Welbeck Strategic Land II LLP

LAND AT COOMBE FARM, SAYERS COMMON

Noise Impact Assessment

Revision A

Independent, multidisciplinary engineering and environmental consultants

LAND AT COOMBE FARM, SAYERS COMMON

Noise Impact Assessment

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DOCUMENT AND QUALITY CONTROL

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First Issue September 2025	Ben Dixon BA (Hons), MIOA, ACIEH	Jody Blacklock, BEng (Hons), CEng, MIOA, MCIBSE	Jody Blacklock, BEng (Hons), CEng, MIOA, MCIBSE	Initial report
Revision A 22/09/2025	Ben Dixon BA (Hons), MIOA, ACIEH	Jody Blacklock, BEng (Hons), CEng, MIOA, MCIBSE	Jody Blacklock, BEng (Hons), CEng, MIOA, MCIBSE	Updated description and client name

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APPENDICES

1.0 INTRODUCTION

1.1 Create Consulting Engineers Ltd have been appointed by Welbeck Strategic Land II LLP to undertake a Noise Impact Assessment at the Land at Coombe Farm, Sayers Common.

1.2 It has been understood that this is an outline planning application (with all matters reserved except for access) comprising a residential development of up to 210 dwellings (Use Class C3); with associated access; landscaping; amenity space; drainage and associated works.

1.3 This report contains:

- a description of the site and the proposed work to be carried out,
- a summary of the guidance referred to when setting the criteria for this project,
- the results of the measurement undertaken on site,
- an assessment of external and internal sound against the relevant standards and guidance, and
- a discussion of mitigation requirements.

1.4 Recommendations given in this report are for acoustic purposes only. It is the Client's responsibility to ensure that any work carried out complies with other regulations.

1.5 A glossary of acoustic terms used in this report is provided in Appendix A.

2.0 EXISTING ENVIRONMENT AND SITE PROPOSALS

2.1 The application site is bounded by the A23 to the east and the B218 to the west. The red-line boundary extends around existing residential dwellings which are to be retained, with the Sayers Common village to the north-west of the site.

2.2 The proposed site boundary is shown below, along with the monitor locations used in this assessment (*as described in Chapter 4*). N.b., residential dwellings outside of the redline boundary have been demarcated as noise sensitive receptors (NSR).

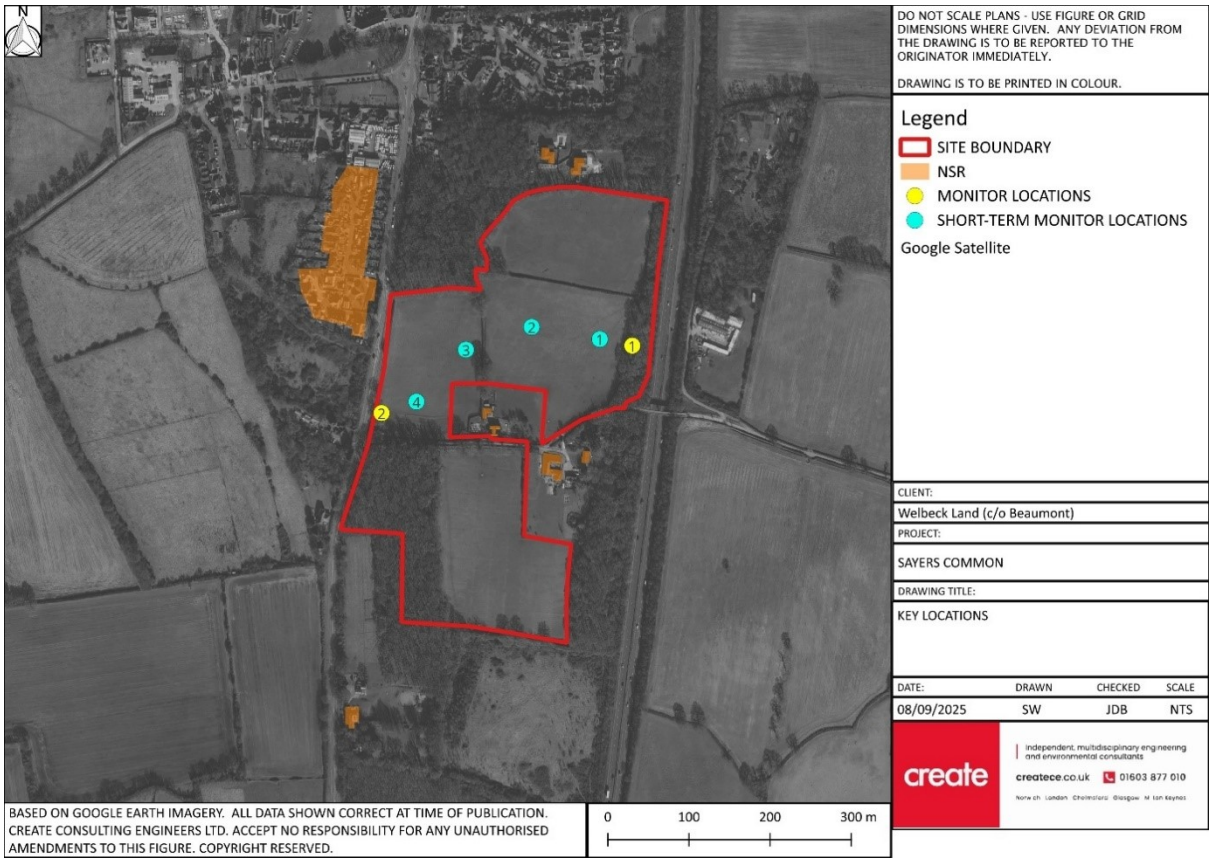

Figure 2.1: Site Proposals and Surroundings

3.0 POLICY, STANDARDS AND CRITERIA

Local Policy

Planning Noise Advice Document: Sussex November 2023

3.1 This document aims to provide advice for developers and their consultants to assist in making a planning application in East and West Sussex having regard to noise. The term noise includes sound and vibration. In some instances, that are outlined (see the Basic Principles section), consideration shall also have to be given to ventilation, overheating, and air quality. The document seeks to complement the Noise Policy Aims set out in the Noise Policy Statement for England (2010) (NPSE).

3.2 The document provides guidance in Table 1 to assist developers in determining the level of acoustic input that may be required at the design stages. As the proposed development is within close proximity to the A23, the first row is valid in this instance. *"Noise reports will normally be required for residential development in close proximity to a major road. ProPG: Planning and Noise – Professional Practice Guidance on Planning and Noise – New Residential Development (2017) and Calculation of Road Traffic Noise (DfT, 1988) shall be followed."*

3.3 We reached out to Adam Dracott, Team Leader for Environmental Protection at Mid Sussex District Council to agree methodology, which has been included as Appendix D of this report.

National Policy

ProPG: Planning & Noise (2017)

3.4 In May 2017 the Institute of Acoustics (IOA), Association of Noise Consultants (ANC) and the Chartered Institute of Environmental Health (CIEH) released this document which provides professional guidance on planning and noise, specifically relating to residential developments.

3.5 It was produced to provide practitioners with a guidance on a recommended approach to the management of noise within the planning system in England. It encourages good acoustic design, including site layouts, orientation of rooms within dwellings etc. Importantly, this document does not constitute an official government code of practice and neither replaces nor provides an authoritative interpretation of the law or government policy on which users should take their own advice as appropriate.

3.6 ProPG risk assesses the noise levels in a graduating manner from Negligible Risk through to High Risk in the following manner. It also states that "an indication that there might be more than 10 noise events at night (23:00 – 07:00) with $L_{Amax,F}$ > 60 dB means the site should not be regarded as negligible risk."

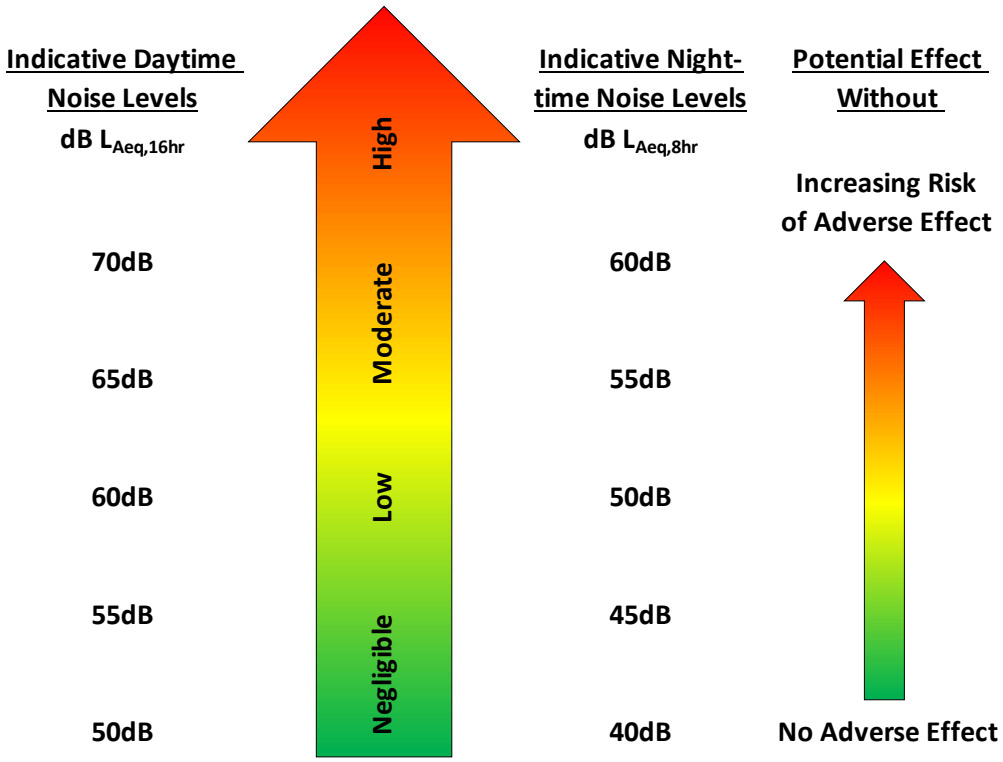

Figure 3.1: Initial Site Risk Assessment Using Fig. 1 of ProPG

Standards and Criteria

Site Suitability – Internal and External Noise Levels [BS 8233:2014]

3.7 BS 8223:2014 and 1999 provide criteria for the assessment of noise affecting various uses, including residential dwellings.

3.8 WHO 'Guidelines for Community Noise' outlines criteria for the assessment of internal and external noise levels affecting various uses including residential dwellings.

3.9 BS 8223:2014 and 1999 state the recommendation of a single figure values that should be met in assessment of the property. These values can be seen in Table 3.2 below:

Activity	Location	Day-Time Period 07:00 – 23:00	Night-Time Period 23:00 – 07:00
Resting	Living Room	35 dB $L_{Aeq,16hour}$	-
Dining	Dining Room/Area	40 dB $L_{Aeq,16hour}$	-
Sleeping	Bedroom	35 dB $L_{Aeq,16hour}$	30 dB $L_{Aeq,16hour}$

NOTE 7 – Where development is considered necessary or desirable, despite external noise levels above WHO guidelines, the internal target levels may be relaxed by up to 5 dB and reasonable internal conditions still achieved

Table 3.1: BS8223:2014 Indoor Ambient Noise Levels

3.10 Design criteria for external amenities is also suggested within the document:

3.11 'For traditional external areas that are used for amenity space, such as gardens and patios, it is desirable that the external noise level does not exceed 50 dB *L*Aeq,*T*, with an upper guideline value of 55 dB *L*Aeq,*T* which would be acceptable in noisier environments'

WHO Guidelines for Community Noise (1999)

3.12 The WHO Guidelines for Community Noise state the following guideline values for noise in specific environments, as can be seen in table 3.5.

Specific Environment	Critical Health Effects	$L_{Aeq,T}$ (dB)	$L_{AMAX,fast}$ (dB)
Dwelling, indoors	Speech intelligibility and moderate annoyance	35	-
Inside bedrooms	Sleep disturbance, night-time	30	45
Outdoor living area	Serious annoyance, daytime and evening	55	-
	Moderate annoyance, daytime and evening	50	-

Table 3.2: WHO Guideline Values for Community Noise

3.13 The document also states:

> *'For a good sleep, it is believed that indoor sound pressure levels should not exceed approximately 45dB LAMAX more than 10-15 times per night (Vallet & Varnet, 1991).'*

3.14 For residential uses, the guidance recommends the following internal noise levels be adopted as a minimum design target for proposed dwellings:

Period	Duration	Noise (1) (2) (dB)
Day	07:00 -23:00	35 $L_{Aeq,16hr}$
Night	23:00 – 07:00	30 $L_{Aeq,16hr}$
		45 $L_{AF,MAX}$

Notes:
(1) From BS8223:2014 and WHO Guidelines
(2) The design targets relate to internal noise levels. With respect to outdoor living areas, a target of 55dB $L_{Aeq,T}$ should avoid serious annoyance during the day or evening

Table 3.3: Proposed Indoor Criteria

Acoustics and Overheating: Residential Design Guide (2020)

3.15 Ventilation requirements for dwellings are covered under the Building Regulations Approved Document F (ADF).

3.16 ADF describes three types of ventilation provision and associated ventilation rates for dwellings. These four 'systems' are summarised in table 3.3 below:

Ventilation System	Provision with ADF system/purpose		
	Whole dwelling ventilation	Extract ventilation	Purge ventilation
System 1: Background ventilators and intermittent extract fans	Background ventilators (trickle vents)	Intermittent extract fans	Typically provided by opening windows
System 2: Passive stack ("natural")	Background ventilators (trickle vents) and passive stack ventilation	Continuous via passive stack	Typically provided by opening windows
System 3: Continuous mechanical extract (MEV)	Continuous mechanical extract – minimum low rate Trickle vents provide inlet air	Continuous mechanical extract – minimum high rate Trickle vents provide inlet air	Typically provided by opening windows
System 4: Continuously mechanical supply and extract with heat recovery (MVHR)	Continuous mechanical supply and extract – minimum low rate	Continuous mechanical supply and extract – minimum high rate	Typically provided by opening windows

Table 3.4: Table 2-2 from the Acoustics and Overheating: Residential Design Guide – January 2020

3.17 The ventilation strategy for each development has a significant impact on the design and subsequent internal ambient noise levels within habitable spaces.

Approved Document F – Ventilation (2013)

3.18 Approved document F outlines provisions to control the noise that is associated with the installation of ventilation systems.

3.19 It recommends that in noisy areas, in order to reduce the amount of noise entering the building through the ventilation system it may be appropriate to use sound-attenuating products such as silencers or attenuators. This is dependent on the noise levels and planning conditions.

BS 4142:2014+A1:2019

3.20 This British Standard has been reviewed and updated since the previous version in 2014. The biggest change however occurred in the 2014 amendments when the method for applying acoustical characteristics was dramatically changed. Another key area which was amended related to the determination of the appropriate background sound level.

3.21 Acoustical characteristics are applied cumulatively for the following characters;

Acoustic Character	Subjective Level	Correction
Tonality	Just perceptible	+2 dB
	Clearly perceptible	+4 dB
	Highly Perceptible	+6 dB

Acoustic Character	Subjective Level	Correction
Impulsivity	Just perceptible	+3 dB
	Clearly perceptible	+6 dB
	Highly Perceptible	+9 dB
Intermittency	Readily distinctive	+3 dB
Other sound characteristics	Readily distinctive	+3 dB

Table 3.5: Acoustical Characteristics for Determining the Rated Sound Level

3.22 The above correction values are based on the subjective nature of the sound, however BS 4142 also provides detailed guidance on objectively calculating the correction factors, which are included within Annexes C, D and E of the British Standard.

3.23 This latest version of the British Standard states that the most relevant background sound level should be applied for the most relevant time period and should reflect the period which is being assessed. This could include the use of statistical analysis or averaging to calculate the most applicable background sound level.

Calculation of Road Traffic Noise – 1988 (CRTN)

3.24 For new developments, road traffic noise levels should be predicted in accordance with CRTN. This prediction method uses the traffic flow, vehicle speed, percentage of heavy-duty vehicles, road gradient and other factors to calculate noise levels at receptor locations.

3.25 The standard also provides a shortened measurement procedure for the conversion of an $L_{A10,3hr}$ to a $L_{A10,18hr}$. This is suitable for validating noise models where full data is unavailable, or where extended surveys are impactable.

Institute of Environmental Management and Assessment (IEMA) Guidelines: Guidelines for Environmental Noise Impact Assessment

3.26 There is currently no specific guidance on how to undertake a noise impact assessment, and, although standards and guidance about noise are available.

3.27 The purpose of the document is to address the key principles of a noise impact assessment, and state the importance of contextual assessment, by informing the practitioner:

- how to scope a noise assessment,
- issues to be considered when defining the baseline noise environment,
- prediction of changes in noise levels as a result of implementing development proposals, and
- definition and evaluation of the significance of the effect of changes in noise levels (for use only where the assessment is undertaken within an EIA).

3.28 The guidance states the practitioner must consider the most applicable and relevant indices for assessing the impact of noise, by considering not only the diurnal times, overall levels and location, but the characteristics and type of noise.

Criteria

3.29 The following summaries the criteria we have applied for this project.

Internal Noise Levels (BS8233/WHO)

- Daytime Ambient = ≤35 dB LAeq,T
- Night-time Ambient = ≤30 dB LAeq,T
- Night-time 10th Highest Max Event = ≤45 dB L_{AfMax}

External Noise Levels (BS8233/WHO)

- Daytime Ambient = ≤50-55 dB $L_{Aeq,T}$

Plant Noise Rating Level (BS4142)

- Assessed and rated in accordance with BS4142:2014

4.0 SITE SURVEY

4.1 We attended site on 12/08/2025 to undertake a site survey. We left 2 logging sound level meters on site for a period of 8 days to measure the residual sound levels.

4.2 Whilst on site, an additional 4no short term measurements were taken to check how sound propagates over the site.

4.3 The measurement locations used for our survey are shown in the figure below:

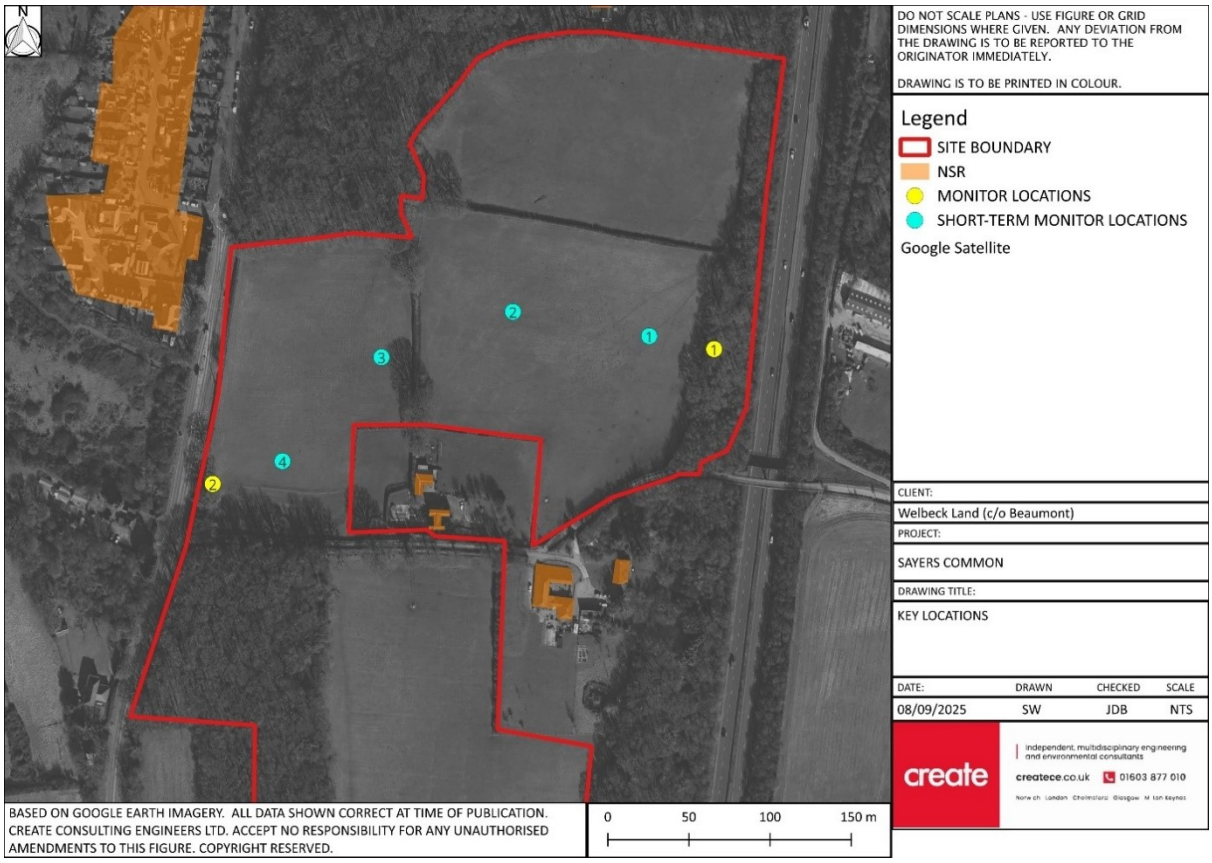

Figure 4.1: Measurement locations

4.4 All measurements were taken at a height of 1.5 m above ground in terms of, L_{eq}, L_{90}, L_{max} and A-weighted levels. The results of our survey are summarised in Section 5.0.

4.5 The equipment was calibrated at 113.9 dB at 1 kHz before the survey. There was no significant drift noted over the course of the survey. A summary of equipment used, and calibration information is contained in Appendix C of this report.

4.6 The weather was warm, and calm throughout the period of measurement. There were no periods of inclement weather recorded which warranted exclusion of measurement data the results.

5.0 RESULTS

Ambient

Daytime *[Expressed as dB $L_{Aeq,16hr}$]*

5.1 Ambient noise levels measured during the daytime ranged between:

- 69 dB *[no meaningful derivation]* at MP1, and
- 61 – 62 dB at MP2.

5.2 The average daytime noise levels measured over the course of the survey were:

- 69 dB at MP1, and
- 61 dB at MP2.

Night-time *[Expressed as dB $L_{Aeq,8hr}$]*

5.3 Ambient noise levels measured during the night-time ranged between:

- 64 – 65 dB at MP1, and
- 53 – 56 dB at MP2.

5.4 The average night-time noise levels measured over the course of the survey were:

- 64 dB at MP1, and
- 54 dB at MP2.

Max Levels

5.5 Representative night-time dB L_{AFmax} events were attributed to transport sources and were measured to be:

- 73 dB at MP1, and
- 70 dB at MP2.

Short-term Levels *[Expressed as dB $L_{Aeq,15mins}$]*

5.6 The short-term ambient sound levels measured at the positions shown in Figure 4.2 were:

- 67.4 dB at ST1,
- 61.6 dB at ST2,
- 55.5 dB at ST3, and
- 56.6 dB at ST4.

Background

5.7 The daytime and night-time measurement results are shown in the following charts:

MP1

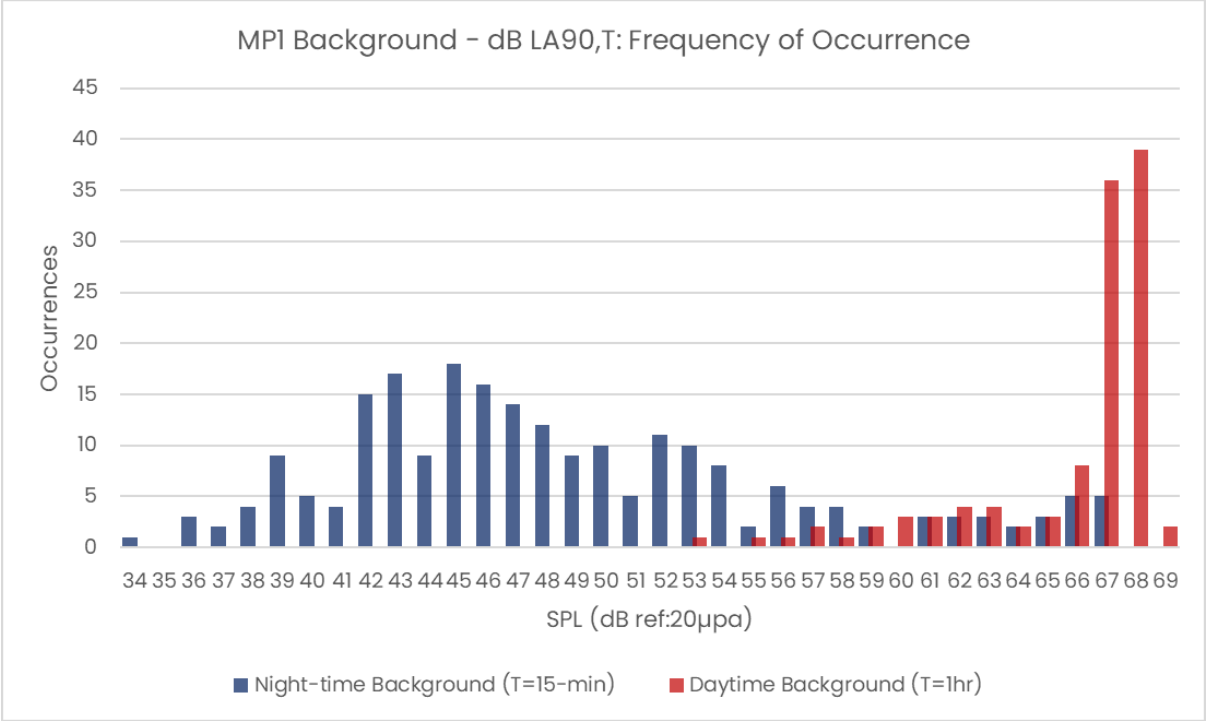

Chart 5.1: Background Sound Levels at MP1

MP2

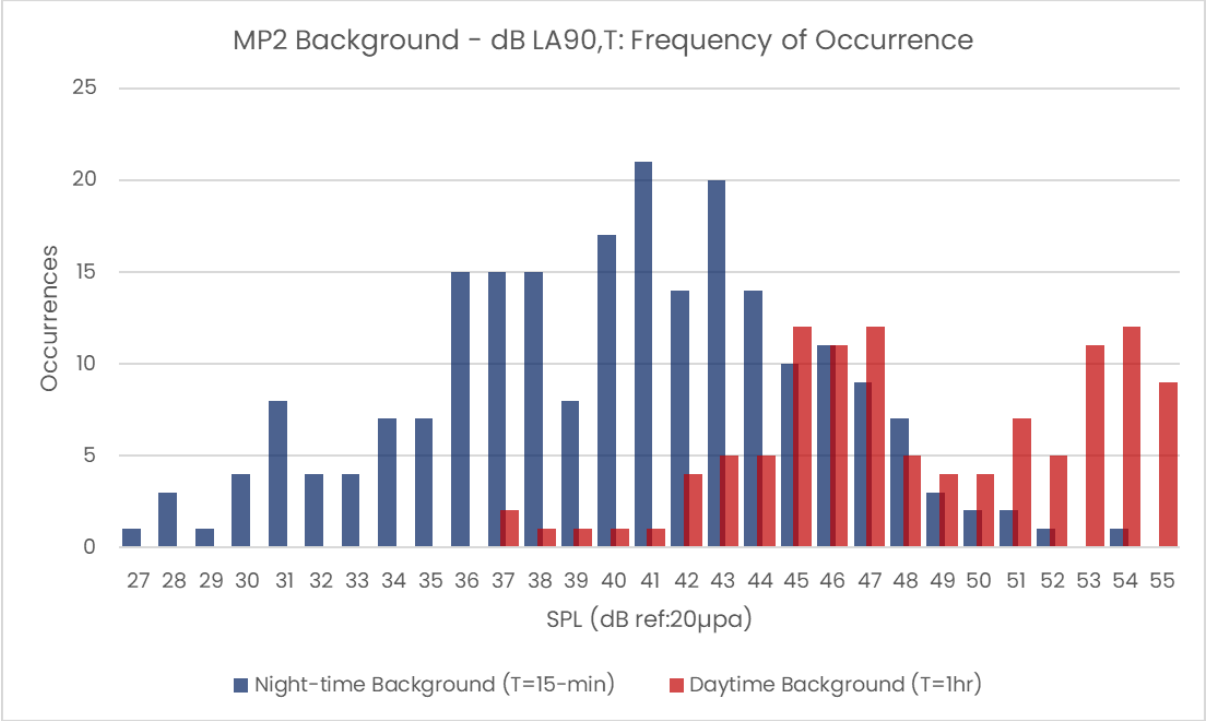

Chart 5.2: Background Sound Levels at MP2

5.8 The background sound levels would be considered typical for a site in relative proximity to major transport links. They can however sporadically become quite low at night to the west of the site (MP2).

Plant Noise Levels

5.9 We have considered the representative background sound levels for existing receptors to the west of the site (represented by MP2) to be 45 dB $L_{A90,1hr}$ daytime, and 36 dB $L_{A90,15min}$ night-time. This can also be considered representative for the newly proposed residences. The residences identified close to the geographical middle of the site, may be closer represented by the sound levels at MP1, however by ensuring a good level of acoustic design for the proposed dwellings, a lower sound level will be achieved at these locations, also. Therefore, it is recommended that the representative background of 45 dB $L_{A90,1hr}$ daytime, and 36 dB $L_{A90,15min}$ night-time apply here, also.

6.0 ASSESSMENT

6.1 This section has assessed the acoustical viability of the site for residential development.

6.2 Using the supplied plans and survey data, a 3D noise propagation model has been constructed to allow for more detailed analysis. This can assist designers with decisions on:

- Orientation of site buildings/structures,
- Orientation of internal spaces (habitable rooms),
- Methods of ventilation,
- Suitability of private external amenity spaces in locations (such as balconies/gardens), and
- Suitable locations for shared external amenity spaces.

Construction and Calibration

6.3 The model was constructed using the supplied indicative outline plans. Ground conditions were set to soft for the pre-construction model scenario, to be representative of the survey conditions. Building heights were assumed, and the road noise sources were imported. The topography of the land was based on the site topographical study received and through the use of LiDAR for areas outside of the site boundary.

6.4 For calibration, the proposed buildings were switched to 'off' and all the existing buildings were switched to 'on'. The model was then calibrated to be within <1 dB of the measured levels from the baseline monitoring assessment.

Assessment of Transport Sources

6.5 As it is generally accepted that a partially open window provides an approximate 15 dB reduction from external noise sources (depending on the open area), the following methodology can be applied to determine the potential for relying solely on natural ventilation:

Period	Internal Noise Limit	Maximum Level at Facade
Daytime Ambient	35 dB	50 dB
Night-time Ambient	30 dB	45 dB
Night-time Max	45 dB	60 dB

Table 6.1: Openable Windows Façade Level Criteria

6.6 The following figures show the post-development sound propagation across the site for both the day and night-time periods. The colour gradient shows the maximum calculated sound level at each façade for each respective period:

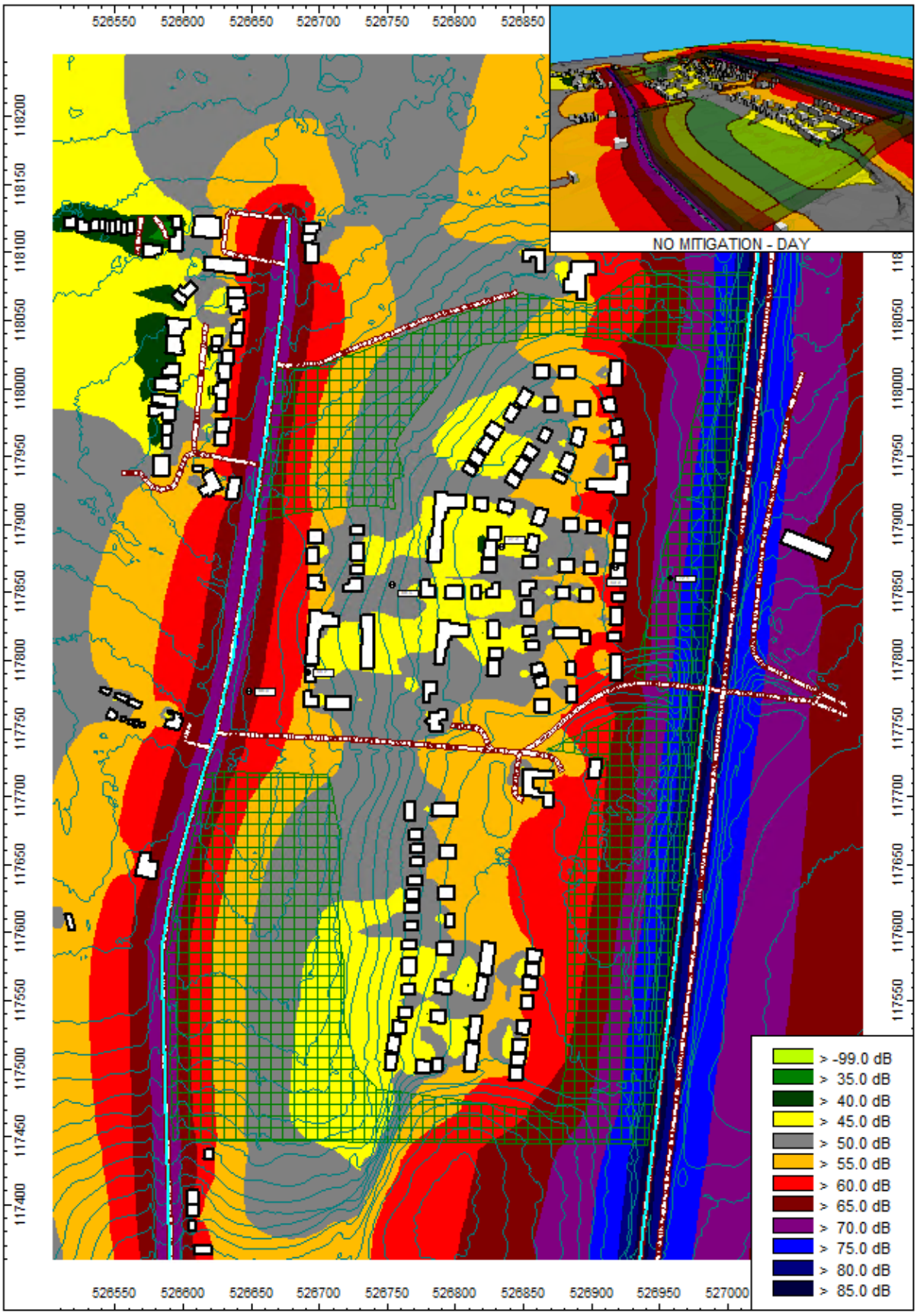

Figure 6.1: Daytime Ambient Sound Levels

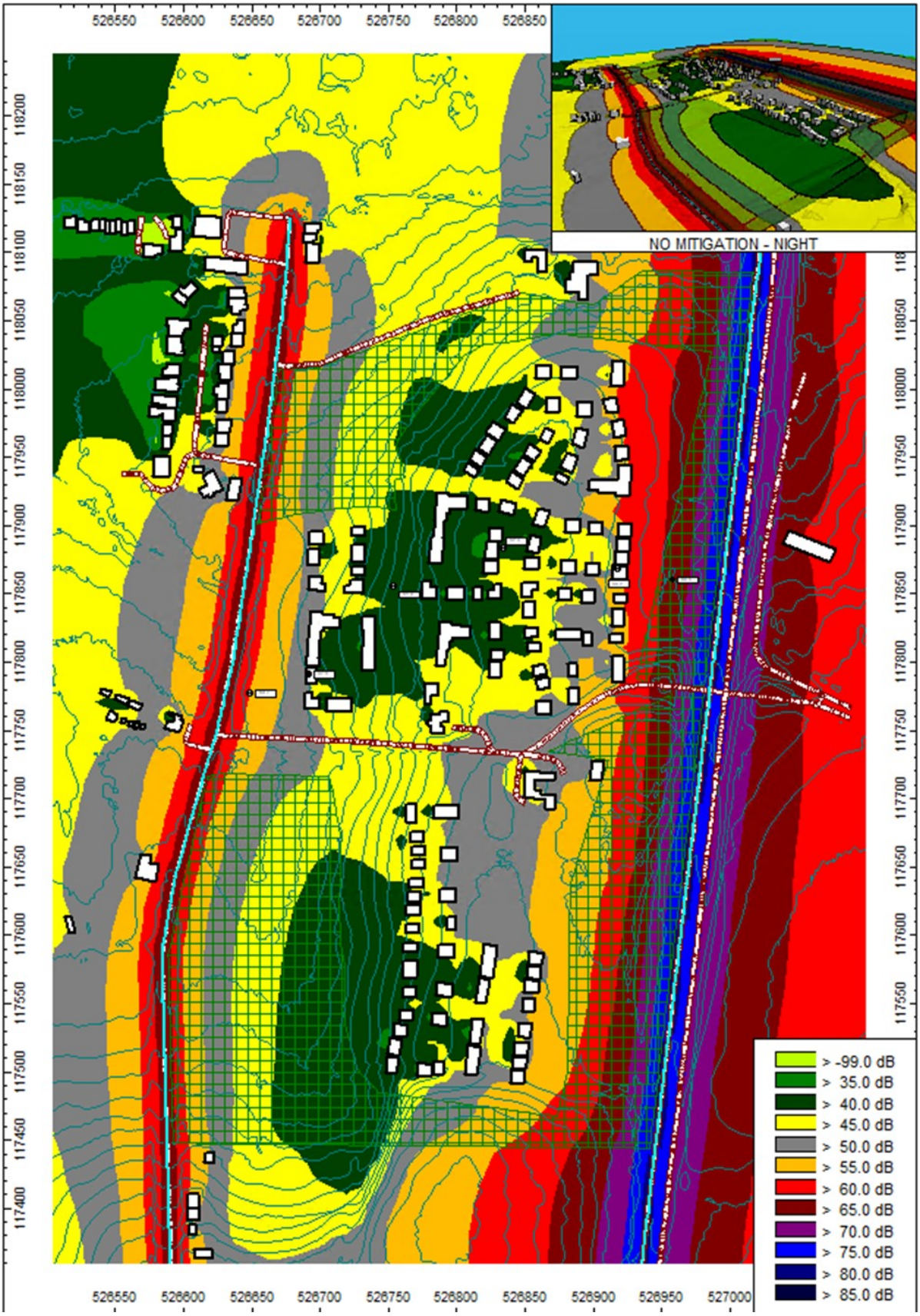

Figure 6.2: Night-time Ambient Sound Levels

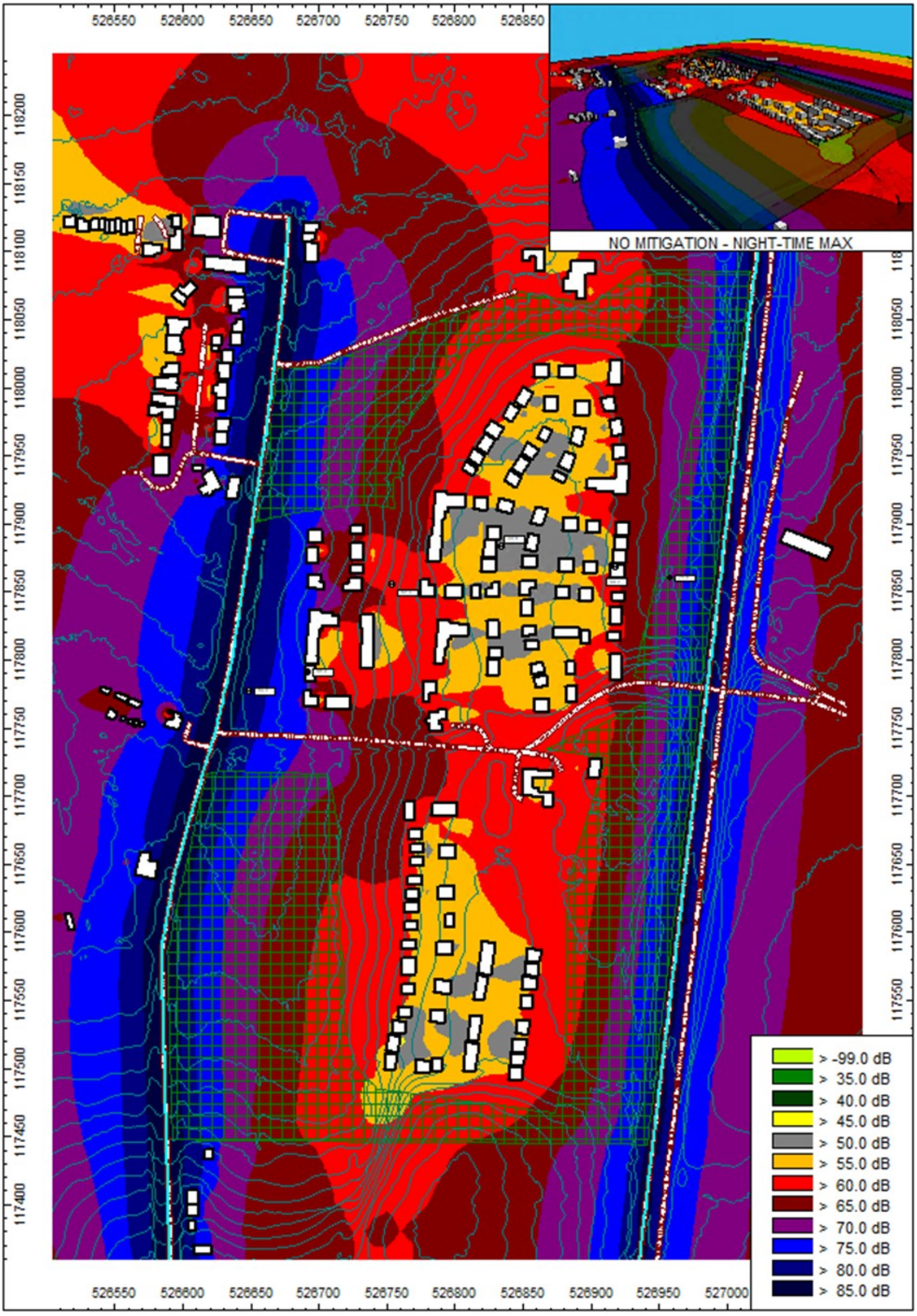

Figure 6.3: Night-time Max Sound Levels

6.7 The results show that the night-time sound levels are the most elevated above the respective façade level criteria and is therefore defining the ventilation strategy across the site, from an acoustics only perspective.

6.8 At this outline design stage, the site appears to be largely viable for system 2-3 ventilation (as detailed in the Acoustics and Overheating Residential Guide and replicated in Table 3.4 of this report) whilst providing internal noise levels compliant with BS8233 and the WHO guidelines. Should there be the desire to potential reduce the reliance on alternate methods of ventilation, Note 7 of BS8233 states:

'NOTE 7 Where development is considered necessary or desirable, despite external noise levels above WHO guidelines, the internal target levels may be relaxed by up to 5 dB and reasonable internal conditions still achieved.'

6.9 A discussion between the client and LPA is encouraged, should this be a preferable option. Defining the desirability of a development is commonly the role of the LPA and client, and is therefore beyond the scope of this assessment

6.10 An example of a suitable façade construction for these areas has been provided below. All other areas on the site require no specialist façade designs in their current orientation. Please note, the assessment at this stage of the design is indicative, only. Once designs are fixed, this should be revisited and a detailed noise impact assessment for noise break in undertaken.

6.11 The following calculation results have assumed a small single bedroom (as they are commonly the most affected by extraneous external noise levels), with a 1.2m^2 window and a 14m^2 floor area.

- **Wall** - Traditional Cavity Masonry, SFS or Timber
- **Glazing [Closed]** - 36 dB R_W(C: -1; Ctr: -3) 6-15-10 SG Solaglas, and
- **Ventilation** – x1 Open 40 dB $D_{n,e,w}$ Titon SFX 2500EA [V75 / Std. Canopy].

External Noise Levels

6.12 Figure 6.5 below shows the model results for external amenity sound levels, where green and yellow are within/below the 50-55 dB $L_{Aeq,T}$ recommended levels for external amenity spaces:

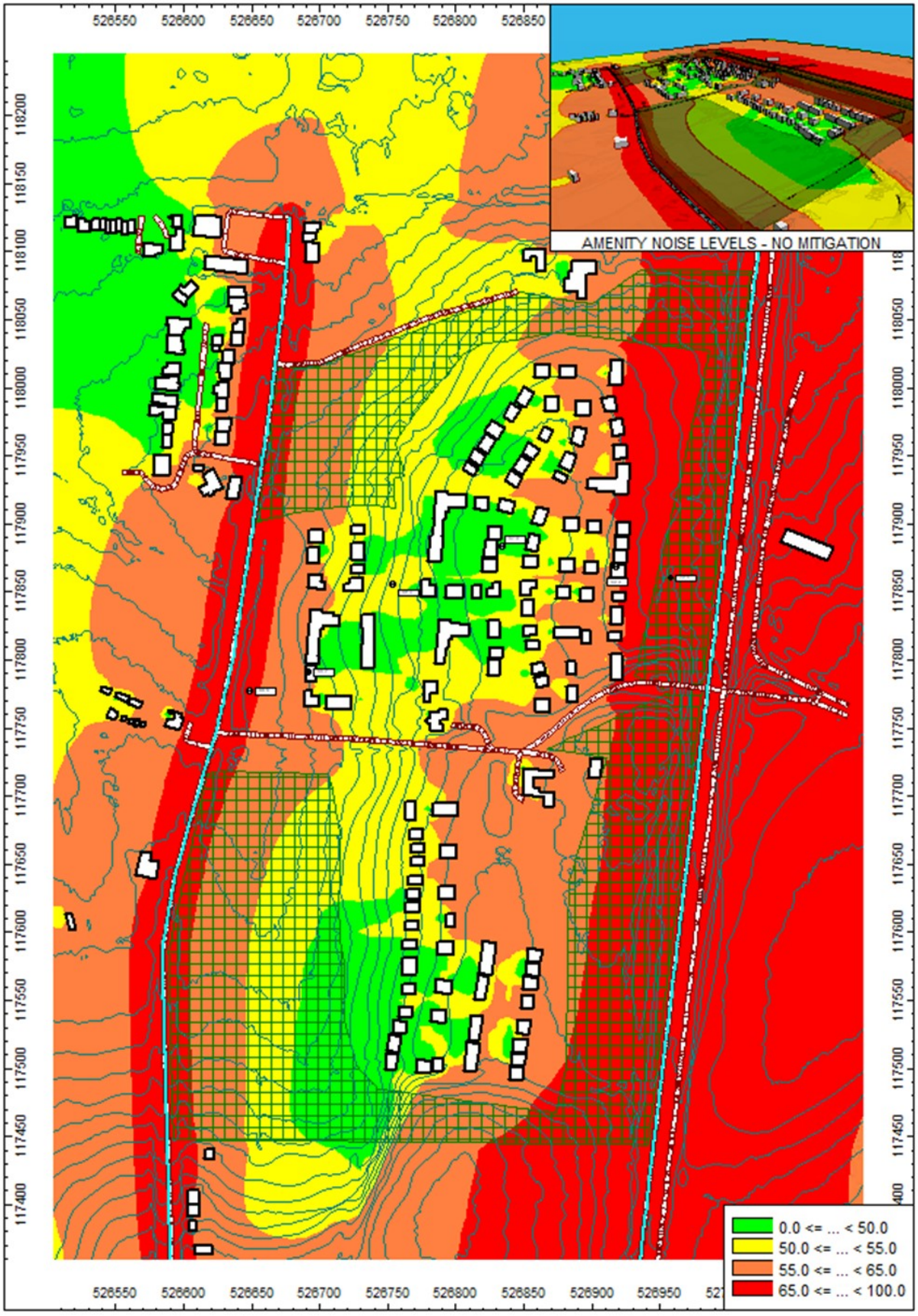

Figure 6.4: Daytime External Amenity Areas

6.13 As can be seen in the figure above, the portion of the site to the east, warrants further consideration during the later design stages, however following introduction of an acoustic barrier along the eastern boundary of the site and standard 1.8mtr close-boarded timber fencing (>10kg/m2), external amenity area noise levels are expected to improve and be within the recommended limits in all private external amenity areas.

Acoustic Design Principles

6.14 Implementation and consideration of good acoustic design principles will reduce the requirement for enhanced control measures. Some examples could include:

- Design consideration of location of dwellings. Where possible, increase distance or introduce screening between the proposed dwellings and the noise source,
  - In this instance, the main noise source is the A23,
- Orientation of internal spaces, to minimise the instances of habitable spaces on excessively noisy building facades overlooking the major noise sources (the A23),
- Orientation of buildings to provide maximum shielding from road noise for the private external amenity spaces,
  - In this instance, locating the private external amenity spaces on the western side of properties closest to the A23,
- The introduction of nearfield screening (such as close boarded 1.8mtr timber fences with a surface mass >10kg/m2) can provide up to 9 dB attenuation in certain external amenity areas, and
- Construction of a tall perimeter fence/wall/bund along the eastern site boundary can further reduce sound levels across the site and potentially reduce the requirement for enhanced acoustic design at the dwellings.

6.15 It is recommended that these principles are fed into the detailed design stages.

Plant Rating Level

6.16 The assessment of any resultant impact upon existing receptors or on those within the proposed development, should be conducted in-line with the methodologies as described in BS4142:2014+A1:2019.

6.17 It should be noted that this is the assessment methodology and impact rating for commercial noise sources and does not strictly apply to residential plant equipment (such as air source heat pumps).

6.18 The rating level is the specific sound level (the sound level of the source at the assessment location) plus any adjustment for the characteristic features of the sound at the assessment location (NSR), which include:

- Tonality
- Impulsivity
- Intermittency
- Other Sound Characteristics

6.19 BS 4142 states the following;

a. Typically, the greater the difference {between the background sound level and the rating level}, the greater the magnitude of the impact.

b. A difference of around +10 dB or more is likely to be an indication of a significant adverse impact, depending on the context.
c. A difference of around +5 dB is likely to be an indication of an adverse impact, depending on the context.
d. 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.

6.20 As the proposed plant equipment was not known at the time of assessment, the rating level provided is the design threshold for the cumulative level of all building services plant associated with the development and should be agreed in principle with the Environmental Protection team at the LPA.

Existing Receptors

6.21 It has been proposed that 45 dB $L_{AR,Tr}$ is the rated level for the daytime periods, and 36 dB $L_{AR,Tr}$ is the rated level for the night-time. Adherence to this design level assures the installations compliance with the standard (should it be determined to apply in this application). These are the levels to not be exceeded at any existing noise sensitive receptor, inclusive of any adjustments for characteristic features as listed above. Again, this should be agreed by the Environmental Protection team at the LPA.

Proposed New Receptors

6.22 The same levels may also apply to the proposed residential properties. Since the adoption of residential use Air Source Heat Pumps (ASHP), however, It is becoming increasingly common for local authorities to accept the principals of Microgeneration Certification Scheme assessment criteria as detailed in MCS 020(a). This is due to the excessive amount of attenuation often required to achieve the limits in extremely low noise areas, where proposed dwellings abut one another.

6.23 It is recommended that a suitable criterion be agreed with the Environmental Protection team at the LPA prior to progressing with these M&E designs.

7.0 UNCERTAINTY

7.1 A level of uncertainty is inherent to environmental noise monitoring. However, every effort to minimise the potential effects has been made.

7.2 The survey period was conducted for 8 days and 7 nights, including a weekend. this has captured representative levels for the quietest periods (early morning weekends), and loudest periods (weekday morning rush hour).

7.3 A total of 4no short-term measurements (time-aligned with MP1) were conducted across the site to determine how sound propagates across the site. The model calibration for these locations was found to be within acceptable limits.

7.4 The calculation methodology of BS ISO 9613-2:2024 has a +/- 3dB level of uncertainty associated with it, which has been considered.

8.0 CONCLUSIONS

8.1 Create Consulting Engineers have conducted an environmental noise impact assessment associated with the proposed development located at Land at Coombe Farm, Sayers Common.

8.2 A survey of 8 days and 7 nights was conducted at 2 representative locations to measure the residual levels.

8.3 These sound levels were then used to construct a 3D noise propagation model for the site. The results from which have indicated that the vast majority of the site is suitable for residential development that utilises system 2-3 ventilation. These areas have been identified in the body of the report.

8.4 External sound levels were found to above the amenity noise level recommendations in standard guidance but can however be achieved following further acoustic design as detailed within the main body of this report. Broad stroke advice has been provided in section 6.

8.5 Plant noise levels for existing receptors have been proposed. A discussion between the Environmental Protection team at the LPA is encouraged to determine the most suitable level for the proposed residential properties.

9.0 DISCLAIMER

9.1 Create Consulting Engineers Ltd disclaims any responsibility to the Client and others in respect of any matters outside the scope of this report.

9.2 The copyright of this report is vested in Create Consulting Engineers Ltd and Welbeck Strategic Land II LLP. The Client, or their appointed representatives, may copy the report for purposes in connection with the development described herein. It shall not be copied by any other party or used for any other purposes without the written consent of Create Consulting Engineers Ltd or Welbeck Strategic Land II LLP.

9.3 Create Consulting Engineers Ltd accepts no responsibility whatsoever to other parties to whom this report, or any part thereof, is made known. Any such other parties rely upon the report at their own risk.

APPENDIX A
Acoustic Glossary

dB(A)

The human ear is less sensitive to low (below 125 Hz) and high (above 16 kHz) frequency sounds. A sound level meter can be used to duplicate the ear's variable sensitivity to sound across a spectrum of frequencies. This is achieved by building a filter into the instrument with a similar frequency response to that of the average ear. This is called an "A-weighting filter". Measurements of sound made with this filter are called A-weighted sound level measurements and the unit is dB(A).

$L_{eq,T}$

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

$L_{10,T}$

This is the minimum level exceeded for not more than 10% of the time period (T). This parameter is often used as a "not to exceed" criterion for noise.

$L_{90,T}$

This is the minimum level exceeded for not more than 90% of the time period (T). This parameter is often used as a descriptor of "background noise" for environmental impact studies.

L_{fmax}

This is the maximum sound pressure level that has been measured over a period using a fast time constant.

Octave Bands

In order to completely determine the composition of a sound it is necessary to determine the sound level at each frequency individually. Usually, values are stated in octave bands. The audible frequency region is divided into 10 such octave bands whose centre frequencies are defined in accordance with international standards.

Addition of noise from several sources

Noise from different sound sources combine, on a logarithmic scale, to produce a sound level higher than that from any individual source. Two equally intense sound sources operating together produce a sound level which is 3dB higher than one alone and 3 identical sources produce a 5 dB higher sound level.

Attenuation by distance

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

Subjective impression of noise

Sound intensity is not perceived directly at the ear; rather it is transferred by the complex hearing mechanism to the brain where acoustic sensations can be interpreted as loudness. This makes hearing perception highly individualised. Sensitivity to noise also depends on frequency content, time of occurrence, duration of sound and psychological factors such as emotion and expectations. The following table is a reasonable guide to help explain increases or decreases in sound levels for many acoustic scenarios.

Change in sound level (dB)	Change in perceived loudness
1	Imperceptible
3	Just barely perceptible
6	Clearly noticeable
10	About twice as loud
20	About 4 times as loud

Barriers

Outdoor barriers can be used to reduce environmental noises, such as traffic noise. The effectiveness of barriers is dependent on factors such as its distance from the noise source and the receiver, its height and its construction.

Reverberation control

When sound falls on the surfaces of a room, part of its energy is absorbed and part is reflected back into the room. The amount of reflected sound defines the reverberation of a room, a characteristic that is critical for spaces of different uses as it can affect the quality of audio signals such as speech or music. Excess reverberation in a room can be controlled by the effective use of sound-absorbing treatment on the surfaces, such as fibrous ceiling boards, curtains and carpets.

IANL

IANL or 'Internal Ambient Noise Level' refers to the recorded (or predicted) $L_{Aeq,T}$ within a dwelling, office, commercial unit or treatment space. IANL typically defines a design limit or range.

APPENDIX B
Summary of National Policy

National Planning Policy

National Planning Policy Framework (December 2024)

The National Planning Policy Framework (NPPF) replaces the previous version of the NPPF and the Planning Policy Statements (PPS) and Planning Policy Guidance (PPG), including the Department of the Environment's Planning Policy Guidance Note 24: 'Planning and Noise' (PPG 24), which was published in 1994. The main reference to noise within the latest version of the NPPF is at Paragraphs 187 (e) and 198:

'Para.187 (e). "Planning policies and decisions should contribute to and enhance the natural and local environment by:

> *(e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans; and."*

'Para.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[75];*
> *(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.'*

The reference number 72 cross references the National Policy Statement for England (2010) Explanatory Note.

Although some qualitative guidance on noise has been provided in the web-based Planning Practice Guidance document, there has been no alternative quantitative guidance proposed by the Government as a direct replacement for PPG24. This was due to the recognition that every site is different and that there is no single acceptable noise level, suitable for all applications.

National Planning Policy Guidance (2019)

On 6th March 2014, the Department for Communities and Local Government (DCLG) launched the National Planning Practice Guidance (NPPG) web-based resource to supersede previous planning guidance documents including PPG24 and provide clarification over all disciplinary sectors in the delivery of the design quality aspirations of the NPPF. This has been updated in July 2019.

The NPPG-Noise provides guidance on the assessment of noise, the needs to be considered when new developments may create additional noise and when developments would be sensitive to the prevailing acoustic environment.

The acoustic environment should be taken into account in the planning of new development and decision making should take the following into consideration:

- *'whether or not significant adverse effect is occurring or likely to occur;*
- *whether or not an adverse effect is occurring or likely to occur; and*
- *whether or not a good standard of amenity can be achieved.'*

It then cross-references the Noise Policy Statement for England (2010) for further clarification on how to assess the overall effect of noise exposure.

The Noise Policy Statement for England (2010)

The Noise Policy Statement for England (NPSE) was published in March 2010 and is the overarching statement of noise policy for England and applies to all forms of noise other than occupational noise, setting out the long-term vision of Government noise policy which is to:

> *'Promote good health and a good quality of life through the effective management of noise within the context of Government policy on sustainable development.'*

The vision is supported by the following aims which are reflected in paragraph 1.7 of the Noise Policy Statement for England:

> *'Through the effective management and control of environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development:*
>
> - *Avoid significant adverse impacts on health and quality of life;*
> - *Mitigate and minimise adverse impacts on health and quality of life; and*
> - *Where possible, contribute to the improvement of health and quality of life.'*

The Explanatory Note to the NPSE introduces three concepts to the assessment of the potential effects of noise:

- *'**NOEL** – No Observed Effect Level: This is the level below which no effect can be detected. In simple terms, below this level, there is no detectable effect on health and quality of life due to the noise.*
- ***LOAEL** – Lowest Observed Adverse Effect Level: This is the level above which adverse effects on health and quality of life can be detected.*
- ***SOAEL** – Significant Observed Adverse Effect Level: This is the level above which significant adverse effects on health and quality of life occur.'*

Unlike the now redundant PPG24, the three levels are not defined numerically in the NPSE, and for the SOAEL the NPSE makes it clear that the noise level is likely to vary depending upon the noise source, the receptor and the time of day/day of the week, etc. The need for more research to investigate what may represent a SOAEL for noise is acknowledged and the NPSE asserts that not stating specific SOAEL levels provides policy flexibility in the period until there is further evidence and guidance.

APPENDIX C
Measurement Equipment

Equipment description and serial number	Equipment type	Manufacturer	Calibration valid between	Calibration certificate number
Norsonic Nor 140 1406932 - 1225.285513	SLM	Norsonic	17/06/2025-2027	1182557
Norsonic Nor 140 1406933 - 1225.285519	SLM	Norsonic	17/06/2025-2027	1182557
Norsonic 1251 1184195 - 125134963	Calibrator	Norsonic	15/07/2025-2027	1184195

Calibration level: 113.9

Person in charge of measurement: Sam Ward (MIoA)

Other people present: N/A

Measurement parameters: Lfeq, LfMax,

APPENDIX D

Email Correspondence with Environmental Protection Team

Jody Blacklock

From: Adam Dracott <Adam.Dracott@midsussex.gov.uk>
Sent: 29 July 2025 15:34
To: Jody Blacklock
Cc: Stuart Malcolm
Subject: RE: P25-3564 - Land at Coombe Farm, Sayers Common

Hi Jody

Thank you for your email. I do not have the details of the proposed development at this time, so bear that in mind. I also draw your attention to the Sussex wide *Planning Noise Advice Document: Sussex (November 2023)* *pnads-final-v3-nov-2023.pdf*
This provides guidance to developers and their consultants to assist in their submission of planning applications having regard to noise.

Baseline Monitoring

The aim is to ensure the monitoring is representative and provides sufficient data to be robust for further assessment. So the issues of when and how long the monitoring takes place are important. Generally, monitoring during holiday periods or at weekends only, may not provide sufficient confidence in the data set being fully representative. To take account of the fluctuations in the traffic flows, assuming traffic is the key noise source which, from the diagram provided, would seem a reasonable assumption, 7 days provides a good degree of confidence. If you are opting for a shorter period, so long as you provide reasonable justification why this is appropriate and the data is sufficiently reliable as being representative, then this would be acceptable.

You have identified some good monitoring locations to capture traffic noise which, as noted above, seems to be the most significant noise source. The data gathered will be used to input into a computer model. All the assumptions in the modelling software should be made clear and justified where necessary.

Noise impact assessment

The Planning Noise Advice Document: Sussex (November 2023) contains guidance on what the LPA will expect from noise reports. The principles of good acoustic design, as described in ProPG: Planning and Noise (2017), are an essential element in achieving developments that are acceptable in noise terms. As well as applying BS8233, which as you are aware is under review at present, the World Health Organisation Environmental Noise Guidelines are also useful. Our preference is for developments to achieve suitable internal acoustic environments with windows being partially open for ventilation. If, having followed the good acoustic design process, for acceptable internal sound levels this still requires a windows shut solution, an overheating assessment will be necessary. An “acoustic design statement” will be expected.

If the development is a mixed one with some commercial/industrial and some residential, then this should be considered to account for the new noise sources and to protect the proposed residential elements of the development from these.

The zonal approach is acceptable to identify the different acoustic environments for different areas of the site.

Sufficient details for proposed mitigation measures will be expected but the principle of good acoustic design is expected to minimise the need for mitigation through building orientation, using commercial buildings as barriers between noise sources and sensitive receptors etc.

As you noted, the acoustic environment for the buildings closest to the A23 is likely to be more challenging to make any residential units acoustically acceptable.

Regards

Adam

Adam Dracott
Team Leader – Environmental Protection | Mid Sussex District Council | Environmental Health | Environmental Protection Team | Tel: +44 (0)1444 477382 | Email: adam.dracott@midsussex.gov.uk

Home - Mid Sussex District Council

MID SUSSEX
DISTRICT COUNCIL

Working together for a better Mid Sussex

From: Jody Blacklock <Jody.Blacklock@createce.co.uk>
Sent: 23 July 2025 09:17
To: Adam Dracott <Adam.Dracott@midsussex.gov.uk>
Cc: Louis Wong <louis.wong@welbeckland.co.uk>; Heather Vickers <heather.vickers@planningpotential.co.uk>; Katy Lister <katy.lister@planningpotential.co.uk>; Sam Ward <Sam.Ward@createce.co.uk>; Ben Dixon <Ben.Dixon@createce.co.uk>
Subject: P25-3564 - Land at Coombe Farm, Sayers Common

Good morning Adam,

I have been passed your details with regards us undertaking an upcoming Noise Impact Assessment for the above site. I just wanted to reach out to you so agree our assessment methodology, duration and monitoring locations.

If you could please confirm that you are happy with the below, that would be fantastic. Alternatively, should you have any specific requirements which have been overlooked in our scope, then we'll do our best to include them too. Our proposed Scope of works is below, and I have also attached an image which shows the proposed monitoring locations and the night time noise levels across the site currently, based on DfT data.

SCOPE OF WORKS – BASELINE MONITORING AND NOISE IMPACT ASSESSMENT

- Although this would need to be assessed in line with BS 8233, we would always recommend discussing the project with the local authority PRIOR to undertaking our survey works. This would allow us to formally agree the survey methodology and duration of the survey works to reduce the likelihood of this being challenged at a later stage in the planning process.
- We would attend site and install logging sound level meters for at least four days. I have allowed for two sound level meters to be installed over the site and for additional short measurements to be taken around the site to allow us to ensure the propagation assumptions of the model are correct.
- Return to site to retrieve all monitoring equipment.
- We would review the data collected from our survey and use this to inform a computer model of the site. we would also use the data to determine the underlying background sound levels on the sites. This would inform noise limits for any plant proposed in the development (ASHPs or AHUs for example) and potentially inform the impact of existing plant or commercial movements, such as those associated with Coombe Farm.
- We would identify zones across the site where development is practical without mitigation measures and areas where mitigation would be required to meet the minimum planning requirements.
- We would detail the results of the survey and any mitigation measures in a single acoustic report. The report would include outline mitigation measures which can be incorporated into the detailed design proposals. It must be noted that for the properties closest to the A23, these mitigation measures could be quite substantial.

If you have any questions, then please feel free to call and discuss, or drop me an email.

Many thanks and kind regards,

Jody Blacklock BEng (Hons), CEng, MIoA, MCIBSE
Technical Director (Chair of IoA Eastern Branch)
Acoustics

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