; and
- Consider the initial estimate of impact, as determined above, in the context of the noise and its environment.

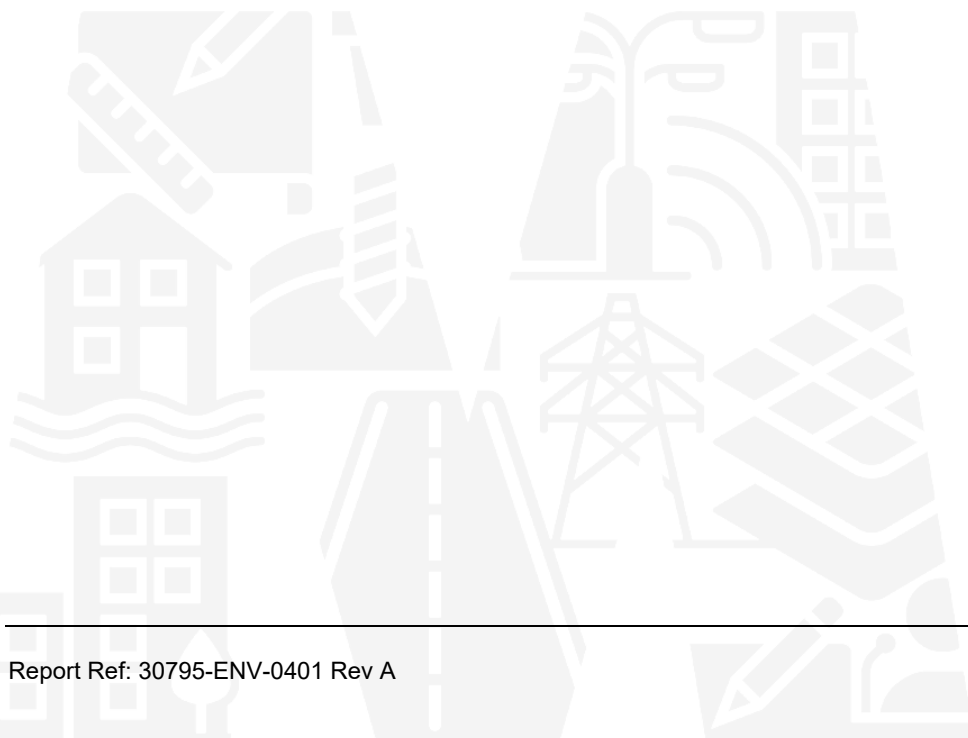
2.25 The specific sound level is rated to account for distinguishing characteristics by using penalties for tonality, impulsivity, intermittency and other sound characteristics. The dominant acoustic characteristic should be applied to avoid large penalties which is in accordance with the Institute of Acoustics response to BS 4142.

2.26 The character corrections are flexible according to whether the acoustic character is just perceptible at the noise receptor, or is clearly perceptible or highly perceptible, and range from 0 to 6 dB for tonal noise, 3 to 9 dB for impulsive noise, and 3 dB for other non-tonal/impulsive acoustic characteristics.

2.27 An initial estimate of impact of the specific sound is obtained by subtracting the background sound level from the rating level. Typically, the greater the difference, the greater the magnitude of impact.

- A difference of around +10 dB or more is likely to be an indication of a significant adverse impact, depending on the context;
- A difference of around +5 dB is likely to be an indication of an adverse impact, depending on the context;
- At differences lower than +5 dB a low impact is likely, depending on the context. The lower the rating level is to the measured background sound level, the less likely it is that the specific sound source will have an impact.

2.28 The results of the initial assessment should then be considered in light of all pertinent contextual factors.



3.0 ENVIRONMENTAL SOUND SURVEY

3.1 An environmental sound survey was undertaken between Tuesday 9th to Monday 15th June 2026. The survey was undertaken in full accordance with the guidance set out in BS 7445⁷.

3.2 Sound Level Meters (SLMs) were installed at three locations as follows:

- Continuous Measurement 1 (CM1): 24-hour continuous measurement between Tuesday 9th and Wednesday 10th June, along the eastern boundary at approximately 8m from the carriageway edge of The Common;
- Continuous Measurement 2 (CM2): 24-hour continuous measurement between Wednesday 10th and Thursday 11th June, to the south of the Site, approximately 6m from the carriageway edge of Leicester Road; and
- Continuous Measurement 3 (CM3): 5-day continuous measurement between Thursday 11th to Monday 15th June adjacent to the Dawsons Lane Enterprise Centre.

3.3 The measurement positions are identified in Figure 3.1.

Figure 3.1: Measurement Positions



⁷ BS 7445-1:2003 'Description and measurement of environmental noise, Part 1: Guide to quantities and procedures.'

Equipment

- 3.4 Measurements were undertaken using Class 1 integrating/averaging SLMs housed in environmental protection apparatus. The SLMs were installed in a free field position at a height of 1.5m above local ground level, and field calibrated before and after the survey using a Class 1 calibrator, with no significant drift in calibration noted.
- 3.5 The SLMs were set up to capture the following parameters at a minimum: L_{Aeq} , L_{A90} and L_{AFmax} values, and full details of the equipment used to undertake the survey are presented in Table 3.1.

Table 3.1: Equipment and Calibration Details

Measurement Position	Description	Manufacturer & Type No.	Serial No.	Calibration Due Date
CM1 and CM2	Sound Level Meter	RION NL-53	00240895	24/12/2027
	Pre-Amplifier	NH-25	33786	
	Microphone	UC-59	25250	
	Calibrator	Rion NC-75	34957104	24/03/2027
CM3	Sound Level Meter	Type NOR140	1407773	23/03/2027
	Pre-Amplifier	Type 1209	23168	
	Microphone	Type 1225	413180	
	Calibrator	Norsonic 1255	125525494	25/08/2026

Meteorological Conditions

- 3.6 During the attended measurement periods, weather conditions were noted to remain warm and dry, with interchangeable southerly winds of up to 3.3 m/s.
- 3.7 A review of online weather data obtained from www.timeanddate.com, indicates that during the unattended monitoring period, conditions remained stable, and there were no adverse conditions that could have significantly influenced the measured sound levels.

Observations

- 3.8 Site notes indicate the predominant source of noise across the Site to be from road traffic from the surrounding network.
- 3.9 For The Common, road traffic was observed to be generally low and infrequent in volume, comprising mainly of light vehicles, with a low percentage of HGV.
- 3.10 Leicester Road was noted to have relatively steady volume of traffic, with a medium percentage of HGV usage.
- 3.11 Adjacent to the Dawsons Lane Enterprise Centre, the dominant noise was noted to be infrequent vehicular movements, comprising predominantly cars in the adjacent service area, and HGV accessing the rear of the centre. There were no observed commercial operations during the attended measurement periods, with no identified external plant audible.

Results

- 3.12 Time history graphs for the continuous measurement positions are presented in **Appendix C**.

Road Traffic

- 3.13 Table 3.2 and Table 3.3 provide a summary of measured assessment appropriate sound levels at CM1 and CM2 respectively.

Table 3.2: Summary of Measured Sound Levels at CM1, dB

Date	Daytime 07:00 – 23:00	Night-time 23:00 – 07:00	
	L _{Aeq,T}	L _{Aeq,8hr}	Typical Maximum Event Level ^(a) L _{AFmax,1min}
Tue 9 th June	58 ^(b)	53	74
Wed 10 th June	60 ^(c)	-	-
(a) Maximum noise level not exceeded more than 10 times per night. (b) T = 6.5hr (c) T = 9.5hr			

- 3.14 Adjacent to The Common, the derived daytime L_{Aeq,16hr} was 59 dB (rounding to the nearest whole number for assessment purposes), while the measured night-time L_{Aeq,8hr} was 53 dB.
- 3.15 Analysis of the night-time L_{AFmax,1min} noise levels shows that the individual noise events did not exceed 74 dB more than 10 times during the measured night-time period. Analysis of the audio recordings show that all events above 74 dB were caused by vehicular ‘pass-bys’, with no significant low frequency spectral content. Therefore, a value of 74 dB L_{AFmax,1min} is considered appropriate value for assessment purposes.

Table 3.3: Summary of Measured Sound Levels at CM2, dB

Date	Daytime 07:00 – 23:00	Night-time 23:00 – 07:00	
	L _{Aeq,T}	L _{Aeq,8hr}	Typical Maximum Event Level ^(a) L _{AFmax,1min}
Wed 10 th June	71 ^(b)	65	83
Thu 11 th June	73 ^(c)	-	-
(a) Maximum noise level not exceeded more than 10 times per night. (b) T = 5.5hr (c) T = 10.5hr			

- 3.16 Adjacent to Leicester Road, the derived daytime L_{Aeq,16hr} was 72 dB, while the measured night-time L_{Aeq,8hr} was 65 dB.
- 3.17 Analysis of the night-time L_{AFmax,1min} noise levels shows that the individual noise events did not exceed 83 dB more than 10 times during the measured night-time period. Analysis of the audio recordings show that all events above 83 dB were caused by vehicular ‘pass-bys’, with no significant low frequency spectral content. Therefore, a value of 83 dB L_{AFmax,1min} is considered appropriate value for assessment purposes.

Dawsons Lane Enterprise Centre

- 3.18 In accordance with BS 4142, sound levels measured at CM3 have been analysed over the specified reference time intervals (1-hour daytime and 15-minute night-time), and to avoid significant tabulation within the body of the report, the highest measured daytime and night-time periods for the survey are presented in Table 3.4.

Table 3.4: Summary of Measured $L_{Aeq,T}$ Levels at CM3, dB

Date	Daytime 07:00 – 23:00		Night-time 23:00 – 07:00	
	Time Period	$L_{Aeq,1hr}$	Time Period	$L_{Aeq,15min}$
Fri 12 th June	11:00 – 12:00	56	06:30 – 06:45	46
	15:00 – 16:00	61	06:45 – 07:00	43
Mon 15 th June	-		06:30 – 06:45	50
			06:45 – 07:00	51

- 3.19 The highest daytime measurement of 61 dB $L_{Aeq,1hr}$ occurred on Friday 12th June between the 1-hour period of 15:00 and 16:00. Analysis of the audio recordings for this period indicates influence on sound levels predominantly comprising car movements, though include contributions from metal ‘bangs’ and HGV movements for a total of 3 minutes, with a corresponding $L_{Aeq,3min}$ of 48 dB. With the exception of the metal bangs, no other identifiable commercial operations were identified during this period.
- 3.20 Similarly for the second highest measured daytime level of 56 dB $L_{Aeq,1hr}$ during the 1-hour period from 11:00 – 12:00 hours, audio recording show predominant impacts are from light vehicular movements (cars/motorbikes, door ‘slams’ etc). However, metal bangs and HGV movements and reverse alarms are present, again for a total of 3 minutes, with a corresponding $L_{Aeq,3min}$ of 49 dB.
- 3.21 During the night-time measurement periods, the highest measurement of 51 dB $L_{Aeq,15mins}$ occurred during the early morning period of Monday 15th June, between the 15-minute period of 06:45 and 07:00. Analysis of the audio recordings for this period indicates influence on sound levels predominantly comprising car movements, though once again include contributions from HGV movements for a total of 2 minutes, with a corresponding $L_{Aeq,2min}$ of 52 dB. With the exception of the movements, no other identifiable commercial operations were identified during any other night-time period.

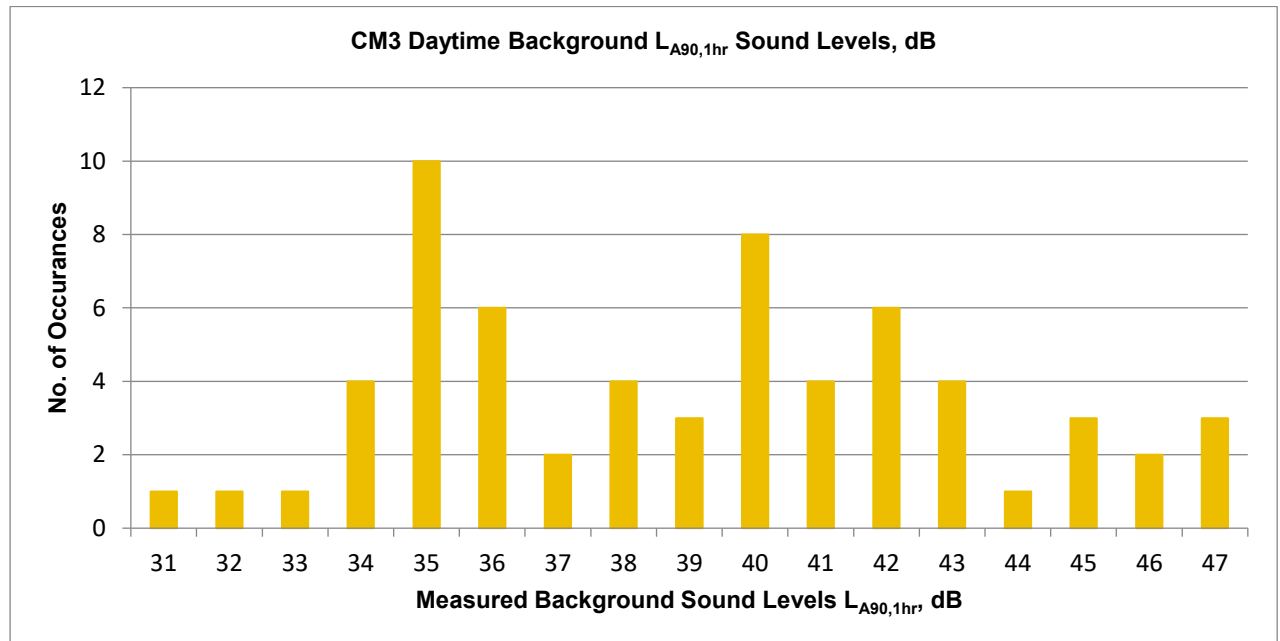
Background Sound Levels

- 3.22 With regard to derivation of the L_{A90} background sound level for assessment purposes and given the infrequent nature of the measured commercial operations, CM3 is considered to be appropriately representative of typical conditions for new dwellings closest to the Dawsons Lane Enterprise Centre.
- 3.23 Section 8 of BS 4142 makes it clear that the objective of the assessment “*is not simply to ascertain a lowest measured background sound level, but rather to quantify what is typical during particular time periods.*”
- 3.24 Paragraph 8.14 of BS 4142 similarly remarks that “*The monitoring duration should reflect the range of background sound levels for the period being assessed. In practice, there is no ‘single’ background sound*

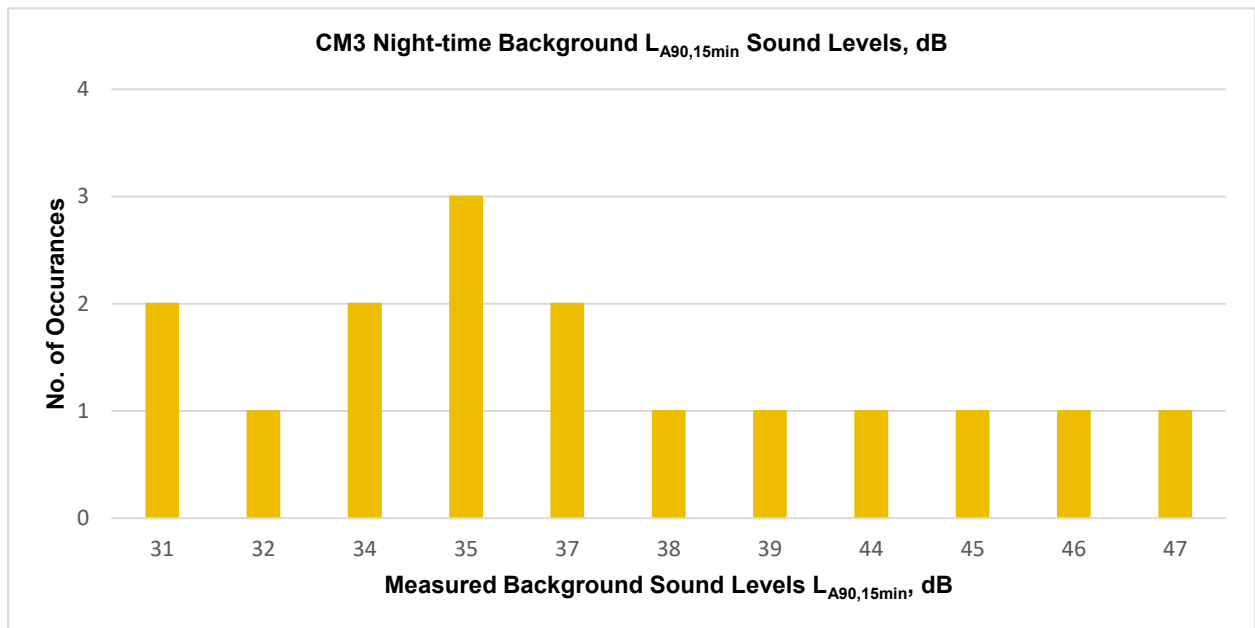
level as this is a fluctuating parameter. However, the background sound level used for the assessment should be representative of the period being assessed.”.

- 3.25 The subsequent Note 1 states that “A representative level ought to account for the range of background sound levels and ought not automatically to be assumed to be either the minimum or modal value”.
- 3.26 A statistical analysis of the daytime $L_{A90,1hr}$ sound measurements, consistent with the BS 4142 advice, is shown in Figure 3.2.

Figure 3.2: Statistical Analysis of Measured Daytime Background Sound Levels at CM3



- 3.27 During the daytime, the data shows a clear prevailing background sound level of 35 dB, with 40 dB being the second most prevalent, and an overall range in values extending from 31 dB to 47 dB. Therefore, the prevailing background sound level of 35 dB $L_{A90,1hr}$ is considered to be the most appropriate value to use for assessment purposes during the daytime.
- 3.28 With regard to night-time background sound levels for assessment purposes and given that the only identifiable contributions from the neighbouring Dawsons Lane Enterprise Centre occurred during the early morning period of 06:30 – 07:00 hours, a statistical analysis of $L_{A90,15min}$ sound levels between the hour of 06:00 – 07:00 is considered appropriate to determine prevailing background sound levels for the early morning period, and this is presented in Figure 3.3.

Figure 3.3: Statistical Analysis of Measured Night-time Background Sound Levels at CM3

3.29 During the early morning hour of 06:00 – 07:00, the data shows a more linear spread in values ranging between 31 dB and 47 dB. The most commonly occurring value was 35 dB, with 31 dB, 34 dB and 37 dB occurring jointly second. Therefore, to provide a robust scenario, a level of 34 dB $L_{A90,15min}$ is considered an appropriate value to use for assessment purposes during the early morning period.

4.0 ASSESSMENT METHODOLOGY

Acoustic Modelling

4.1 An acoustic model of the Site and environs has been generated in Datakustik CadnaA® modelling software. CadnaA® considers various inputs, including topography such as the existing bund adjacent to the Lincoln Eastern Bypass, buildings and noise sources, and calculates sound levels in accordance with national and international standards; in this case, the relevant UK standards are the procedures set out within ISO 9613 - 2⁸.

4.2 The modelling assumptions and input information for the acoustic model are as follows:

- Digital Terrain Model – Lidar 1m (Environment Agency, downloaded on 26th June 2026);
- Open Street Map data (publicly available);
- Ground absorption for the Site = 0.5 (mixed ground);
- Building heights estimated following site observations or based upon masterplan;
- Buildings set to be reflective only with no absorption coefficient;
- First order reflections included in the modelling;
- Temperature set to 10°C; and
- Relative humidity set to 70%.

Road Traffic

Source Sound Levels

4.3 Based on the environmental sound survey, the sound levels used to calibrate the 3D acoustic model with respect to The Common (CM1) and Leicester Road (CM2) are presented in Table 4.1

Table 4.1: Sound Levels Used to Calibrate Acoustic Model, dB

Parameter	CM1	CM2
Daytime Ambient $L_{Aeq,16hr}$	59	72
Night-time Ambient $L_{Aeq,8hr}$	53	65
Night-time Maximum $L_{Amax,1min}$	74	83

Modelled Scenarios

4.4 With reference to the noise criteria outlined in Section 2.0, the acoustic model has been used to predict sound levels across the Site in the following scenarios:

- Daytime $L_{Aeq,16hr}$ external sound levels at ground floor (1.5m) height;
- Night-time $L_{Aeq,8hr}$ external sound levels at first floor (4m) height; and
- Night-time $L_{AFmax,1min}$ external sound levels at first floor (4m) height.

4.5 For conciseness, this report tabulates the most exposed receptors to The Common and Leicester Road, which, for the avoidance of doubt, comprises Plot 2 for both roads, to give context to the most stringent

⁸ ISO 9613-2 'Acoustics – Attenuation of sound during propagation outdoors, Part 2: General method of calculation.

mitigation measures. All other receptors are assessed through the various sound level contour drawings appended to this report.

Dawsons Lane Enterprise Centre

General

- 4.6 The Spectrum Acoustics report (ref: AP1688/21247/2) prepared as part of the outline planning application identified a number of businesses and noise sources operating out of the Dawsons Lane Enterprise Centre.
- 4.7 However, given the time elapsed since the initial assessment, further investigations in reference to the Dawsons Lane Enterprise Centre site map presented in **Appendix D**, have found that a number of previous operators illustrated on the site map, or referenced within the Spectrum Acoustics report, have either ceased trading or relocated to alternative premises. The only identified businesses currently operating within the centre comprise:
- GTB Selfstore: internal self-storage units;
 - SP Developments Ltd: custom manufacturer of scooter parts;
 - 732 Crossfit: Gymnasium; and
 - Atlantic Fabrications Ltd: metal fabricators.
- 4.8 With regard to GTB Selfstore, there will be no significant commercial operations warranting assessment under BS 4142, with any potential impact being from light vehicle movements from people using the internal storage facilities.
- 4.9 For SP Developments, their location to the rear of the main building will mean that any impacts are fully screened by the building itself.
- 4.10 Therefore, the only identified operations with the potential to impact sound levels across the Site would comprise internal amplified music associated with 732 Crossfit, and any operations associated with Atlantic Fabrications.

732 Crossfit

- 4.11 Unsuccessful attempts have been made to contact 732 Crossfit. However, their timetable is available online, which indicates that classes can commence from 05:45 hours. Therefore, it has been assumed that internal amplified music may be present during both the day and early morning (23:00 – 07:00) periods.

Atlantic Fabrications

- 4.12 Consultation with Atlantic Fabrications has been undertaken to determine all potential noise generating activities, with operations identified as follows:
- Grinders, guillotines, powder coating operations occur within the unit.
 - Doors generally remain closed until 7:30pm, but occasionally open a bit earlier.
 - No after-hours operations occur.
 - HGV deliveries a few times a week, sometimes before 7am.

- Occasional forklift operations.
- Extraction unit used for purifying the air during powder coating – intermittent and never on before 8:30am; described as ‘one of the last things to be turned on’.
- Generally try to keep noise to a minimum by keeping the doors closed, not working in ‘unsociable hours’.

4.13 It should be noted that the extraction unit associated with powder coating operations is not the same Air Handling Unit (AHU) identified within the Spectrum Acoustics report. The extraction unit at Atlantic Fabrications was not audible on the Site during the attended measurement periods or through analysis of the measured noise data and therefore, is not considered further within the following assessment.

4.14 With regard to the identified AHU within the Spectrum Acoustics report, this was associated with a previous business no longer in operation. However, the extract for the AHU, while not in operation, was identified during attended measurement period and subsequently, further consideration to the AHU has been given, to ensure new dwellings are protected should the AHU become operational during the future.

Source Sound Levels

Internal Noise ‘Break-out’

4.15 With regard to potential noise break-out from amplified music during classes associated with 732 Crossfit, and the use of the grinders, guillotines and powder coating operations within Atlantic Fabrications, as a worst case scenario it has been assumed that reverberant noise levels inside might reach 80 dB L_{Aeq} which equates to the first or lower exposure action level defined by the CNWR⁹, for which the daily (or weekly) exposure level (expressed as $L_{EP,d}$) is 80 dB(A).

4.16 With regard to Atlantic Fabrication, it has been assumed that the roller shutter doors remain open during the daytime assessment period.

4.17 To take account of the acoustic performance of the building’s walls, a value of sound reduction representative of the building’s construction should be defined. The sound reduction index (R) of a wall is based on the transmission coefficient of the material, which is defined as the ratio of the acoustic energy transmitted through the panel relative to the total energy incident upon it, and it can be calculated using the following equation:

$$R = 10 \cdot \log(1/t)$$

Where t is the transmission coefficient

4.18 The construction of the unit has been assumed to comprise lightweight cladding. A typical sound reduction index (R) for lightweight cladding panels is a value of around 25 dB, which using equation 1 above results in a transmission coefficient τ of 0.00316228.

⁹ Health and Safety Executive – The Control of Noise at Work Regulations 2005.

External Operations

- 4.19 Given the infrequent nature, minimal duration and low sounds levels associated with delivery noise measured at CM3, to provide a robust assessment approach, source data for loading/unloading operations and HGV, has been adopted from MEC's library of in-house historic measurement data and BS 5228 - 1¹⁰.
- 4.20 The source levels used are presented in Table 4.2 as sound pressure level data.

Table 4.2: Source Pressure Level Data, dB

Activity	Sound Pressure Level (dB) in Octave Band Centre Frequency (Hz)								L _{Aeq} @ 10m	Source
	63	125	250	500	1k	2k	4k	8k		
HGV	82	80	78	75	76	78	75	69	83	Table C.11 BS 5228-1
Air Brakes	-	-	-	-	-	-	-	-	80	MEC Library
Unloading/Loading Activities	-	-	-	-	-	-	-	-	66	MEC Library

- 4.21 For the acoustic model, the sound pressure levels from Table 4.2 have been taken and converted to sound power levels using the following formula:

$$L_w = L_p + 20 \log(r) + 11 - D$$

Where:

r = 10m

D = 3

- 4.22 The converted sound power levels have then been used within the model to represent the respective operation, i.e., moving point sources to represent HGV, and a point source in the external loading area to represent loading/unloading activities such as forklift movements.
- 4.23 With regard to the AHU, source data has been obtained from the Spectrum Acoustics report, which measured an L_{Aeq,T} at 16m from the cooling fan of 64 dB.

Modelled Scenarios

- 4.24 Source sound levels have been used to model indicative operational impacts from the Dawsons Lane Enterprise Centre based on the following assumptions:

Daytime

- Continuous internal reverberant level of 80 dB at 732 Crossfit;
- Continuous internal reverberant level of 80 dB at Atlantic Fabrications;
- 1x HGV visiting Atlantic Fabrications – moving point source;
- 1x continuous loading/unloading event at Atlantic Fabrications – point source; and
- Continuous operation of the AHU.

¹⁰ BS 5228-1:2009 +A1:2014 'Code of practice for noise and vibration control on construction and open sites – Part 1: Noise.'

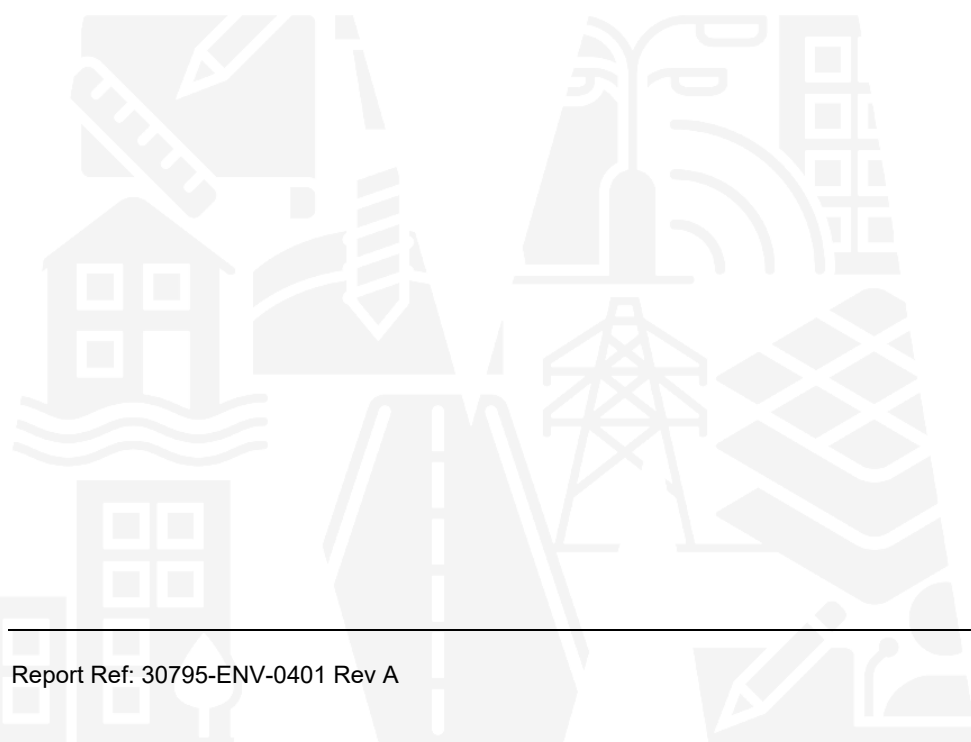
Night-time (early morning)

- Continuous internal reverberant level of 80 dB at 732 Crossfit;
- 1x HGV visiting Atlantic Fabrications – moving point source; and
- 1x continuous loading/unloading event at Atlantic Fabrications – point source.

4.25 Based on the above operational assumptions, an acoustic model has been used to predict sound levels across the Site in the following BS 4142 assessment scenarios:

- Daytime $L_{Aeq,1hr}$ external sound levels at ground floor (1.5m) height; and
- Night-time $L_{Aeq,15min}$ external sound levels at first floor (4m) height.

4.26 For conciseness, this report tabulates the most exposed receptor to the Dawsons Lane Enterprise Centre (Plot 90), to give context to the most stringent mitigation measures. All other receptors are assessed through the various sound level contour drawings appended to this report.



5.0 ROAD TRAFFIC ASSESSMENT

ProPG Initial Noise Risk Assessment

5.1 As required by the ProPG, an Initial Noise Risk Assessment (INRA) is presented in Table 5.1.

Table 5.1: Initial Site Noise Risk Assessment, dB

Risk	Negligible		Low		Medium		High	
Period	Day	Night	Day	Night	Day	Night	Day	Night
Pro PG Threshold ^(a)	< 50	< 40	50 – 60	40 – 50	60 – 70	50 – 60	> 70	> 60
Plot 2			55			50		
Risk Assessment			Low			Medium		

5.2 Based on the modelled sound levels, the most exposed receptor to The Common and Leicester Road (Plot 2) falls within the ProPG risk category of ‘Low’ risk during the daytime, for which the guidance states *“the Site is likely to be acceptable from a noise perspective provided that a good acoustic design process is followed”*.

5.3 The noise exposure increases to a ‘Medium’ risk during the night-time, for which the guidance requires that *“the Site should follow a good acoustic design process which confirms how the adverse impacts of noise will be mitigated and minimised.”*

5.4 This report is considered to form the basis of the ‘Acoustic Design Statement’, which considers appropriate design measures to achieve suitable acoustic conditions for residential amenity.

BS 8233 External Amenity Criteria

5.5 The acoustic criterion often the most difficult to meet in residential environments situated next to busy transportation sources is BS 8233’s criterion of 55 dB L_{Aeq,16hr} applicable to private external amenity spaces such as gardens.

5.6 Based on the planning layout, drawing 30795_04_120_01 in **Appendix E** indicates that all garden sound levels will satisfy the BS 8233 criterion without recourse for additional mitigation, with the vast majority of garden areas across the Site satisfying BS 8233’s lower-level criterion of 50 dB.

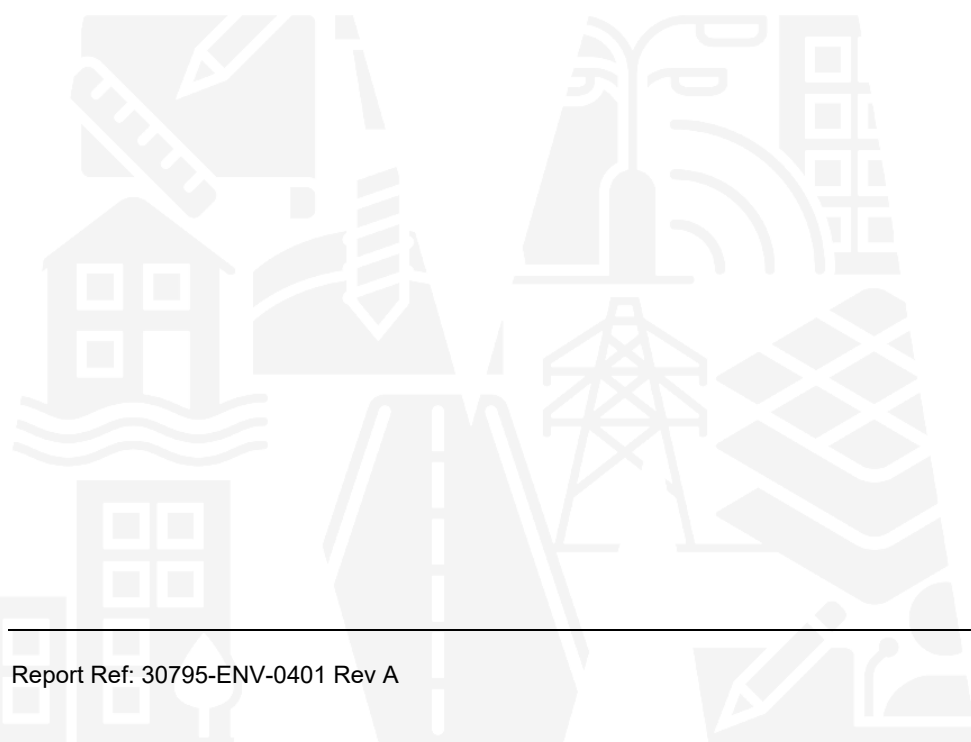
BS 8233 Internal Acoustic Criteria

5.7 Table 5.2 presents the required external to internal reduction requirements for the most exposed receptor to The Common and Leicester Road (Plot 2).

Table 5.2: Required Façade Performance, dB

Plot	Parameter	External Level	Internal Criteria	Required Reduction ^(a)
2	Daytime Ambient L _{Aeq,16hr}	55	35	20
	Night-time Ambient L _{Aeq,8hr}	50	30	20
	Night-time Maximum L _{AFmax,1min}	70	45	25

- 5.8 For the most exposed receptors to The Common and Leicester Road, the results in Table 5.2 show that a sound reduction of up to 20 dB will be required to achieve the 35 dB $L_{Aeq,16hr}$ criterion. Façade performance for bedrooms is driven by the night-time maximum scenario, with a sound reduction of up to 25 dB required to achieve the 45 dB L_{Amax} criterion.



6.0 ACOUSTICS-LED OVERHEATING ASSESSMENT

- 6.1 This part of the report considers the assessment of overheating in accordance with AVOG and looks to determine whether an open windows acoustics strategy is permissible across the Site.

AVOG Level 1 Assessment

- 6.2 AVOG prescribes a two-stage assessment. Level 1 looks to determine if overheating needs to be considered further, based on the predicted external façade levels for the most exposed receptors. The initial Level 1 assessment is presented in Table 6.1.

Table 6.1: AVOG Level 1 Assessment

Plot	Parameter	Predicted External Level dB	Level 1 Risk Grading	Level 2 Advised?
2	Daytime Ambient $L_{Aeq,16hr}$	55	Low	Optional
	Night-time Ambient $L_{Aeq,8hr}$	50	Low	Optional

- 6.3 The results demonstrate that at the most exposed receptors to The Common and Leicester Road (Plot 2), an AVOG Level 2 assessment is optional due to the 'Low' risk grading.
- 6.4 However, it should be noted that the night-time maximum levels will drive the acoustic design and therefore, with the introduction of the maximum night-time criteria presented within AD-O, consideration will additionally be required for internal night-time L_{AFmax} sound levels.

AVOG Level 2 Assessment

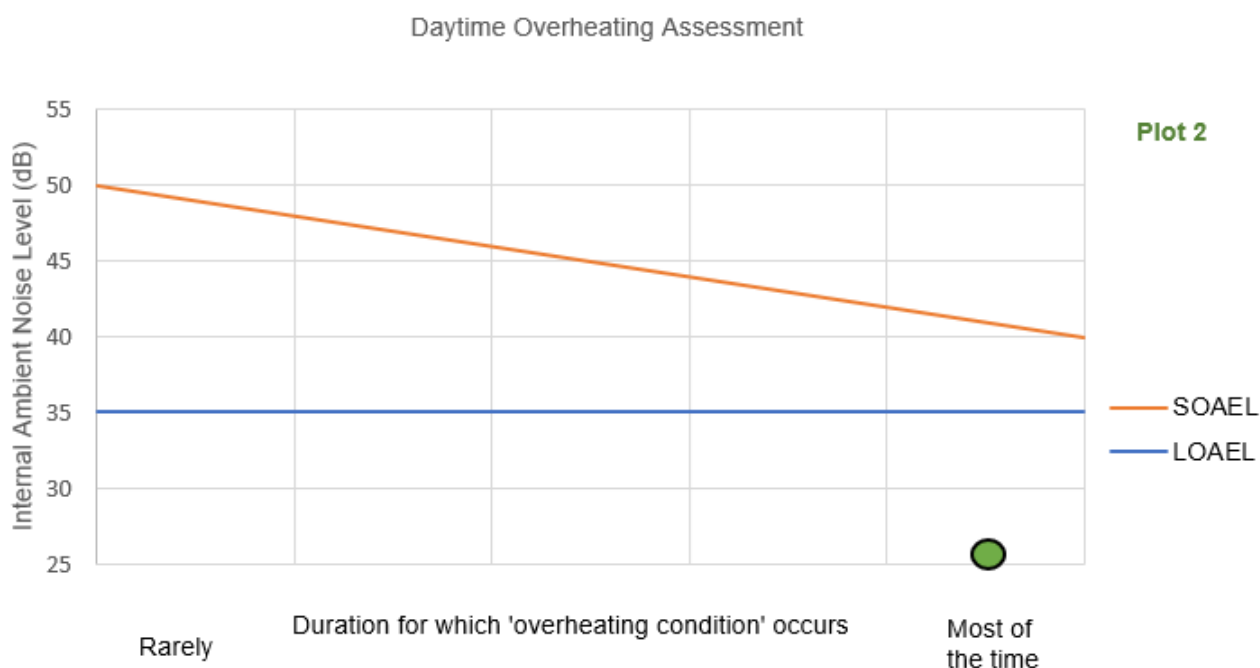
Risk of Overheating

- 6.5 The likelihood of overheating can be determined via a qualitative assessment through the GHA Toolkit¹¹.
- 6.6 A qualitative assessment using the GHA Toolkit is presented in **Appendix F**. The qualitative assessment indicates a 'High' risk of overheating, due to the fact that internal noise levels will be exceeded with windows open and therefore, the 'duration for which overheating occurs' is considered to be 'most of the time' in accordance with AVOG.
- 6.7 To combat overheating, an increased ventilation rate is typically required to remove excess heat from the property. The means in which increased ventilation can be achieved, without opening windows, is typically viable through passive means, such as a room specific mechanical ventilation system within affected habitable rooms, or whole dwelling Mechanical Ventilation with Heat Recovery (MVHR) systems where significantly high external noise levels are present. For the purpose of this assessment, a room specific MV system will be assumed.

¹¹ Good Homes Alliance, Early-Stage Overheating Risk Tool, V1, July 2019 Toolkit

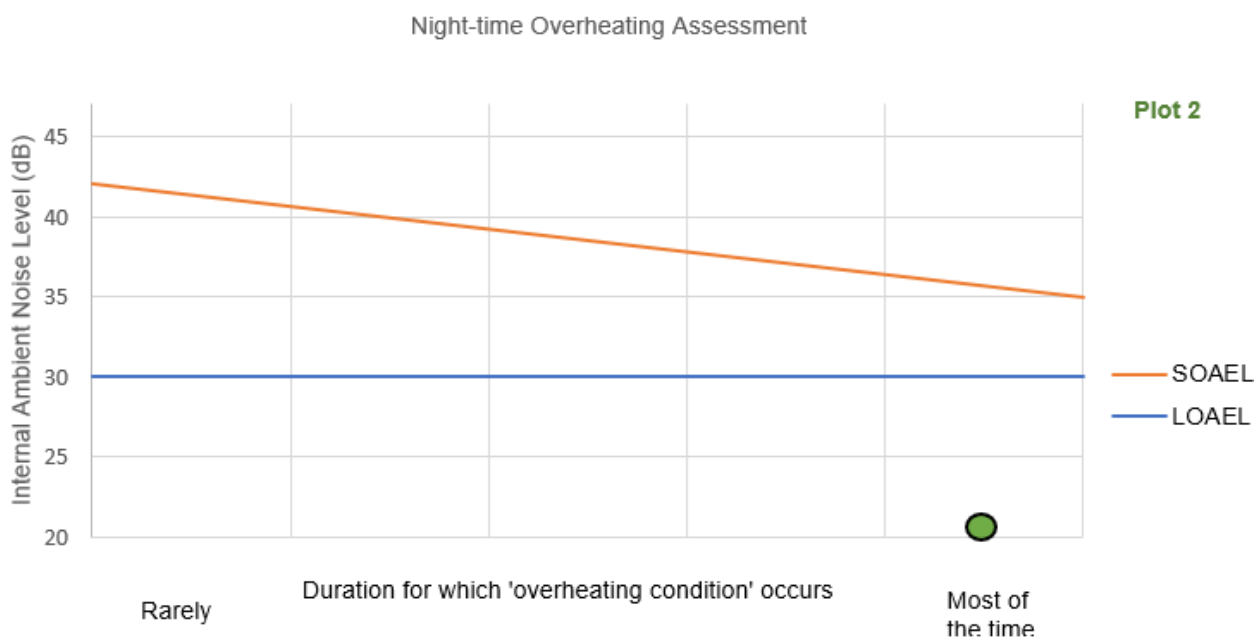
- 6.8 Calculations have been undertaken in accordance with BS 12354-3¹² to determine the predicted internal noise levels using the passive means for the most exposed plots, based upon a 'High' risk of overheating in accordance with the GHA toolkit.
- 6.9 It is noted that this AVOG Level 2 Assessment can be seen as a worst-case scenario as the proposed ventilation measures would theoretically reduce the risk of overheating from that of a 'High' risk. Therefore, assuming a 'High' risk with the inclusion of the mitigation measures, would represent a robust assessment scenario.
- 6.10 The resulting AVOG Level 2 Assessment for the most exposed receptors, with the inclusion of the room specific MV system, is presented in Figure 6.1 and Figure 6.2.

Figure 6.1: AVOG Level 2 Assessment of Daytime Conditions



¹² BS EN ISO 12354-3:2017 'Building acoustics – Estimation of acoustic performance of buildings from the performance of elements – Part 3: Airborne sound insulation against outdoor sound.'

Figure 6.2: AVOG Level 2 Assessment of Night-time Conditions



- 6.11 The results in Figure 6.1 and Figure 6.2 indicate that internal noise levels using a room specific MV system would lie substantially below the LOAEL.

AVOG Assessment – Numerical Summary

- 6.12 Table 6.2 presents a summary numerical assessment for overheating conditions using a room specific MV system for the most exposed dwellings overlooking the respective noise sources.

Table 6.2: Overheating Acoustics Assessment, dB

Plot	Parameter ^(a)	Criteria	Calculated Internal Level
2	Daytime Ambient $L_{Aeq,16hr}$	40	26
	Night-time Ambient $L_{Aeq,8hr}$	35	21
	Night-time Maximum $L_{AFmax,1min}$	55	41
^{a)} $L_{Aeq,T}$ criteria chosen as a point on the SOAEL based upon a high risk of overheating. ^(b) L_{AFmax} criterion as presented within AD-O.			

- 6.13 The information in Table 6.2 demonstrates that, with the inclusion of room specific MV systems, AVOG and AD-O criteria are comfortably satisfied.
- 6.14 However, it should be noted that the above indicative ventilation strategy is based on the qualitative GHA Toolkit, which does not take into consideration mechanical ventilation flow rates needed to satisfy CIBSE TM59¹³.

¹³ Design Methodology for the Assessment of Overheating Risk in Homes, TM59:2017.

- 6.15 Therefore, the mitigation schedule may be subject to change at Building Control stage based upon the outcome of any Dynamic Thermal Modelling undertaken to satisfy the requirements of AD-O.
- 6.16 It should be noted that where room specific mechanical ventilation systems are used to achieve suitable ventilation measures for overheating, whole dwelling ventilators (such as window mounted trickle vents) will also need to be included.
- 6.17 However, if a whole dwelling MVHR system is to be installed, this would negate the need to install whole dwelling ventilation solutions for typical conditions (window mounted trickle vents).
- 6.18 In any event, such measures should not influence the planning decision due to the fact that, as shown in this assessment, acoustic conditions have been considered during periods of overheating, and Environmental Health matters will be satisfied with an appropriate ventilation strategy.

Mechanical Ventilation System Limits

- 6.19 Any mechanical system included in the Site should adhere to the noise limits outlined in Table 6.3 for AD-F¹⁴ purposes and, ideally target the guidance values for overheating conditions.
- 6.20 The purpose of the guidance values during overheating periods is due to the fact that research indicates any increase in the noise produced by Mechanical Systems during periods of overheating, above that outlined below, is likely to result in residents turning off, or reducing the performance of such systems, which would result in a poor living environment. Once a Mechanical & Electrical engineer has specified the system to be installed, further acoustic calculations should be undertaken to determine appropriate in-line attenuation measures accordingly.
- 6.21 'Noise Sensitive Rooms' are defined as bedrooms and living rooms with the likes of kitchens and bathrooms defined as 'Less Sensitive.' The overheating guidance values are derived from AVOG and AD-O and is a reasonable target during brief overheating periods.

Table 6.3: Mechanical System Noise Limits

Area	Typical Conditions Limit ^(a) L _{Aeq,T} dB	Overheating Conditions Guidance Value ^(b) L _{Aeq,T} dB
Noise Sensitive Rooms	30	30 (±5)
Less Sensitive Rooms	45	35 (±5)
^(a) Taken from section 1.7 of Approved Document F, Volume 1, 2021 Edition.		
^(b) Taken from AVOG.		

¹⁴ The Building Regulations 2010, Ventilation, Approved Document 'F'.

7.0 BS 4142 ASSESSMENT

- 7.1 BS 4142 assessments are undertaken at 3.5m from reflective structures, i.e., representing each receptor's garden area away from the reflective effect of the building, therefore, no facade reflection effects are included in the daytime assessment.
- 7.2 BS 4142's character corrections are flexible according to whether the acoustic character is just perceptible at the noise receptor, or is clearly perceptible or highly perceptible, and range from 0 to 6 dB for tonal noise, 3 to 9 dB for impulsive noise, and 3 dB for other non-tonal/impulsive acoustic characteristics.
- 7.3 There is no reason why operational noise from the Dawsons Lane Enterprise Centre should be particularly tonal or impulsive, however, intermittent noise was audible during the attended measurement period and on review of the audio data. Therefore, an acoustic character correction of 3 dB will be used for assessment purposes to account for intermittency.
- 7.4 Drawings 30795_04_120_04 and 30795_04_120_05 presented in **Appendix E** provide indicative modelled day and night-time impacts from the Dawsons Lane Enterprise Centre, with no mitigation in place, and an Initial Numerical Impact Assessment (INIA) for the most exposed receptor is presented in Table 7.1.

Table 7.1: Initial Numerical Impact Assessment, Plot 30, without Mitigation

Assessment Step	Daytime	Night-time
Modelled Specific Sound Level [A]	58 dB $L_{Aeq,1hr}$	54 dB $L_{Aeq,15min}$
Acoustic Character Correction [B]	+3dB	+3dB
Rating Level [C = A + B]	61 dB $L_{Ar,1hr}$	57 dB $L_{Ar,15min}$
Background Sound Level [D]	35 dB $L_{A90,1hr}$	34 dB $L_{A90,15min}$
Rating over Background [E = C – D]	+26 dB	+23 dB
Estimation of Impact ^(a)	Significant Adverse	Significant Adverse
^(a) Impact dependent upon context and other pertinent factors.		

- 7.5 With no mitigation in place, the Rating Level at the most exposed receptor due to operational noise from the Dawsons Lane Enterprise Centre exceeds the background sound level by up to +26 dB, which is an indication of the specific sound source having a 'Significant Adverse' impact, depending on context, during both the day and night-time.
- 7.6 Additional testing of boundary treatments for proposed gardens has been undertaken, with modelling indicating the most viable arrangement to comprise acoustic fencing of 2.2m in height. Increasing the height above this level provided nominal benefit and subsequently, 2.2m fencing forms the following mitigation scenario.
- 7.7 Drawings 30795_04_120_06 and 30795_04_120_07 presented in **Appendix E** provide indicative modelled day and night-time impacts from the Dawsons Lane Enterprise Centre, with mitigation in place, and the revised INIA for the most exposed receptor is presented in Table 7.2.

Table 7.2: Initial Numerical Impact Assessment, Plot 90, with Mitigation

Assessment Step	Daytime	Night-time
Modelled Specific Sound Level [A]	50 dB LAeq,1hr	50 dB LAeq,15min
Acoustic Character Correction [B]	+3dB	+3dB
Rating Level [C = A + B]	53 dB LA _r ,1hr	53 dB LA _r ,15min
Background Sound Level [D]	35 dB LA90,1hr	34 dB LA90,15min
Rating over Background [E = C – D]	+18 dB	+19 dB
Estimation of Impact ^(a)	Significant Adverse	Significant Adverse
^(a) Impact dependent upon context and other pertinent factors.		

- 7.8 With mitigation in place, the Rating Level at the most exposed receptor reduces substantially, though continues to exceed the background sound level at the most exposed receptor by up to +19 dB, which is again an indication of the specific sound source having a ‘Significant Adverse’ impact, depending on context, during both the day and night-time.

Context

- 7.9 Context is an important factor in determining the BS 4142 impact upon existing receptors. BS 4142 states “... to fully understand the context in which the sound from an industrial and/or commercial source(s) is being assessed, describe and report the sources of sound which comprise the acoustic environment.”. BS 4142 goes on to state “...The significance of sound of an industrial and/or commercial nature depends upon both margin by which the rating level of the specific sound source exceeds the background sound level, and the context in which the sound occurs. An effective assessment cannot be conducted without an understanding of the ... context in which the sound occurs/will occur. When making assessment and arriving at decisions, therefore, it is essential to place the sound in context”.
- 7.10 Consideration should therefore be given to the overall context of the planning application, general environment around the Site as well as other aspects of the design.
- 7.11 For example, whilst modelling shows a likely indication of a Significant Adverse impact during the daytime, it is important to note that with mitigation in place, the modelled sound levels remain within BS 8233’s criterion of 55 dB, indicating that the general daytime outdoor sound environment would be consistent with what is typically regarded as acceptable for residential use.
- 7.12 Additionally, the stated daytime values represent the highest measured 1-hour assessment period, and sound levels over BS 8233’s 16-hour assessment period would likely be lower, which is supported by the measured data at CM3.
- 7.13 Given the predominant impact is from HGV navigating the industrial area rather than internal noise break-out, the characteristics of the specific noise are unlikely to be out of character for the locality. Whilst the movements of individual vehicles might be perceptible to local residents subject to where they are at the time a vehicle manoeuvres, i.e., whether outside their dwelling or in the street, the actual noise level would not be significantly greater than those caused by existing vehicle movements in the neighbourhood, nor would they

be any different to the types of noise levels experienced by all other dwellings in the UK where vehicle movements are present.

- 7.14 With regard to the likely indication of a Significant Adverse impact during the night-time, it is important note that night-time sound levels have been taken from external areas of the receptors. Residents would likely be located indoors and as such, the external to internal sound level reduction provided by the façade of the dwelling should be taken into account. As a worst case, assuming an open window provides approximately 10 dB of attenuation¹⁵, the resulting internal sound level would be substantially lower than the levels outlined within Table 7.1, indicating that the audibility and potential impact would be substantially reduced. However, it is likely that the first line of dwellings would require a closed window mitigation strategy in order to reduce the impact further.
- 7.15 In any event, BS 4142 recognises that where a new noise sensitive receptor is introduced, the industrial sound forms part of the acoustic environment and, in such circumstances, other guidance and criteria in addition to BS 4142 is applicable.
- 7.16 BS 4142 emphasises the need for matters to be placed into context, and in this respect, it mentions several matters for consideration, which include whether dwellings or other premises used for residential purposes will incorporate design measures that secure good internal and/or outdoor acoustic conditions, such as:
- facade insulation treatment;
 - ventilation and/or cooling that will reduce the need to have windows open so as to provide rapid or purge ventilation; and
 - acoustic screening.
- 7.17 Therefore, the mitigation measures such as the standard of glazing coupled with the use of trickle ventilators will represent a means of preventing the identified impacts.

Uncertainty

- 7.18 With regard to the specific sound levels, library data considered representative of typical activities observed within the Dawsons Lane Enterprise Centre has been used. However, actual specific sound levels and day to day activities are likely to vary and therefore, uncertainty can be considered moderate, due to the fluctuating site conditions.
- 7.19 Nevertheless, uncertainty in the results is considered to be low, as the assessment is based on a robust scenario, whereby all activities are occurring continuously over the relevant assessment period.

¹⁵ ANC 'Approved Document O: Noise Guide' - 2024

8.0 MITIGATION

External Sound Levels

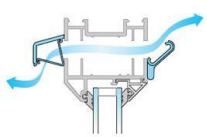
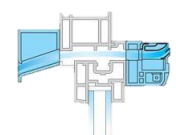
- 8.1 Based on the planning layout, modelling demonstrates that all garden sound levels exposed to road traffic noise will satisfy BS 8233's criterion of 55 dB $L_{Aeq,16hr}$ without recourse for additional mitigation, with the vast majority of garden areas across the Site satisfying BS 8233's lower-level criterion of 50 dB.
- 8.2 Nevertheless, it is recommended that any garden area with a direct or partial indirect line of sight to the roads have 1.8m high close boarded timber fencing along garden boundaries used for amenity to minimise impacts in accordance with BS 8233.
- 8.3 With regard to garden areas overlooking the Dawsons Lane Enterprise Centre, 2.2m high acoustic fencing is recommended to minimise impacts as far as practicable. Where fencing is to be used adjacent to the centre, the following specification is recommended as a minimum:
- Good quality timber with no warping, knots etc;
 - At least 25mm thick in all places;
 - Close-boarder and continued across the front of posts to minimise gaps;
 - Boards should overlap 25mm as a minimum;
 - No gaps should be present between gravel board and the ground; and
 - Minimum mass of 10 to 15kg/m².

Internal Sound Levels

- 8.4 Acoustic modelling has demonstrated potential façade sound levels and, in accordance with BS 8233 and ProPG, sound reduction performance requirements of the façade have been determined.
- 8.5 In terms of acoustics, windows and ventilation strategies are the 'weakest' acoustics point in any façade and subsequently, the composite sound reduction performance is typically dominated by these elements. Therefore, minimum performance requirements to be provided by the glazing and ventilation elements at all dwellings are presented herein.
- 8.6 It should be noted that the following mitigation is based on worst case sound levels, i.e., with no boundary mitigation in place, to provide a robust assessment scenario.
- 8.7 Drawing on the above, and the acoustic modelling undertaken, Table 8.1 provides typical reduction requirements and potential glazing and ventilation solutions across the Site in order to demonstrate compliance with the internal sound level criteria outlined in BS 8233, ProPG, and the ventilation requirements of AD-F.
- 8.8 This table should be read in conjunction with the drawings in **Appendix G**, whereby drawing 30795_04_120_08 demonstrates the required reduction for bedrooms and drawing 30795_04_120_09 demonstrates the required reduction for all other habitable rooms.

- 8.9 For each reference in Table 8.1, the sound reduction performance requirements, in octave band and weighted reduction format, are presented in **Appendix H**.

Table 8.1: Required Internal Mitigation Measures

Mitigation Ref.	Example Glazing Solution	Example Whole-Dwelling Ventilation Solution ^(a)	Example Overheating Ventilation Solution ^(b)
Ref. A-1	<u>Indicative Solution</u> 4mm pane 12mm air space 4mm pane Req. $R_w + C_{tr} = 27$ dB	<u>Standard Trickle Vent</u> Direct airpath trickle vent located in the top of the window frame  Req. $D_{n,e,w} + C_{tr} = 32$ dB	<u>No Overheating Mitigation Required.</u> Opening windows can be used to combat overheating and provide purge ventilation.
Ref. A-2		<u>Acoustically Rated Trickle Vent</u> Trickle vent with torturous airpath located in the top of the window frame  Req. $D_{n,e,w} + C_{tr} = 36$ dB	<u>MV System</u> Mechanical Ventilation Systems to provide room specific, or whole dwelling, extract and purge ventilation.
Ref. B			

(a) Where a whole dwelling MVHR system is to be installed, this would negate the need to install whole dwelling ventilation solutions for typical conditions (window mounted trickle vents).

(b) Indicative overheating solution – subject to change at Building Control stage based upon the outcome of any Dynamic Thermal Modelling undertaken to satisfy the requirements of AD-O.

9.0 CONCLUSIONS

- 9.1 MEC has been commissioned by David Wilson Homes, to undertake an Acoustics Assessment aimed at discharging the planning condition pertaining to the planning permission for the proposed residential development at The Common, Barwell.

Road Traffic

- 9.2 Detailed assessments of the Site, during typical conditions, have been undertaken in accordance with ProPG, and BS 8233 criteria whilst giving consideration to typical condition ventilation requirements in AD-F.

External Sound Levels

- 9.3 Based on the planning layout, modelling demonstrates that all garden sound levels exposed to road traffic noise will satisfy BS 8233's criterion of 55 dB $L_{Aeq,16hr}$ without recourse for additional mitigation, with the vast majority of garden areas across the Site satisfying BS 8233's lower-level criterion of 50 dB.
- 9.4 Nevertheless, it is recommended that any garden area with a direct or partial indirect line of sight to the roads have 1.8m high close boarded timber fencing along garden boundaries used for amenity to minimise impacts in accordance with BS 8233.

Internal Sound Levels

- 9.5 Embedded façade mitigation measures have been suggested in order to achieve internal noise level criteria in line with BS 8233 and ProPG which, for the avoidance of doubt, would require standard double glazing and direct airpath window mounted trickle vents for the majority of the Site, with acoustic window mounted trickle vents required for the most exposed dwellings.

Overheating Considerations

- 9.6 During periods of overheating, alternative ventilation solutions have been explored. Calculations demonstrate that the relevant internal acoustic criteria can be achieved with the provision of room specific mechanical ventilation systems.
- 9.7 However, any overheating mitigation measures presented within this report are presented to satisfy internal acoustic conditions only. The exact ventilation requirements to combat overheating will need to be considered during the Building Control process of the Site. Nevertheless, matters relating to noise in respects of Environmental Health have been fully considered within this report.

Dawsons Lane Enterprise Centre

- 9.8 Assessment of the neighbouring industrial area has been undertaken in accordance with BS 4142.
- 9.9 Assessment indicates that, with no mitigation in place, the Rating Level at the most exposed receptor due to operational noise exceeds the background sound level by up to +26 dB, which is an indication of the specific sound source having a 'Significant Adverse' impact, depending on context, during both the day and night-time.

- 9.10 With mitigation in place, comprising 2.2m high acoustic garden fencing, the Rating Level reduces substantially, though continues to exceed the background sound level at the most exposed receptor by up to +19 dB, which is again an indication of the specific sound source having a 'Significant Adverse' impact, depending on context, during both the day and night-time.
- 9.11 Nevertheless, it is important to note that BS 4142 recognises that where a new noise sensitive receptor is introduced, the industrial sound forms part of the acoustic environment and, in such circumstances, other guidance and criteria in addition to BS 4142 is applicable.
- 9.12 BS 4142 emphasises the need for matters to be placed into context, and in this respect, it mentions several matters for consideration, which include whether dwellings or other premises used for residential purposes will incorporate design measures that secure good internal and/or outdoor acoustic conditions.
- 9.13 Therefore, when considering context and internal and external acoustic conditions, residential amenity can be protected through pragmatic mitigation measures.

Summary

- 9.14 It is therefore considered that with the implementation of the recommended mitigation strategy, internal and external noise levels can be attenuated to achieve the requisite criteria, and condition 20 of the planning permission will be fully satisfied.



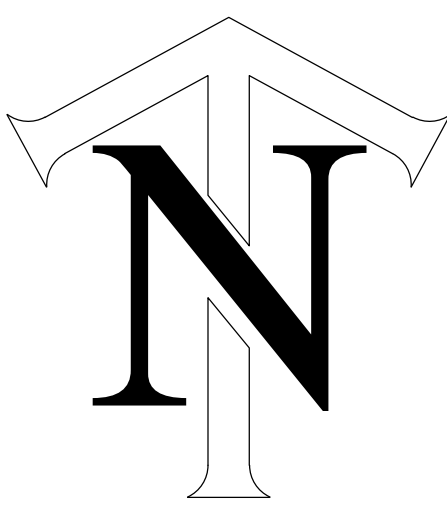
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APPENDICES

Appendix A



Site:		The Common, Barwell			
DWH Range	House Type	Type	Storeys	Beds	Number of Plots
CORE	H303 3DXF - Detached House	OM	2	3	2
CORE	H386 X-G7 - Detached House	OM	2	3	10
CORE	H357 X-H7 - Detached House	OM	2	3	2
CORE	H331 3DXH - Detached House	OM	2	3	14
CORE	H456 X-G7 - Detached House	OM	2	4	4
OCC	H454 X-G7 - Detached House	OM	2	4	9
OCC	H577 X-H7 - Detached House	OM	2	5	5
OCC	H588 X-G7 - Detached House	OM	2	5	11
TOTAL DWH OPEN MARKET:					57
Core Range:					32
*	SH50 06G7 - End	AR	2	2	3
	SH50 06EM - End	AR	2	2	2
	SH50 XI-7 - Mid	AR	2	2	3
	P282 XEH7 - End	FH	2	2	2
	P282 06G7 - End	FH	2	2	2
	P282 06EM - End	FH	2	2	2
	P282 XI-7 - Mid	FH	2	2	1
	H303 3DXF - Detached House	FH	2	3	1
	SH52 06G7 - End	SO	2	3	4
	SH52 XI-7 - Mid	AR	2	3	2
	SH52 06G7 - End	AR	2	3	3
	SH52 06EM - End	AR	2	3	3
	SH55 XEG7 - End	AR	2	3	3
	SH55 XEG7 - End	SO	2	3	2
TOTAL DWH AFFORDABLE:					33
OVERALL TOTAL DWH:					90



LEGEND

- Site Boundary
- Existing trees/hedgerows to be retained.
- Existing trees/hedgerows to be removed.
- Area of excavation to be supervised by the ACoW as per Arboricultural Assessment.
- Proposed new trees. Refer to detailed landscaping designs GL2598 LP 01-06.
- 1.8m High Close Boarded Fence
- 1.8m High Screen Brick Wall
- 1.8m High Brick Piers With Close Boarded Fence Infill
- 0.45m High Timber Knee Rail
- 0.75m High Timber Picket Fence (SuDS Pond Perimeter).
- 0.45m High Timber Posts
- Affordable Rent Housing Tenure
- Shared Ownership Housing Tenure
- First Homes Housing Tenure
- Indicates Show Homes & Sales Arena
- Denotes Bin Collection Points
- Denotes 1m high low level lighting bollard ducted to relevant plot. The plot will have ownership of the bollard, provide power and necessary maintenance.

- Denotes indicative allocation of PV panels. Positioning and quantity of panels subject to plot specific SAP's and detailed design.
- Denotes Easement.
- Tarmacadam Shared Driveway.
- Denotes Block Paving Surfacing. Refer to Surface Treatment Plan for further details.
- Denotes Breedon Gravel Path. Refer to Surface Treatment Plan for further details.
- Denotes Grasscrete Surfacing. Refer to Surface Treatment Plan for further details.
- Denotes render to plot elevation. Refer to Materials Layout for further details.

PLANNING LAYOUT The Common, Barwell

Rev	Description	Initial	Date
Q	Affordable housing provision increased to 35%. Plots 18-22, 28, 29, 33, 34 & 64-68 re-planned to suit. House type accommodation schedule updated accordingly. Garages removed to plots 31 & 48. Plots 16 & 17, 22 & 35-37 re-positioned and rear fence line to plots 33 & 34 re-positioned following MD's comments. H386 3DXF (Forest) replaced with H388 X-G7 (Hollinwood) to suit RMD comments. Layout updated to suit highways comments. Secondary road widths reduced to 4.8m. 1m soil verge added to eastern edge of main spine road adjacent to swale. Pedestrian crossings points added. 2x2m Pedestrian vis-splays added to shared/private driveways. Highway verges amended to min 10m, parking arrangements altered to suit. Driveway serving plots 48-54 split and separated with grasscrete surface and collapsible bollards. Quantity and positioning of speed ramps altered. Road bend widenings implemented. HV diversion easement added. Garden sizes increased to plots 6-14, 50, 51, 60-68 & 82-90 to bring in line with LPA 'Good Design Guidance'. 1.8m High Screen Brick Walls added to principle plots that front onto the main spine road and accessible POS areas. Legend updated to suit.	RL/TG	17.08.26
P	Layout updated to suit comments received from Arboricultural consultant. Alignment to plots 36-44 rotated and plots 71 & 74 moved forward to reduce impact on surrounding existing trees to be retained. Easement for existing ditch added. Detailed landscaping design added.	TG	30.01.26
N	Layout updated to reflect SDC's road layout incorporating amended swale alignment.	TG	05.12.25
M	Layout updated to suit feedback received from planners. LEAP re-positioned. Plots 23, 27, 36-44 & 48-59 re-planned to suit. Illustrative proposed woodland added in line with masterplan. Shared driveway entrances widened to 5.5m	TG	02.12.25
L	Layout updated to reflect requested house type substitutions to plots 36, 51, 61 & 62. House type accommodation schedule updated to suit.	TG	28.11.25
K	Layout updated to alter First Home house type product. House types/arrangement to plots 41, 42 & 67-73 re-planned to suit. Substation position amended following further feedback. Lighting bollards added. Speed reduction methods to main spine road altered. Proposed PV panel allocation added.	TG	20.11.25
Rev	Description	Initial	Date

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The images and data provided are intended for illustrative purposes only and should not be relied on as a basis for any decision.

Rev	Description	Initial	Date
A	Green corridor reintroduced between plots 34, 35, 46, 47	RCAD	20.07.25
B	Layout amended following DWH internal comments. H421 subbed out for H487 type.	RCAD	07.08.25
C	All H456 types given double garages and 1x H417 given double garage.	RCAD	26.08.25

Rev	Description	Initial	Date
D	Full review of the development to bring the scheme forward from a proving layout.	RCAD	08.09.25
E	Block paving and traffic calming added to highways.	RCAD	09.09.25
F	H417, H312 & H418 omitted. H469 introduced.	MCH	12.09.25
G	Layout tidied to incorporate garden fences, gate positions, private footpaths & public footpaths.	TG	10.10.25

Rev	Description	Initial	Date
H	Layout updated to amend HA cluster sizes to max 9. Plots 54-72 & 79-90 re-planned to suit. Plots 22-37 re-planned to suit amended road framework. P286 house type omitted and replaced with P282. Site access design added. Public footpaths updated. Substation added.	TG	07.11.25

Rev	Description	Initial	Date
J	Plots 81-90 re-planned to pull build line away from northern boundary to mitigate constraints with levels. Plots 6-15, 22-24, 43-47 & 60-73 subsequently re-planned to suit. LEAP re-positioned. Illustrative ManCo landscape buffer added to western boundary. Substation orientation/access altered.	TG	17.11.25



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APPENDICES

Appendix B



GLOSSARY OF TECHNICAL TERMS

Noise

Noise is defined as unwanted sound. Human ears are able to respond to sound in the frequency range 20 Hz (deep bass) to 20,000 Hz (high treble) and over the audible range of 0 dB (the threshold of perception) to 140 dB (the threshold of pain). The ear does not respond equally to different frequencies of the same magnitude, but is more responsive to mid-frequencies than to lower or higher frequencies. To quantify noise in a manner that approximates the response of the human ear, a weighting mechanism is used. This reduces the importance of lower and higher frequencies, in a similar manner to the human ear.

Furthermore, the perception of noise may be determined by a number of other factors, which may not necessarily be acoustic. In general, the impact of noise depends upon its level, the margin by which it exceeds the background level, its character and its variation over a given period of time. In some cases, the time of day and other acoustic features such as tonality or impulsiveness may be important, as may the disposition of the affected individual. Any assessment of noise should give due consideration to all of these factors when assessing the significance of a noise source.

The most widely used weighting mechanism that best corresponds to the response of the human ear is the 'A'-weighting scale. This is widely used for environmental noise measurements, and the levels are denoted as dB(A) or L_{Aeq} , L_{A90} etc., according to the parameter being measured.

The decibel scale is logarithmic rather than linear, and hence a 3 dB increase in sound level represents a doubling of the sound energy present. Judgement of sound is subjective, but as a general guide a 10 dB(A) increase can be taken to represent a doubling of loudness, whilst an increase in the order of 3 dB(A) is generally regarded as the minimum difference needed to perceive a change under normal listening conditions.

Typical sound levels found in the environment

Sound Level	Location
0 dB(A)	Threshold of hearing
20 to 30 dB(A)	Quiet bedroom at night
30 to 40 dB(A)	Living room during the day
40 to 50 dB(A)	Typical office
50 to 60 dB(A)	Inside a car
60 to 70 dB(A)	Typical high street
70 to 90 dB(A)	Inside a factory
100 to 110 dB(A)	Burglar alarm at 1m away
110 to 130 dB(A)	Jet aircraft taking off
140 dB(A)	Threshold of pain

Descriptor	Terminology
Sound Pressure	Sound, or sound pressure, is a fluctuation in air pressure over the static ambient pressure.
Sound Pressure Level	The sound level is the sound pressure relative to a standard reference pressure of $20\mu\text{Pa}$ (20×10^{-6} Pascals) on a decibel scale.
Decibel (dB)	A scale for comparing the ratios of two quantities, including sound pressure and sound power. The difference in level between two sounds s_1 and s_2 is given by $20 \log_{10} (s_1 / s_2)$. The decibel can also be used to measure absolute quantities by specifying a reference value that fixes one point on the scale. For sound pressure, the reference value is $20\mu\text{Pa}$.
A-weighting (dB(A))	The unit of sound level, weighted according to the A-scale, which takes into account the increased sensitivity of the human ear at some frequencies.
Noise Level Indices	Noise levels usually fluctuate over time, so it is often necessary to consider an average or statistical noise level. This can be done in several ways, so a number of different noise indices have been defined, according to how the averaging or statistics are carried out.
$L_{eq, T}$	A noise level index called the equivalent continuous noise level over the time period, T . This is the level of a notional steady sound that would contain the same amount of sound energy as the actual, possibly fluctuating, sound that was recorded.
$L_{AFmax, T}$	A noise level index defined as the maximum noise level during the measurement period. L_{Max} is sometimes used for the assessment of discrete loud noises, which may have little effect on the overall L_{eq} noise level but will still affect the noise environment. It is typically measured using the 'fast' sound level meter response.
$L_{90, T}$	A noise level index. The noise level exceeded for 90% of the time over the period, T . L_{90} can be considered to be the "average minimum" noise level and is often used to describe the background noise.
$L_{10, T}$	A noise level index. The noise level exceeded for 10% of the time over the period, T . L_{10} can be considered to be the "average maximum" noise level. Generally used to describe road traffic noise.
Free-Field	Far from the presence of sound reflecting objects (except the ground), usually taken to mean at least 3.5m.
Façade	At a distance of 1m in front of a large sound reflecting object such as a building facade.
Fast/Slow Time Weighting	Averaging times used in sound level meters.
Octave Band	A range of frequencies whose upper limit is twice the frequency of the lower limit
One-third Octave Band	A frequency band in which the upper limit is $2^{1/3}$ times the frequency of the lower limit.
Rating Level	The specific sound level, plus any adjustment for characteristic feature of sound in BS 4142.
Specific Sound Level	The A-weighted L_{eq} sound level produced by a sound source during a specified period of time. Commonly known as the sound source under investigation as defined in BS 4142.
Typical Maximum Level	The 90 th percentile maximum event level (L_{AFmax}) measured during a period. Used for assessing night-time maximum levels under typical and overheating conditions.



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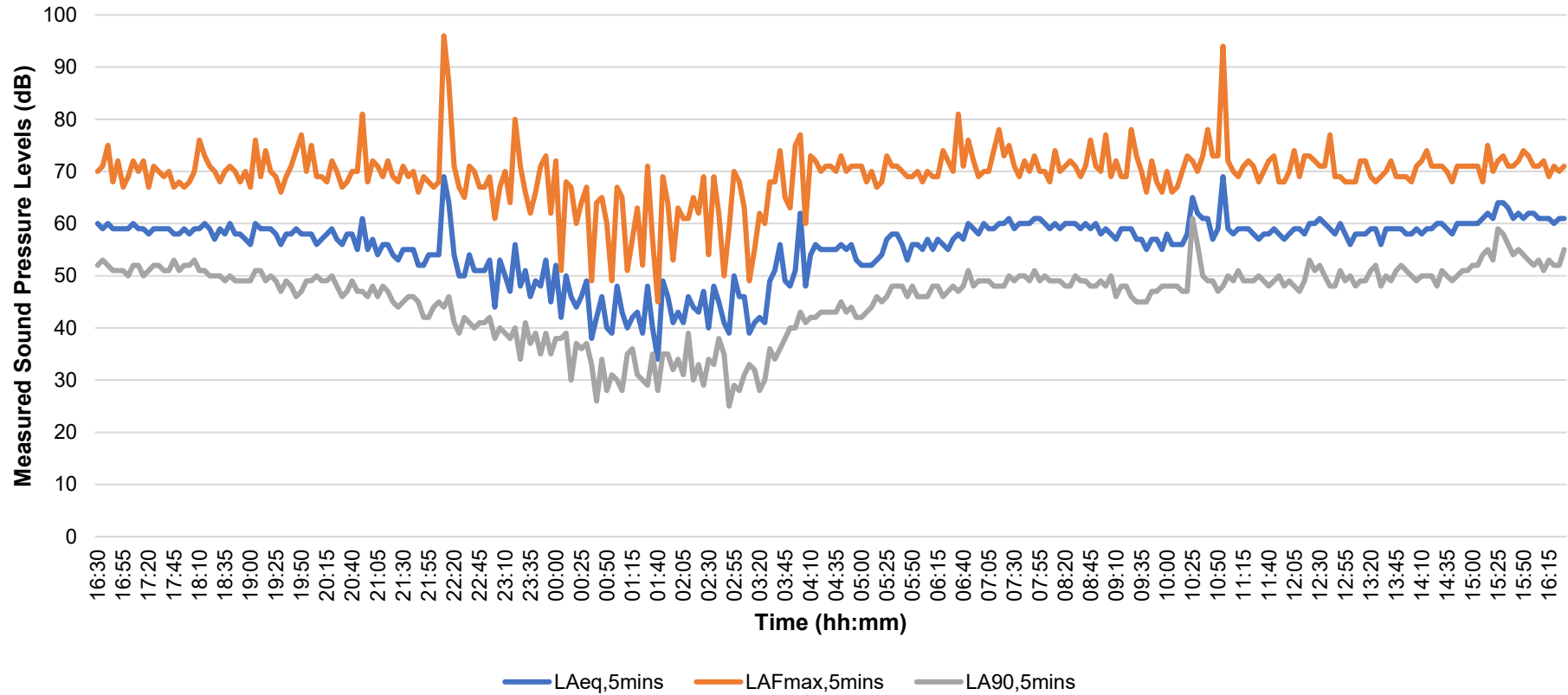
APPENDICES

Appendix C



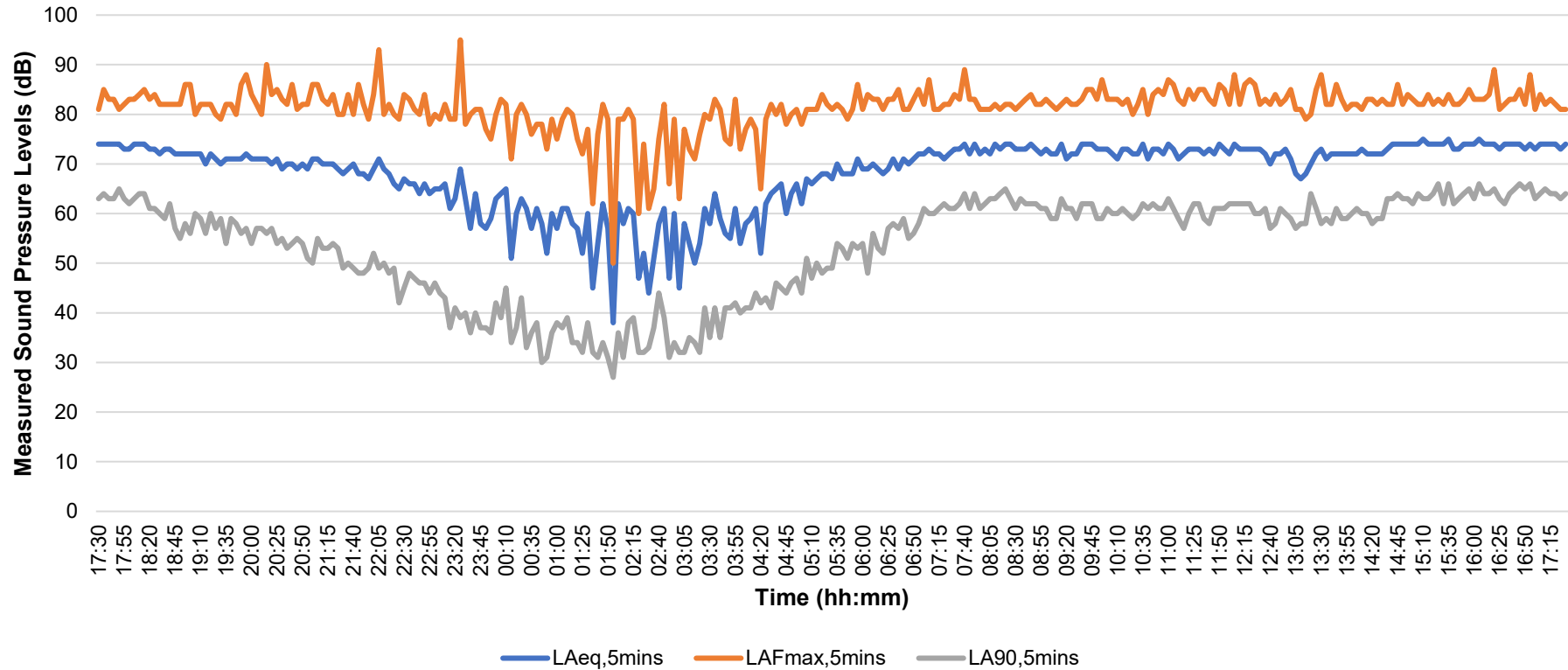
The Common, Barwell - CM1 Environmental Noise Monitoring Survey Results

$L_{Aeq,5mins}$, $L_{AFmax,5mins}$ & $L_{A90,5mins}$ Measured Sound Levels - 9th to 10th June 2026



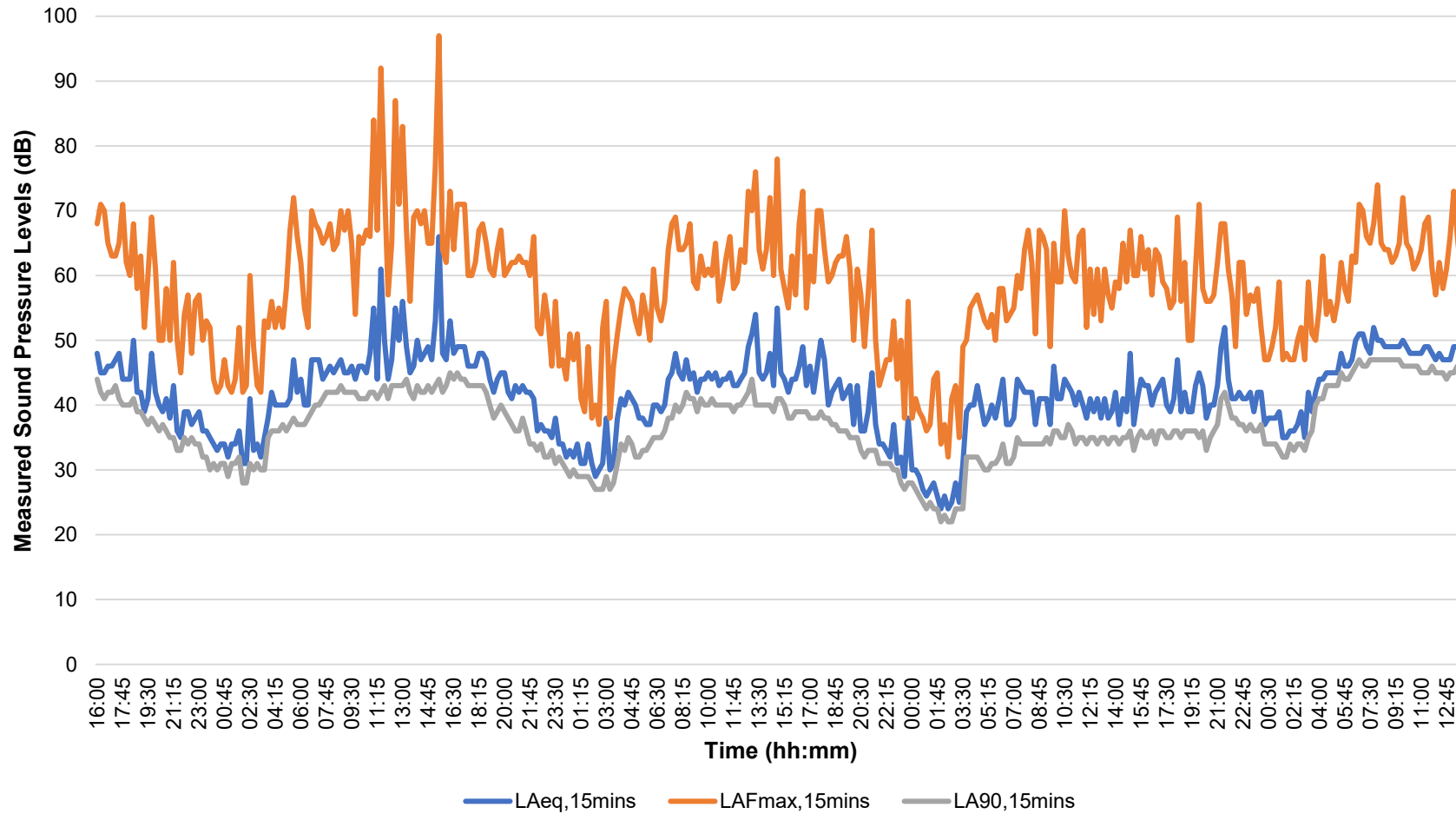
The Common, Barwell - CM2 Environmental Noise Monitoring Survey Results

$L_{Aeq,5mins}$, $L_{AFmax,5mins}$ & $L_{A90,5mins}$ Measured Sound Levels - 10th to 11th June 2026



The Common, Barwell - CM3 Environmental Noise Monitoring Survey Results

$L_{Aeq,15mins}$, $L_{AFmax,15mins}$ & $L_{A90,15mins}$ Measured Sound Levels - 11th to 15th June 2026





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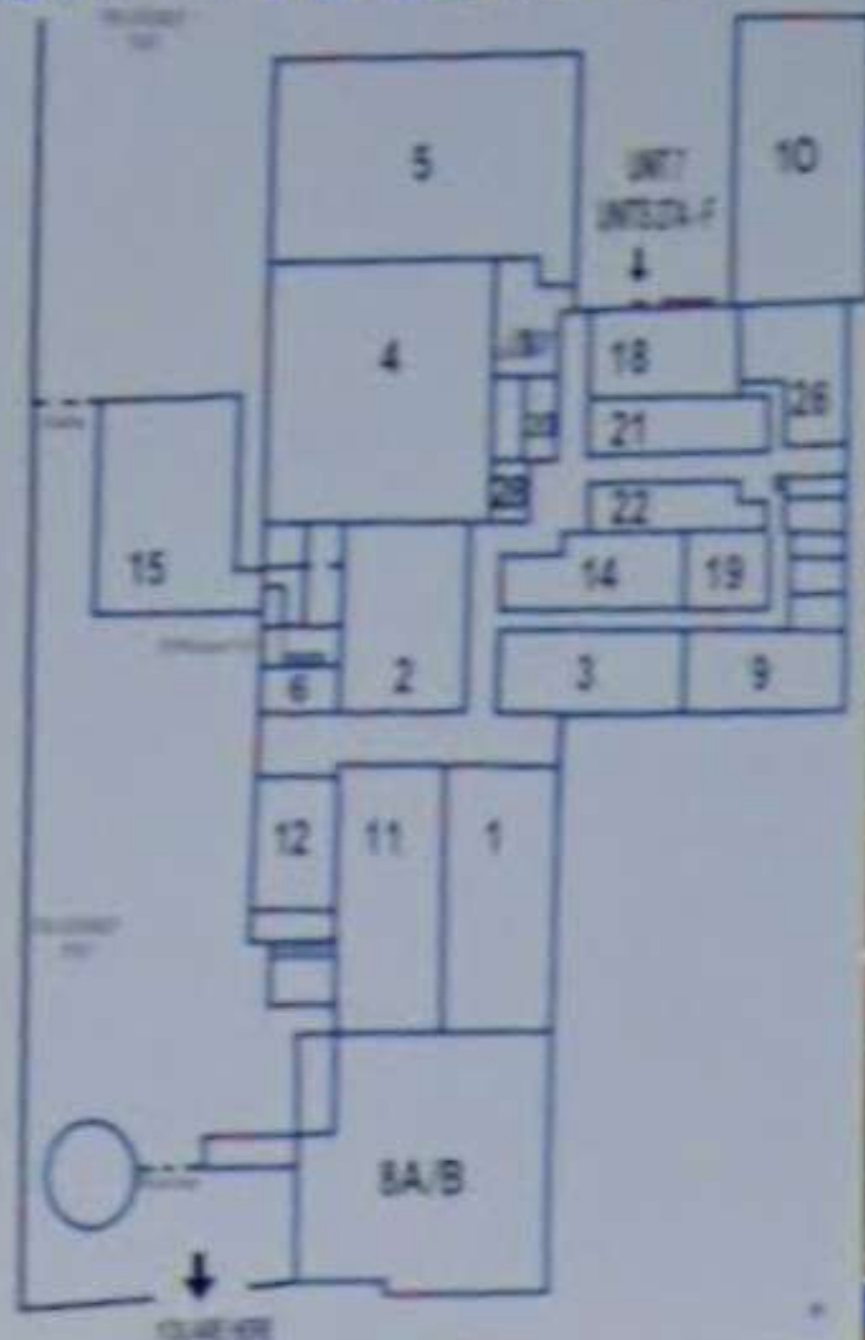
APPENDICES

Appendix D



DAWSONS LANE ENTERPRISE CENTRE

UNIT 1/11/12 CONNEXIONS PLASTICS
UNIT 2 GRANITE
UNIT 3 DEASON JOINERY
UNIT 5 GTB
UNIT 7
UNIT 8A SUITE SUPER STORE
UNIT 8B KITCHEN WAREHOUSE
UNIT 9 ALMAC
UNIT 10 ATLANTIC FABRICATIONS
UNIT 14 SP DEVELOPMENTS
UNIT 15 ACCURATE GRINDING
UNIT 18 CHELLE LEISURE
UNIT 19 AQM SPINNING LTD
UNIT 21 LADYFARE SLIPPERS
UNIT 22
UNIT 26 TOP COVER
UNIT 27A
UNIT 27B EQUETECH
UNIT 27C THE FAVOUR S ORE
UNIT 27F CARELINE ALARMS
UNIT 28 LOUISE BLOORE
OFFICE 5 THE PT SPACE
UNIT 25 GA Butlers uk Ltd
OFFICE 1 4KIDS ON KANVAS



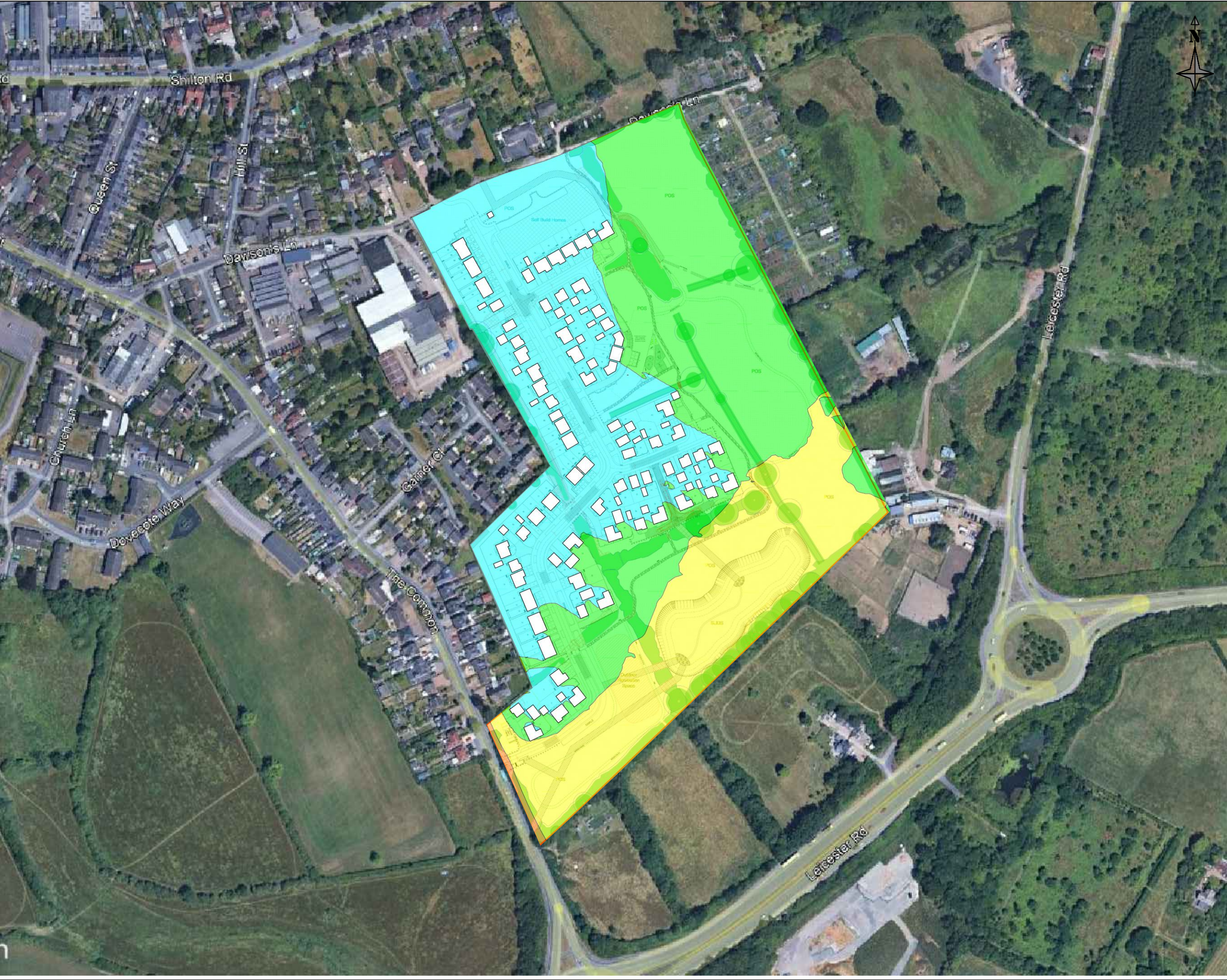


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APPENDICES

Appendix E





NOTES:

1. DO NOT SCALE THIS DRAWING.

KEY

	0–50dB(A)
	50–55dB(A)
	55–60dB(A)
	60–65dB(A)
	65–70dB(A)
	70–75dB(A)
	75–80dB(A)
	>80dB(A)

A		UPDATED LAYOUT		EW	DN	NP	28.08.20
REV		FIRST ISSUE		CP	HJ	NP	22.07.20
REV		AMENDMENTS		DRN	CHK	APP	DATE
PROJECT: THE COMMON, BARWELL, LEICESTER							
DRAWING TITLE: DAYTIME AMBIENT SOUND LEVELS Laeq,16hr							
CLIENT: DAVID WILSON HOMES							
DRAWING NUMBER: 30795_04_120_01							
REVISION:		SHEET SIZE:		SCALE:			
A		A3		NTS			
STATUS: FOR INFORMATION / APPROVAL							
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KEY

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	50–55dB(A)
	55–60dB(A)
	60–65dB(A)
	65–70dB(A)
	70–75dB(A)
	75–80dB(A)
	>80dB(A)

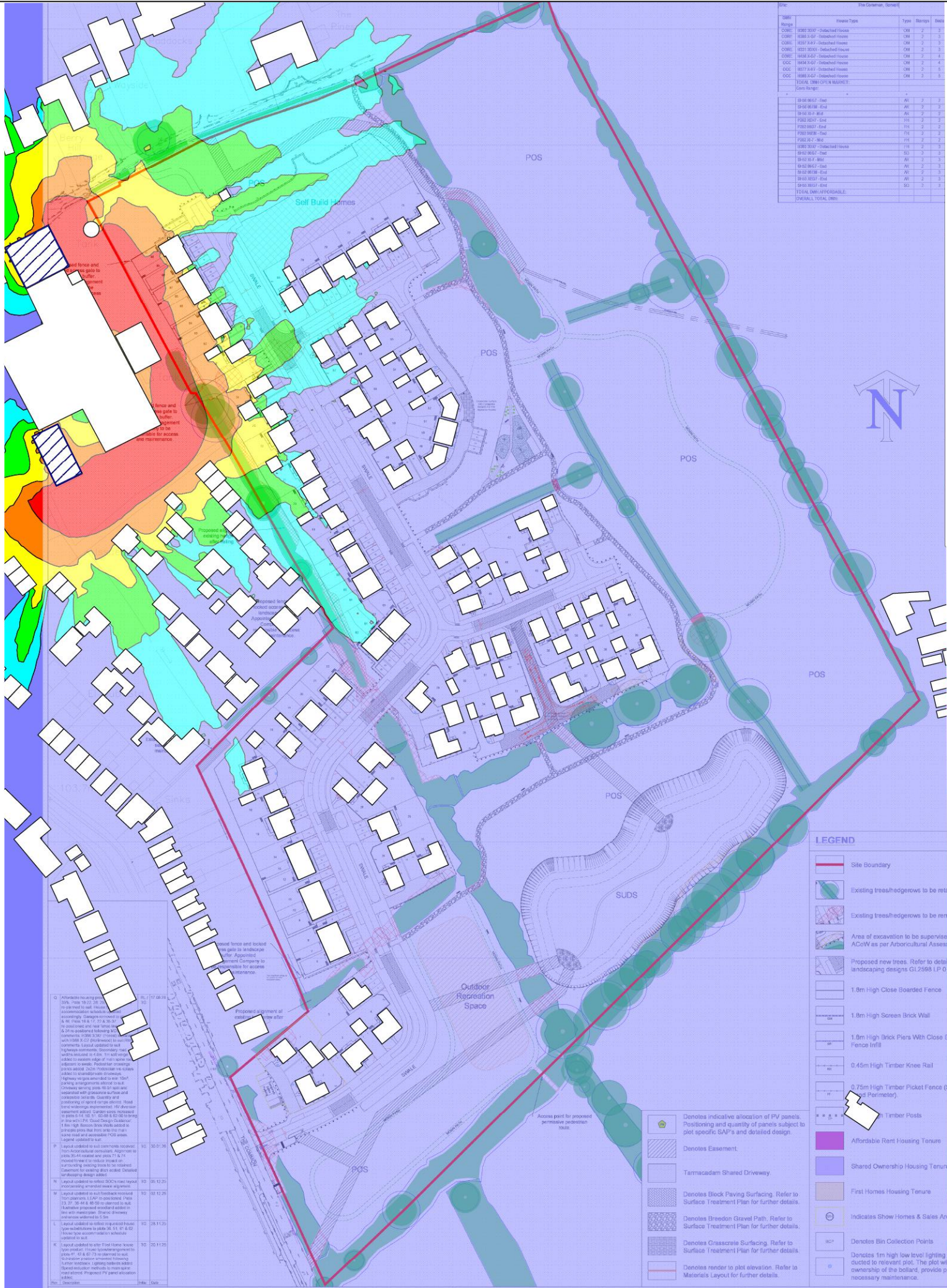
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FIRST ISSUE		CP	HU	NP	22.07.20
REV	AMENDMENTS	DRN	CHK	APP	DATE
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DRAWING TITLE: NIGHT-TIME AMBIENT SOUND LEVELS LAeq,8hr					
CLIENT: DAVID WILSON HOMES					
DRAWING NUMBER: 30795_04_120_02					
REVISION: A		SHEET SIZE: A3		SCALE: NTS	
STATUS: FOR INFORMATION / APPROVAL					
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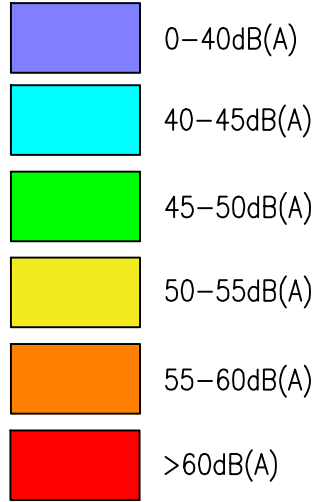
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	60–65dB(A)
	65–70dB(A)
	70–75dB(A)
	75–80dB(A)
	>80dB(A)

A		UPDATED LAYOUT		EW	DN	NP	28.08.20
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DRAWING TITLE: NIGHT-TIME MAXIMUM SOUND LEVELS LAFmax,T							
CLIENT: DAVID WILSON HOMES							
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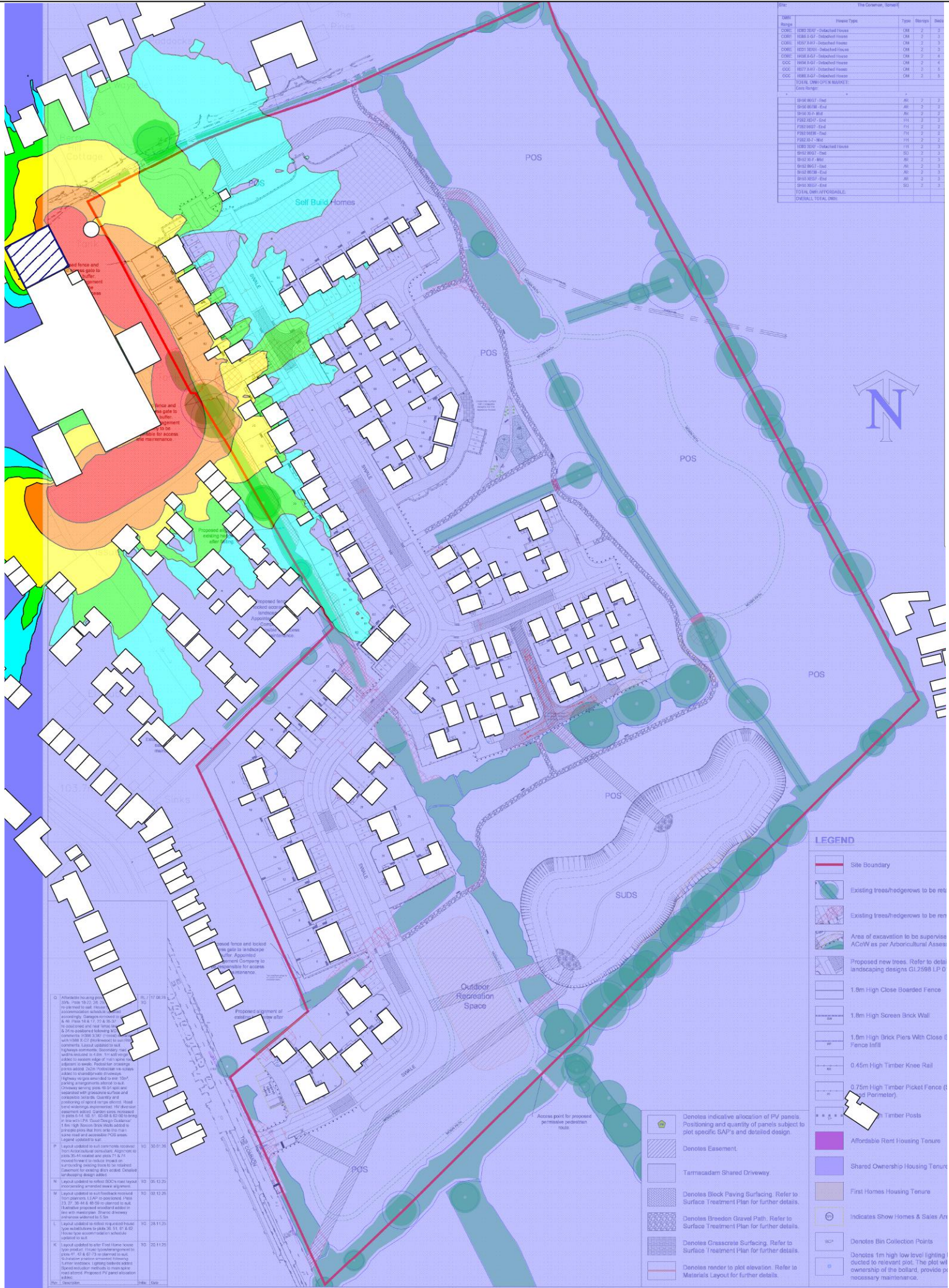


- NOTES:
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 - AHU REFERS TO THE AIR HANDLING UNIT.

KEY



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REV		AMENDMENTS		CP	HU	NP	22.07.26
PROJECT:		THE COMMON, BARWELL, LEICESTER					
DRAWING TITLE:		DAYTIME EXTERNAL SOUND LEVELS WITH AHU AND NO MITIGATION LAeq,1hr					
CLIENT:		DAVID WILSON HOMES					
DRAWING NUMBER:		30795_04_120_04					
REVISION:		A		SHEET SIZE:		A3	
STATUS:		FOR INFORMATION / APPROVAL		SCALE:		NTS	
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KEY

0–40dB(A)

40–45dB(A)

45–50dB(A)

50–55dB(A)

55–60dB(A)

>60dB(A)

Area Source

A		UPDATED LAYOUT		EW	DN	NP	26.08.20
~		FIRST ISSUE		CP	HU	NF	22.07.20
REV:		AMENDMENTS:		DRN	CHK	APP	DATE:
PROJECT: THE COMMON, BARWELL, LEICESTER							
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STATUS: FOR INFORMATION / APPROVAL							
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APPENDICES

Appendix F



Question	Answer	Points
#1 Where is the scheme in the UK?	Rest of England and Wales	2
#2 Is the site likely to see an Urban Heat Island effect?	No	0
#3 Does the site have barriers to windows opening?	Day	8
	Night	8
#4 Are the dwellings flats?	No	0
#5 Does the scheme have community heating?	No	0
#6 What is the estimated average glazing ratio for the dwellings	>35%	4
#7 Are the dwellings single aspect?	No	0
#8 Do the site surroundings feature significant blue/green infrastructure?	Yes	1
#9 Are immediate surrounding surfaces in majority pale in colour, or blue green?	No	0
#10 Does the site have existing tall trees or buildings that will shade solar-exposed glazed areas?	No	0
#11 Do dwellings have high exposed thermal mass AND a means for secure and quiet night ventilation?	No	0
#12 Do floor-to-ceiling heights allow for ceiling fans now, or in the future?	No	0
#13 Is there useful external shading?	No	0
#14 Do windows & opening support effective ventilation?	Part F Only	0
Total		21
Overheating Risk		High
(a) Calculations have been undertaken for select, most exposed plots to determine the average glazing ratio for the development.		



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APPENDICES

Appendix G





- NOTES:
- DO NOT SCALE THIS DRAWING.
 - PLEASE REFER TO REPORT REFERENCE 30795-ENV-0401 FOR DETAILS ON THE PROPOSED GLAZING AND VENTILATION REFERENCES.

KEY

- Ref. A-1
- Ref. A-2
- Ref. B

A		UPDATED LAYOUT		EW	DN	NP	28.08.20
REV		FIRST ISSUE		CP	HJ	NP	22.07.20
REV		AMENDMENTS		DRN	CHK	APP	DATE
PROJECT:							
THE COMMON, BARWELL, LEICESTER							
DRAWING TITLE:							
MITIGATION REFERENCE FOR HABITABLE BEDROOMS							
CLIENT:							
DAVID WILSON HOMES							
DRAWING NUMBER:							
30795_04_120_08							
REVISION:		SHEET SIZE:		SCALE:			
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KEY

Ref. A-1

Ref. A-2

A	UPDATED LAYOUT	EW	DN	NP	28.08.20
1	FIRST ISSUE	CP	HU	NP	22.07.20
REV.	AMENDMENTS	DRN	CHK	APP	DATE

PROJECT: THE COMMON, BARWELL, LEICESTER

DRAWING TITLE: MITIGATION REFERENCE FOR ALL OTHER HABITABLE ROOMS

CLIENT: DAVID WILSON HOMES

DRAWING NUMBER: 30795_04_120_09

REVISION:	SHEET SIZE:	SCALE:
A	A3	NTS

STATUS: FOR INFORMATION / APPROVAL

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Appendix H



Reference A-1 Performance Requirements

Façade Element	Sound Insulation Performance Requirements (dB) in Octave Band Centre Frequencies (Hz)						$R_w / D_{ne,w}$ (dB)	C_{tr} (dB)
	125	250	500	1k	2k	4k		
Glazing	22	20	26	36	39	31	31	-4
Ventilation (Trickle)	32	32	31	33	31	31	32	0
Ventilation (Overheating)	Open Window							

The glazing reduction requirements can typically be found in a configuration of 4/12/4, where the information is presented in terms of the thickness of one pane of glass in mm, followed by the size of the air gap in mm, followed by the thickness of the second pane of glass in mm.

The background ventilation requirements can be found in standard window mounted non-acoustic trickle ventilators.

Reference A-2 Performance Requirements

Façade Element	Sound Insulation Performance Requirements (dB) in Octave Band Centre Frequencies (Hz)						$R_w / D_{ne,w}$ (dB)	C_{tr} (dB)
	125	250	500	1k	2k	4k		
Glazing	22	20	26	36	39	31	31	-4
Ventilation (Trickle)	32	32	31	33	31	31	32	0
Ventilation (Overheating)	Mechanical Ventilation							

The glazing reduction requirements can typically be found in a configuration of 4/12/4.

The background ventilation requirements can be found in standard window mounted acoustic trickle ventilators.

Reference B Performance Requirements

Façade Element	Sound Insulation Performance Requirements (dB) in Octave Band Centre Frequencies (Hz)						$R_w / D_{ne,w}$ (dB)	C_{tr} (dB)
	125	250	500	1k	2k	4k		
Glazing	22	20	26	36	39	31	31	-4
Ventilation (Trickle)	39	38	30	46	42	40	39	-3
Ventilation (Overheating)	Mechanical Ventilation							

The glazing reduction requirements can typically be found in a configuration of 4/12/4.

The background ventilation requirements can be found in standard window mounted acoustic trickle ventilators.

Minimum performance requirements for overheating ventilation only applicable if passive ventilation is used. If mechanical ventilation is chosen, please refer to the main body of the acoustics report for suitable noise limits.

It is appreciated that it is impractical to achieve every octave band minimum performance requirement, therefore, during procurement of solutions, the $R_w + C_{tr}$ or $D_{ne,w} + C_{tr}$ should be adhered to at a minimum.

Minimum performance requirements for overheating ventilation only applicable if passive ventilation is used. If mechanical ventilation is chosen, the system should adhere to the following noise limits:

Room Type	Typical Conditions Limit ^(a) L _{Aeq, T} dB	Overheating Conditions Guidance Value ^(b) L _{Aeq, T} dB
Noise Sensitive Rooms	30	30 (±5)
Less Sensitive Rooms	45	35 (±5)
^(a) Taken from section 1.7 of Approved Document F, Volume 1, 2021 Edition. ^(b) Taken from AVOG.		

'Noise Sensitive Rooms' are defined as bedrooms and living rooms, with the likes of kitchens and bathrooms defined as 'Less Sensitive Rooms'.



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