Planning Noise Advice Document: Sussex

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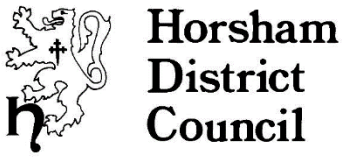
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1.0 Introduction

1.1 Aims and Objectives

1.1.1. 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. The document seeks to complement the Noise Policy Aims set out in the Noise Policy Statement for England (2010) (NPSE). The NPSE aims are to:

- 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.

1.1.2. This is an advice document only. For information on planning policy please refer to National Planning Policy Framework (2019), the National Planning Practice Guidance and the local planning policy in the local authority area in which development is sought. Some local authorities may afford this document greater weight by referring to it in their own policy framework or local plans.

1.1.3. In particular, the document seeks to:

I. Offer clear and consistent guidance to developers on the level of information that will be required to be submitted with planning applications for noise generating developments or noise sensitive developments, including guidance on when it is appropriate to submit a noise report and the expected contents of such a report.

II. Ensure better regulation by setting out existing standards that should be referred to in undertaking noise assessments, and applying these existing standards consistently in planning decisions.

III. Highlight the points that need to be considered and addressed prior to making a planning application and therefore minimise any potential delays to the decision making process.

1.1.4. This document cannot anticipate or cover all circumstances. Therefore, following advice contained in the National Planning Policy Framework 2019, it is expected that the applicant or their representative will have a pre-application discussion with the Local Planning Authority (LPA) specifically for noise and vibration.

1.1.5. This document will be updated from time to time to take account of any new standards, guidance and policy. Where any standards, guidance and policy referred to in this document have been revised please use the latest version.

1.2 Document Overview

1.2.1. The document initially introduces some basic principles in Chapter 2.0.

1.2.2. The document then goes on to consider noise impact from potentially noisy sources: Industrial and commercial sounds (Chapter 3.0); entertainment premises (Chapter 4.0); and sites used for sports and recreation (Chapter 5.0).

1.2.3. New noise sensitive developments are discussed in more detail in Chapter 6.0.

1.2.4. Finally, transport schemes are discussed in Chapter 7.0.

1.2.5. For ease, where standards and codes of practice are referred to in this document they are fully referenced in Annex 1. A glossary appears in Annex 2. Annex 3 references relevant documents including guidance, standards and codes of practice.

1.2.6. To assist determine which sections of this document are relevant to a development Table 1 below provides a quick guide. For mixed use developments multiple sections apply.

Table 1: New Noise Sensitive Uses - Determining If A Noise Report Is Required.

Type of Development		Noise Report Required	Comments
New residential development and extensions to existing residential dwellings.	Close to a major highway (motorways, A-class and major B roads).	Yes	Noise reports will normally be required for residential development in close proximity to a major road. Pro PG: Planning and Noise - Professional Practice Guidance on Planning and Noise- New Residential Development 2017 shall be followed.
	Near to a railway.	Yes	Noise reports will normally be required for residential development near to a railway for both noise and vibration. Pro PG: Planning and Noise - Professional Practice Guidance on Planning and Noise- New Residential Development 2017 and Calculation of Railway Noise 1995 shall be followed. Vibration is discussed in section 3.4.
	Within the predicted 54dB contour of an existing or proposed expansion of an airport or the vicinity of an aerodrome, or the final approach and departure routes of an operational runway.	Yes	Noise reports will normally be required. Noise exposure contour maps can be found at GOV.UK or on the specific airport's website. Regard shall be had to ProPG: Planning and Noise – Professional Practice Guidance on Planning and Noise – New Residential Development 2017 For development in the proximity of airports or aerodromes, please consult with the Local Planning Authority for further guidance.
	10+ houses in a rural/suburban environment.	Maybe	In certain circumstances a noise report will be required. Please consult with the Local Planning Authority.
Change of use to residential.		Maybe	Noise report will normally be required. Particular regard will need to be had to potential impacts from neighbouring commercial premises. However please consult with the Local Planning Authority.
Hotels, guest houses, etc		Maybe	Hotels, guest houses and residential institutions can present a new noise source or receivers. Consequently, a noise report may be required if close to a noise sensitive receptor or a noise source. It is the responsibility of the developer to ensure hotel rooms meet appropriate noise standards. However, if the hotel/guest house includes permanent residential accommodation for staff, a noise report is likely to be required.
Residential institutions: for example care homes, hospitals, nursing homes, residential colleges, secure residential institutions including prisons, secure hospitals etc.		Yes	
Permitted Development (The Town & Country Planning (General Permitted Development) (England) Order 2015 as amended.		Maybe	Noise assessment shall be required for some permitted development notifications, for certain change of use classes. More information can be found at https://www.gov.uk/planning-permission-england-wales/when-you-dont-need-it Although not always a legal requirement of permitted development, it is advised that all potentially disturbing noise sources are assessed so that they do not adversely impact on the proposed use.

Table 2: New or Additional Sources - Determining If A Noise Report Is Required

Type of development	Noise Report required	Comments
INDUSTRIAL TYPE USES (e.g. general industrial uses, storage or distribution uses. Waste management sites, Minerals development)	YES	Noise report will normally be required. Please consult with LPA if there are no existing or approved or allocated noise sensitive premises in close proximity. Includes new development and changes of use. Also includes changes in operations or layout, extensions or new equipment at existing sites.
ENTERTAINMENT/ FOOD & DRINK, ETC For example: restaurants, cafes, drinking establishments, hot food takeaways, cinemas, concert halls, swimming baths, sports halls, nightclubs, casinos, theatres, amusement centres, venues for live music etc).	YES	Noise report will normally be required. Please consult with LPA if there are no existing noise sensitive premises in close proximity. Includes new air handling units, extractor fans, air-conditioning and chiller units at existing sites and patron noise. The noise impact of car parking and deliveries should also be considered.
SPORTS & RECREATION **Outdoor :**For example, swimming baths, skating rinks, areas for outside sports and recreation, multi-use games areas, motor sports and shooting ranges. **Indoor sport recreation or fitness** eg gym.	YES	A noise report will normally be required. Gyms are likely to require noise and vibration study.
	MAYBE	A noise and vibration study will normally be required dependent on circumstances.
COMMERCIAL, BUSINESS & SERVICES Shops, offices for financial, professional or other services appropriate to such a locality etc.	MAYBE	Noise report will normally be required in the following circumstances: - The application involves the introduction of new uses and the development is greater than small scale (e.g. a new supermarket or shop, a new office block/ industrial estate, a new school/ library), or - The application includes new air handling units, extractor fans, air-conditioning, chiller units, etc, or - The development would involve activities during unsociable hours (including deliveries and vehicle movements), or - The development would involve particularly noisy activities (including during construction) or is proposed in particularly close proximity to noise-sensitive premises.
Provision of medical and health services Creche, day nursery or day centre.	MAYBE	
COMMUNITY AND LEARNING For example, schools, libraries, places of worship, training centres, public halls.	MAYBE	
OTHER Other Sui Generis uses, e.g. fuel stations, launderettes, taxi businesses, scrap yards.	MAYBE	

Type of development	Noise Report required	Comments
TRANSPORT SCHEMES e.g. new roads, rail, port and airport development, including extensions/ alterations to existing schemes.	YES	Early consultation with the Local Planning Authority/Environmental Health Department would be expected.
WIND TURBINES & OTHER RENEWABLE ENERGY SOURCES	MAYBE	Early consultation with the Local Planning Authority/ Environmental Health Department would be expected. Micro wind turbines may not require planning permission, however in some cases they may cause a statutory noise nuisance to neighbours.

Table 3: How to find the relevant sections of the document

	Type of development	Relevant section(s) of document
NOISE SENSITIVE	Residential	- 2.0 Basic Principles - 6.0 New noise sensitive developments
	Hotels, guest houses, etc	- 2.0 Basic Principles - 6.0 New noise sensitive developments
	Residential Institutions	- 2.0 Basic Principles - 6.0 New noise sensitive developments
POTENTIAL NEW NOISE SOURCES	Industrial type uses (e.g. waste and minerals development)	- 2.0 Basic Principles - 3.0 Industrial and Commercial
	Entertainment uses, food and drink, etc	- 2.0 Basic Principles - 4.0 Entertainment premises
	Outdoor sports and recreation	- 2.0 Basic Principles - 5.0 Outdoor sports & recreation
	Commercial uses	- 2.0 Basic Principles - 3.0 Industrial and Commercial
	Offices, light industry	- 2.0 Basic Principles - 2.30 Industrial and Commercial
	Non-residential institutions (e.g. clinics, crèches, day nurseries, day centres, schools, libraries, places of worship)	- 2.0 Basic Principles - 3.3 Industrial and Commercial
	Other e.g. fuel stations, launderettes, taxi businesses, nightclub, kennels and other forms of animal boarding and breeding establishments.	- 2.0 Basic Principles - 3.0 Industrial and Commercial - 4.0 Entertainment Premises

2.0 Basic Principles

2.1 Good Design

"Good design is a key aspect of sustainable development, creates better places in which to live and work and helps make developments acceptable to communities"

(National Planning Policy Framework 2019, paragraph 124).

"Preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of noise pollution"

(National Planning Policy Framework 2019, paragraph 170(e)).

2.1.1. Applications often do not consider the acoustic design alongside other factors such as visual appearance and this can be to the detriment of the whole scheme of development. A scheme that is properly considered with a detailed risk assessment from the outset, can optimize land use, offer good quality living and recreational space while providing good architectural and environmental solutions.

2.1.2. Any development proposal should follow the basic principles of noise control set out below, which are to separate noise sources from sensitive receptors, then to control the noise at source, attenuate through the use of barriers, and finally to protect the receptor:

I. Separation of noise source from receptor: Any application likely to result in a noise source being located near an existing, permitted or allocated noise sensitive receptor (i.e. a residential area, school or hospital), whether as a result of a proposed new noise source, or a proposed new noise sensitive receptor, will need to demonstrate that there will be no unacceptable noise effect on sensitive receptors, and that all steps have been taken to reduce any adverse effects. If the development is likely to result in adverse noise levels, the developer should first consider whether there are alternative site locations which are more suitable.

II. If no alternative site is available or it can be demonstrated that an alternative location is not practicable then the applicant will need to demonstrate that all reasonable steps have been taken to reduce the impact of the noise. This

should include consideration of the most appropriate positioning of the noise source/ sensitive receptor within the chosen site boundary.

III. If all reasonable steps have been taken to reduce the impact of the noise but the development is still likely to lead to adverse effects, then adequate mitigation should be employed. Appropriate mitigation could include changes to the site layout, a noise management plan, the construction of noise barriers, and as a last resort, the insulation of buildings. In the exceptional circumstances where windows are required to be kept closed to achieve an acceptable internal noise climate, then the provision of an alternative form of natural ventilation will be required to aid thermal comfort. If this is impracticable then a MVHR system with fully automated summer bypass may be acceptable. A separate overheating assessment for the development may also be necessary in such circumstances. See: Association of Noise Consultants, January 2020 – Acoustics, Ventilation and Overheating – A Residential Design Guide version 1.1.

2.1.3. Noise and vibration associated with major development such as demolition, protracted construction or large civil engineering activities should also be considered in developing the proposal and best practice should be adopted at all times, as prescribed in BS 5228-1:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites – Noise; and BS 5228-2:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites - Vibration.

2.2 Noise Reports

2.2.1. The noise assessment and report is the foundation to understanding the background sound levels and the impact of the development on its surrounds or the effect of the surrounds on the proposed development. Assessments and reports should be used as development tools for good acoustic design.

2.2.2. A poorly conceived report or one that is introduced as an after-thought to the design process can result in delay as additional or new information is requested by the LPA which in turn may influence the whole design.

2.2.3. In most circumstances the applicant will be required to supply a noise report in support of their application. This section outlines the basic requirements for such a report and sets out when it will be required. It also details the minimum requirements of the report, depending on the type of development being planned. Some standard assessments such as BS 4142: 2014 + A1: 2019 have their own checklists as to the content of a report. Where this is the case, the criteria listed below should be included in the report in addition to any content referred to in the specific standard.

2.2.4. The noise report should give accurate, clear and relevant information about the

existing noise environment, and the likely impact of the proposed development. A report lacking vital information or containing misleading information may ultimately delay the whole planning process whilst clarification or further information is sought.

2.2.5. The table provided in Annex 1 provides a list of appropriate national and international standards for most types of noise and provides a quick overview of the criteria set out in those documents. This aims to help the developer decide which standards will be most appropriate for each development, but it is recommended that copies of the relevant standards are obtained and referred to in full. You are encouraged to consult with the Local Planning Authority regarding the standards you intend to use and the approach you wish to take at an early stage.

2.2.6. The report should follow recommended methodologies laid out in the appropriate standards. Any departure from those methodologies should be clearly explained, with the reasons clearly stated.

2.2.7. The noise report should contain some or all of the following. The level of detail required will be proportionate to the development:

I. Details of the author, their qualifications, the noise equipment used and details of latest calibration.

II. A detailed description of the proposal including the layout of the proposed development in relation to the existing neighbourhood. It should highlight the proximity of any noise sources to noise sensitive receptors, giving distances as necessary. This should be illustrated on a scaled plan.

III. Details of the existing noise climate and context in that location prior to development. The size and scale of the background assessment should reflect the nature of the development. The choice of location and duration for measurements should be explained in the report.

IV. The scope of the noise report should be agreed with the Local Planning Authority. Otherwise there is a risk that a development may incur a delay and/or additional costs later on if the correct information isn't provided to enable the Local Planning Authority to determine a planning application. The scope and purpose should be clearly set out within the report itself.

V. Calculations and assumptions shall be fully presented and justified. It should be possible for the reader to fully audit all calculations from the data provided.

VI. Modelling can be a useful tool to present calculations and predictions, however, key input assumptions need to be fully disclosed, discussed and justified, such as topography, noise source and receiver height, ground conditions and the source of any data used.

VII. Sound samples should be obtained and made available to support the assessment as appropriate.

2.3 Information Required to support a Planning Application

2.3.1. New noise generating development may vary greatly in size and scale. Advice should always be sought from the LPA if it is unclear whether the development requires a comprehensive noise report, but as a general rule the following should be considered where sensitive receptors could be affected:

- Larger scale developments or those including potentially noisy mechanical and electrical plant, which are to be located in proximity to noise sensitive receptors will generally require a noise report, following the advice given in section 2.2.

- Small scale developments, such as a single extraction unit or air conditioning unit may not always require a noise report. However in order to help the LPA to decide whether it is likely to conform to an appropriate sound level, the following information should be submitted to the LPA prior to the submission of the formal planning application as this will help it determine whether a full noise report will be required to be submitted with the planning application:

  - The proposed hours and days of operation of any potentially noisy equipment.

  - The sound power levels of the equipment/plant to be installed or sound pressure levels at a specified distance, in decibels dB(A), (which can be obtained from manufacturer's specifications).

  - Details of where the equipment will be placed i.e. within or outside of the building, marked on a scale plan.

  - Details of any noise mitigation measures, for example the fitting of silencers or sound insulation. Predicted noise levels at the noise sensitive receptor to be provided in dB(A).

  - Distance away from noise sensitive receptors and the nature of these premises (e.g. offices, residential etc.).

2.3.2. Whether basic information is deemed to be sufficient or a full noise report is needed, accurate prediction of the impact from the new noise source is vital and therefore robust and realistic data should be used. Manufacturers' data sheets will normally provide the sound power level for new equipment or plant. Data can also be obtained from measurements taken from identical plant at a similar facility. Where there is a degree of uncertainty this should be explained clearly to

ensure transparency.

2.4 Prediction Methods/Modelling

2.4.1. There are a range of prediction and modelling tools available for determining the impact from noise sources. Where modelling is to be used, the method should be discussed and considered against current standards and practices. Information including details of inputs and calculations used, plus any assumptions made within the modelling/prediction exercise should be explained clearly and uncertainty discussed.

2.4.2. Modelling and predictions should be undertaken in two stages: with and without mitigation. For instance, if particularly noisy plant is likely to be used, then predictions should be made for both the untreated plant and with attenuation measures in place.

2.4.3. The receptors used for the modelling should coincide with background monitoring locations. Where they do not, a detailed rationale should be provided.

2.5 Minimum Considerations for Noise Sensitive Development

2.5.1. For a new noise sensitive development near an existing source of transport noise (road, rail, ports or aircraft) the L_{Aeq} (16hr day and 8hr night), should be measured. In addition, suitable shorter term L_{Aeq}, L_{A90}, L_{A10} and L_{Afmax} would be expected in order to give a clearer picture of the existing noise environment.

2.5.2. Where the external L_{Afmax} sound levels are likely to exceed 60 dB during the night period, overnight monitoring will be necessary. A specific $L_{Afmax,1\ minute}$ risk assessment shall be provided for the whole night period. This could also apply to extensions/ alterations to existing development.

2.5.3. For a new noise sensitive development next to a commercial noise source, where practical, each existing potential noise source would need to be measured separately and details provided of the hours of operation, the L_{Aeq}, the tonality, character, impulsivity and/or intermittency of the noise (see BS 4142) and the hours of occurrence. The existing background noise level (L_{A90}) will also have to be measured with and without the commercial noise sources in operation in accordance with BS 4142. This could also apply to extensions/ alterations to existing development.

2.6 Minimum Considerations for New Noise Sources

2.6.1. For a new noise source being introduced near existing noise sensitive premises then an ambient and background noise survey (L_{A90}) should cover the times when the proposed development will be in operation. The expected levels and duration of all the potential noise sources likely to be in operation from the proposed development, whether measured or predicted, should be provided with details of tonality, character, impulsivity and/or intermittency of each noise (e.g. BS 4142). Reference shall also be made if a noise source is anticipated to be readily distinctive against the residual acoustic environment. This could also apply to extensions/ alterations to existing development.

2.6.2. To facilitate analysis of acoustic reports it is expected that the raw and processed data is presented in an appropriate electronic format that allows the LPA to perform further calculations without need to re-enter the data. As a minimum it is expected that the results of real time monitoring are presented graphically. In addition, and with BS 4142 in mind, where the LPA considers it appropriate, a graph shall be presented displaying the background and residual sound level as measured for each reference time interval (T_r) (One hour periods between 07:00 to 23:00 and 15 minute periods between 23:00 and 07:00) ; the rating level, L_{Ar,T_r} shall be determined for the reference time intervals (the specific sound level plus any adjustment for the characteristic features of the sound) over which the noise source is operational and the the representative background sound level as determined by the report author.

3.0 Industrial and Commercial Sound Sources

3.1 Scope

3.1.1. This section covers sound sources of an industrial and commercial nature. It refers to sound sources which are covered by the British Standard BS 4142:2014 + A1: 2019 “Methods for Rating and Assessing Industrial and Commercial Sound”. Appropriate sound sources for assessment under BS 4142 are detailed in section 1.1 of the scope of the Standard and include:

- Sound from industrial and manufacturing processes
- Sound from fixed installations, which comprise mechanical and electrical plant
- Sound from loading and unloading goods
- Sound from mobile plant and vehicles that are an intrinsic part of the overall sound emanating from the premises or process e.g. fork-lift truck movements etc.

3.1.2. This section would also be appropriate for some aspects of waste and minerals developments (see Annex 1, of this document, for standards applicable to waste and minerals sites).

3.2 Guidelines and Criteria

3.2.1. The rating level of the industrial or commercial sound source should, where practicable, achieve a level no greater than the representative background sound, when measured in accordance with BS 4142:2014 + A1: 2019. There may be instances, for specific sites, where a rating level below background is deemed appropriate. This can be determined through discussion with the Local Planning Authority (LPA). A rating level below background may be required if there are concerns for potential noise creep, for example in a High Street setting. It is considered that meeting this criterion would avoid adverse noise impacts, in the interests of ensuring a good standard of amenity and protecting human health. Where these criteria are not attainable, the noise report should explain why, and how best practicable means will be implemented to control noise in order to satisfy the LPA that the development is acceptable. At all times the reports shall have regard to the context.

3.2.2. To assist in the interpretation and application of BS 4142:2014+A1:2019, the applications for kennels and other animal boarding and breeding establishments, being commercial in nature, are considered to be within scope of BS4142. However, the sounds of animals in purely a residential setting are not. Similarly there may be other occasions when sources giving rise to sounds of an industrial or commercial nature are located in a non-commercial setting. In such

circumstances the local authority should be consulted to confirm whether a BS4142 assessment is acceptable. An example of such a source is a swimming pool pump house on a residential premises.

3.3 Sound Insulation Between Domestic and Non-Domestic Premises

3.3.1. Building Regulation, Approved Document E, Section 0.8 states “a higher standard of sound insulation may be required between spaces used for normal domestic purposes and communal or non-domestic purposes. In these situations, the appropriate level of sound insulation will depend on the noise generated in the communal or non-domestic space. Specialist advice may be needed to establish if a higher standard of sound insulation is required and, if so, to determine the appropriate level”.

3.3.2. The determination of an “appropriate” level of sound insulation between domestic purposes and non-domestic purposes should always be discussed with the LPA. There may be instances where higher standards of sound insulation are required, for example:

- Children’s day nurseries, concert halls, dance halls, gymnasiums and any other commercial activity that has the potential for adverse noise impact on neighbouring residential premises.
- Licensed premises neighbouring sensitive uses that may include residential or office accommodation.
- Between neighbouring commercial premises, particularly if there is a variation in the sensitivity of activities taking place.
- Where one façade is highly insulated due to an external noise source such as a road resulting in a quieter internal environment resulting in neighbour noise being more noticeable.

3.3.3. The sound insulation performance of any industrial or commercial use that has the potential to have a detrimental impact upon sensitive receptors should be considered. If in doubt about this requirement, contact should be made with the LPA for advice.

3.3.4. Demonstrating that a building is capable of achieving the standards required which are above those required by the Building Regulations is relevant to planning as well as constituting good acoustic design.

3.3.5. Sound insulation testing for compliance with Approved Document E is over a limited frequency range, 100Hz to 3150Hz, not accounting for lower frequencies. When the source is likely to give rise to dominant frequencies in the lower

ranges, then the predicted acoustic performance of any scheme of sound insulation design should be conducted over a more extensive frequency range. The overall building design acoustic performance shall be demonstrated across the frequency range of at least 31.5Hz to 3150Hz at each $^1/_3$ octave band.

3.4 Vibration

3.4.1. In some instances, due to the proximity of potentially disturbing vibration sources, such as a railway line or a commercial activity, a Vibration Impact Assessment shall be submitted to the Local Planning Authority.

3.4.2. Consideration should be given to recommended threshold Vibration Dose Values (VDV's), as presented in BS 6472-1:2008 "Guide to Evaluation of Human Exposure to Vibration in Buildings". It may be that adequate buffer zones or other appropriate mitigation measures are required so that appropriate threshold values can be met, to provide a "low probability of adverse comment" .

3.4.3. If it is evident that there is the potential for disturbance from short lived episodes of vibration then consideration shall be given to the predicted impact of Peak Particle Velocity (PPV) in accordance with such standards as BS 7385: Part 2 1993 "Evaluation and Measurement for Vibration in Buildings. Guide to Damage Levels from Groundborne Vibration" and BS 5228-2:2009+A1:2014 "Code of Practice for Noise and Vibration Control on Construction and Open Sites – Vibration"".

3.5 Noise Rating Curves

3.5.1. Noise Rating Curves (NR Curves) can be used, in certain instances, to specify noise levels in buildings and occupied spaces. The single figure rating takes in to account the frequency content of a noise. NR Curves can be used for controlling noise levels from internally located mechanical ventilation systems and for setting music noise thresholds.

3.5.2. The appropriateness and level of NR Curve thresholds, should be discussed with the relevant Local Planning Authority.

4.0 Entertainment Premises

4.1 Scope

4.1.1. This chapter is a guide to the noise issues associated with premises used for public entertainment, including clubs, pubs, bars, restaurants and other recreational uses such as wedding venues and conference facilities.

4.1.2. Most of these types of premises will also require a Premises Licence in accordance with the Licensing Act 2003. The applicant should approach the Licensing Authority as early as possible to ensure that the proposed final use of the premises complies with local Licensing Policy.

4.1.3. Planning permission, building control approval and licensing regimes are required to be properly separated in order to avoid duplication and inefficiency (See Home Office amended guidance under Section 182 of the Licensing Act 2003). The planning and licensing regimes involve consideration of different (albeit related) matters. Licensing committees are not bound by decisions made by a planning committee, and vice versa.

4.1.4. There may be circumstances when as a condition of planning permission is more stringent than the condition on the licence. In such cases the planning condition prevails, for example, a terminal hour is set for the use of premises for commercial purposes. Where these hours are different to the licensing hours, the applicant must observe the earlier closing time. Premises operating in breach of their planning permission would be liable to prosecution under planning law.

4.2 Design Criteria

4.2.1. People living near to places of entertainment have a right to enjoy reasonable standards of amenity. To protect that amenity, the LPA must be satisfied that the applicant has successfully addressed the issue of noise control.

4.2.2. It is likely that most planning applications for these types of premises will require a noise report. The level of detail required will depend on the location (i.e. the proximity to noise sensitive premises) and the nature of the proposed use. Early consultation with the local authority is strongly recommended.

4.2.3. To satisfy the LPA that the development is acceptable, the applicant should usually be able to demonstrate that the following criteria can be achieved:

- Where regular use of the proposed premises is planned, any amplified sound (including music and speech), should be inaudible within any nearby noise sensitive premises with one or more windows open for reasonable ventilation.

- Any other noise sources associated with the premises, such as patron noise, should also be inaudible inside residential properties with windows open for reasonable ventilation.

- If the noise report indicates that the above criteria would not be achievable, the development may still be considered but subject to appropriate conditions.

4.3 Considerations

4.3.1. There are likely to be four types of noise source associated with entertainment venues that have the potential to impact amenity:

- Entertainment noise, for example music

- Patrons accessing (including queuing), using (both internal and external spaces) and leaving the premises. Designated smoking areas can also give rise to noise

- Fixed plant, for example air conditioning or extraction units

- Servicing the premises (deliveries and waste management)

The application will need to address all of the above.

4.3.2. Sound should be contained within the building structure. The premises should be designed and constructed with an adequate level of insulation so that the noise from music or patrons does not materially impact on the amenity of those living in the surrounding properties. The louder the proposed music within the premises, the more robust the structure will need to be. It will normally be necessary to submit appropriate details of the construction to demonstrate that an appropriate reduction in sound is likely. Further testing may be required during construction and post completion to ensure the design standard is achieved. See section 3.3 for additional information on this.

4.3.3. In addition to good structural containment of sound it is probable that there will need to be physical controls on the actual level of amplified or live music which could include the careful selection and configuration of sound systems to optimise sound levels at specific locations, the use of automatic volume control, noise limiters or other electronic devices in this way control at source is achieved.

4.3.4. Where the proposed development shares a party wall or floor or is structurally connected to adjoining residential dwellings or other noise-sensitive premises, particular attention should be given to structure - borne noise and vibration. Full details of potential impacts and how these have been mitigated should be provided with the planning application.

4.3.5. Doors and windows will often need to be kept closed to prevent the break out of noise from the premises. Therefore alternative forms of ventilation and air-conditioning may be required which in turn may generate noise directly or in the case of ventilation ductwork provide a pathway for the escape of sound from the building.

4.3.6. Noise breakout can occur at the entrance and exits. An acoustic lobby may be required. Proposals for an acoustic lobby would normally be expected as part of an application.

4.3.7. External seating areas and smoking areas in close proximity to neighbouring residents are often a cause for complaint, especially during the evening and night time periods. The location and nature of the premises will dictate the size of any seating area and the hours of use. There will be a need to identify a designated smoking area and provide details of how noise from patrons using that area will be controlled.

4.3.8. Potential impacts arising from the arrival and dispersal of patrons from the premises should also be considered. This could include private vehicles, taxis and mini-cabs and groups of patrons congregating outside the premises, especially late at night.

4.3.9. Details of how and when ancillary activities such as deliveries, waste collections and bottle recycling will be carried out should be supplied, together with an assessment of their relative impact.

4.3.10. The location and use of kitchen extraction systems, air-conditioning units and refrigeration plant will also need to be considered. It is considered that “The Control of Odour and Noise from Commercial Kitchen Exhaust Systems” (EMAQ, September 2018) acts as an appropriate reference document with regard to the control of noise from commercial kitchen extraction systems. Impact shall also be assessed in accordance with BS 4142: 2014 + A1: 2019. The predicted noise levels of such plant should be provided together with details of any additional noise attenuation works to ensure the design criteria is achieved for the proposed times.

4.3.11. Noise Management Plans should be submitted as part of the application addressing all the above points and any likely to arise from the arrival and dispersal of patrons, the use of designated smoking areas and external seating areas, or deliveries and collections. The plan should clearly state the potential source of the noise and how the activities will be controlled to mitigate noise. Plans will also need to include provision for their review with the local authority.

4.3.12. The obligation for noise control is in addition to and not a replacement of obligations under other legislation for safety, for example the Building Regulations.

5.0 Outdoor Sports and Recreation

5.1 Scope

5.1.1. This section covers sport and leisure activities which take place outside, such as clay target shooting, off road motorcycle sports and model aircraft flying, as well as the use of multi-use games areas (MUGAs), all weather pitches (AWPs) and skate parks.

5.2 Considerations

5.2.1. In some circumstances, the noise levels generated from outdoor sport and recreation are likely to be higher than would normally be accepted for other development consents, such as industrial processes, because of the characteristics of the noise generated, the controls that are possible, and the pattern of use.

5.2.2. For these activities, the LPA will need to take account of how frequently the noise will be generated and how disturbing it will be. Therefore, clear details of the proposed development are crucial.

5.2.3 It is common for outdoor sport and recreation to take place in suburban and rural locations, where existing ambient noise levels can be very low and therefore, such activities can greatly impact on surrounding amenity. The selection of suitable sites is very important and care should be taken at an early stage to ensure that the chosen location is appropriate.

5.3 Codes of Practice

5.3.1 Some of the more common recreational activities have associated Codes of Practice. While these Codes of Practice do not have the force of law, they do provide important guidance on likely noise impacts and advice on setting suitable controls.

5.3.2. Any noise report required to assess likely noise impact should properly consider any relevant Codes of Practice.

Current Codes of Practice are listed in Annex 3.

5.4 Multi Use Games Areas (MUGAs)

5.4.1. Currently, there are no Codes of Practice for controlling noise from MUGAs.

5.4.2. Planning applications for such facilities can give rise to a range of amenity concerns, especially noise, particularly where they are proposed in residential neighbourhoods. Noise impacts from MUGAs can vary depending on a number of factors including the hours of operation, location, design, size of the facility, the level of use, appropriate maintenance and location of spectators. Consequently, early guidance should be sought from the LPA. It's recommended that a Noise Management Plan is submitted with planning applications for MUGAs, covering issues such as hours and days of use, community liaison, complaints procedures, student briefings and preventing unauthorised use.

5.4.3. On flat terrain sites, landscaping, mounding and noise barriers can be used to mitigate noise breakout and floodlight spillage.

5.4.4. In noise sensitive locations, the materials chosen and the design should be strongly influenced by noise reduction considerations. Fences should be fixed to support posts to prevent excessive movement of fencing, and rubber damping pads should be included as good acoustic design.

5.4.5. Consideration of the above points is vital as controlling noise levels from the use of such developments can be difficult. It is therefore important to provide as much information of the proposed use and expected noise impact on the neighbouring noise sensitive premises (both indoors and outdoors). Short and long term L_{Aeq}, L_{Afmax}, L_{A90} and L_{A10} would be appropriate indices for this purpose.

5.4.6. Sport England guide "Making a planning application – A guide for sports clubs" contains general information on making a planning application. It also produces a specific guide for the design, specification and construction of MUGAs. These are available from the Sport England's website: https://www.sportengland.org.

6.0 New Noise Sensitive Developments

6.1 Scope

6.1.1. The guidance in this chapter relates to residential developments only. Schools and hospitals should be judged against appropriate existing standards such as Building Bulletin 93: Acoustic Design of School, A Design Guide; and Acoustic of Schools – A design guide; and Department of Health, Health Technical Memorandum 08-01; Acoustics. (2013).

6.2 Determining Site Suitability

6.2.1. In determining the suitability of the chosen site and the layout and design of the development, the applicant should have regard to the basic principles detailed in Section 2.1 of this document. The developer should be aware of, and where appropriate, have regard to the Environmental Noise (England) Regulations 2006.

6.2.2. As with all planning applications, regard should be had to the relevant policies of the Local Development Plan and other material considerations such as Noise Policy Statement England, National Planning Policy Framework and the National Noise Planning Guidance in developing the proposal. The LPA will be able to provide information about any relevant locally set noise limits or standards for new noise-sensitive development.

6.3 Criteria for requiring a Noise Assessment

6.3.1. Where new noise sensitive premises are proposed on a site which is likely to experience noise from transport sources or other sources, such as industrial development (see section 6.6), the LPA is likely to require a noise assessment. As a guide, this is likely to include all sites located near to a motorway, dual carriageway, major A road, some B roads and urban routes, railway lines, air fields, airports or sea ports.

6.3.2. It is important to note that this is only a guide and other locations may also need to be considered. For example, town centre development that may be affected by the night time economy, some B roads may have a higher than average traffic load and could generate high levels of road noise. These will need to be considered on a case by case basis and early discussions are recommended.

6.3.3. The noise assessment should be carried out to help determine the suitability of the site, the number of units and the type of accommodation to be built, as well as the final layout and design of the units. It is important, therefore, that wherever possible, the noise assessment is carried out at the pre-application stage and

used to inform the site design and layout, which should be discussed with the LPA.

6.3.4. Sites exposed to high levels of noise may require acoustic bunding or other physical features that constrain available development area or design features that increase costs or both. By establishing what is likely to be needed early on it is possible to reflect the additional costs in the value of the land before purchase.

6.4 Assessment Methodology

6.4.1. The methodology for carrying out the assessment should follow the advice set out in Section 2.3 along with the following considerations.

6.4.2. Development affected by transportation noise sources shall use the recommended acoustic approach set out in Pro PG: Planning and Noise – Professional Practice Guidance on Planning and Noise- New Residential Development 2017.

6.4.3. When assessing the impact of transportation noise, be that from road, rail or air, then an Acoustic Design Statement shall be provided following the principles set out in ProPG:Planning and Noise (2017) “Professional Planning Guidance on Planning and Noise – New Residential Development. A Good Acoustic Design process shall be followed to achieve appropriate internal and external acoustic conditions.

6.4.4. Development affected by railway noise shall use the Calculation of Rail Noise (CRN) guidance.

6.4.5. The size of the development and proximity to the noise source will determine the preferred methodology and length of monitoring required.

6.4.6. Where major developments impact on existing residential property. For instance where transport assessments demonstrate increase traffic flows. Noise calculations should be made against future road traffic predictions, as well as current levels (see Design Manual for Roads and Bridges and Calculation of Road Traffic Noise). Additional shorter term L_{Aeq}s would be appropriate to identify noisier periods when the impact from noise will be greater.

6.4.7. Night time noise monitoring will be expected as:

- Night time periods can see an increase in HGV and bus movements on roads, which can affect the expected drop in dB levels.

- Consideration should be had to the influence of individual LA max levels which should be obtained by measurement using short 5 or 1 minute periods as agreed with the LPA.

- Road texture, speed and gradient, plus existing noise barriers and land topography can greatly influence the noise levels.

6.4.8. Therefore, the prediction of night time noise levels using calculation methods only will normally be rejected unless strong evidence is provided to show the method is robust and accurate.

6.4.9. Appropriate computer models showing noise contours across the entire site and the proposed facades should be provided.

6.4.10. Predictions and calculations shall also be carried out for all storeys of a multi-storey building where appropriate. This needs to be considered alongside appropriate ventilation, notably in areas where the air quality is poor.

6.5 Design Criteria for Noise Sensitive Development

6.5.1. Where the noise assessment has shown that habitable rooms will be exposed to noise levels likely to give rise to any adverse impact, noise mitigation will be required.

6.5.2. Design control measures should aim to meet the recommended standards set out in table 4 of BS 8233:2014 and regular night time noise events such as scheduled aircraft or passing trains which can cause sleep disturbance shall be minimized and assessed as (L_{Afmax}), as recommended in the WHO's Night Noise Guidelines for Europe (2009), unless there are particular reasons why this is not considered appropriate. In such cases, a clear explanation of the reasons should be provided.

6.5.3. As the standards for BS 8233:2014 and the W.H.O. relate only to anonymous noise, eg distant road traffic and noise without characteristics such as impulsivity, low frequency content or tones then, if these are present, additional discussion will be required with the LPA for the purpose of establishing suitable assessment techniques and standards to be achieved eg BS 4142:2014 + A1: 2019 for delivery noise.

6.5.4. While noise mitigation measures can be used to achieve suitable internal sound levels, preference is to be given to criteria based on windows being partially open.

6.5.5 Where the property is at risk of overheating an overheating assessment shall be conducted in accordance with Acoustics Ventilation and Overheating (AVO) Residential Design Guide (January 2020) and CIBSE's Design Methodology for the Assessment of Overheating Risk in Homes (TM59: 2017).

6.5.6. The advice set out in the BRE document 'Sound Control for Homes' (1993) should be considered.

6.5.7. Specific points for consideration include:

- Provide appropriate distances between noise sensitive developments and noise sources;
- Land zoning to separate noisy uses from noise sensitive uses, for example, avoiding the siting of children's playing areas next to accommodation for the elderly;
- Careful orientation of building layout, such as at right angles to the noise source;
- Introduction of single aspect buildings;
- Internal layout of dwellings, through the location of non-habitable rooms such as bathrooms, kitchens and circulation areas as buffers between the noise source and habitable rooms;
- Screening by non-noise sensitive structures or barrier blocks such as garages and walls;
- The introduction of acoustic screening such as bunding/embankments, fencing and walling;
- Protection of external residential amenity areas by positioning them towards the centre of the development sites.

6.5.8. The submission of details of layout and design should be supported by a scheme showing details of mitigation techniques. Computer modelling which shows the impact of the design measures should be produced. See 2.4 for information on prediction methods and modelling.

6.6 New Noise Sensitive Developments Near To Existing Industrial/Commercial noise sources

6.6.1. Careful consideration will need to be given to proposals that are likely to site new noise sensitive developments near to existing industrial, commercial, entertainment premises, airfields air ports and sea ports.

6.6.2. The 'agent of change' principle, the principle by which a person or business introducing a new land use is responsible for managing the impact of that change, will apply. The National Planning Policy Framework 2019 Para 182 states: “Planning policies and decisions should ensure that new development can be integrated effectively with existing businesses and community facilities.”

6.6.3. There is no protection offered in law to existing premises from nuisance complaints made by new residents. This may result in formal action being taken against these premises if a statutory nuisance is established or civil action at common law for nuisance.

6.6.4. Where it is apparent to the LPA that existing noise from an existing industrial, commercial, entertainment premises, places of worship, sports clubs, airfields, airports and sea ports is likely to cause unreasonable or adverse effects to new residents, the development is unlikely to be supported unless the applicant (or ‘agent of change’) provides clear evidence that adequate noise attenuation to the existing noise sources can and will be provided. The applicant (or 'agent of change') will be required to provide a detailed noise mitigation plan with their acoustic assessment.

6.6.5. In some circumstances, legal agreements can be entered into, whereby the developers provide the necessary measures to attenuate the existing noise through appropriate techniques including re-engineering the source to reduce emissions, adequate acoustic enclosure / sound proofing or re-locating the noise source.

7.0 Transport Schemes

7.1 Scope

7.1.1. This section covers noise from additional vehicle movements likely to be generated by new development (eg. New commercial and industrial sites, entertainment premises and large scale residential developments etc. on), and stand-alone transport schemes (eg. Traffic calming measures and new road, rail, port or airport developments).

7.2 Guidelines and Criteria

7.2.2. The Department for Transport's Design Manual for Roads and Bridges (DMRB) Volume 11 Section 3 sets out a method for evaluating both the immediate and long term impact of changes in the 18-hour traffic flow (06.00 – 24.00) on noise sensitive receptors and the information to be provided for different types of schemes. It also sets out the noise criteria to consider, namely whether there is likely to be a change in:

- Noise level of 1dB $LA_{10,18h}$ or more in the short term or 3dB $LA_{10,\ 18h}$ in the long term at any sensitive receptor within the study area.
- Noise level of 3dB $L_{night\ outside}$ or more in the long term of any sensitive receptor within the study area where an $L_{\ night\ outside}$ greater than 55dB is predicted.

7.3 Information Required To Support A Planning Application

7.3.1. The DMRB sets out the indices to use, the way to assess predicted noise levels, the effect of mitigation measures, and the information to be provided for different levels of noise assessments. Always check the Department for Transport's website for the most up-to-date guidance (see: https://www.standardsforhighways.co.uk/ha/standards/)

Annex 1 – Relevant Standards

Summary of key information from relevant national and international standards and guidance.

The following national and international documents provide further technical advice and guidance which should be referred to when making your application.

Development Category	Type of development	Relevant standards (See reference list below for full details)	Recommended noise thresholds at the most sensitive noise receptors.
All types of development	This standard is relevant to all categories of noise assessment.	ISO 1996 Parts 1, 2 & 3	N/A
Construction sites	All construction sites	BS5228 -1 2009 + A1:2014 Noise BS5228 -2 2009 + A1:2014 Vibration	When setting appropriate thresholds refer to Annex E for BS5228 -1 2009 + A1:2014 Noise and Table B1 for BS5228 -2 2009 + A1:2014 Vibration.
Entertainment premises	Clubs, pubs bars, places of entertainment and other recreational uses	Relevant Local Authority licensing policy. CoP on Control of Noise from Pubs and Clubs: IOA 2003.	Any amplified sound (to include music and speech) will be inaudible within any noise sensitive premises with or without one or more windows open.
Medical sites	New build or extensions that require planning permission.	DoH. Specialist Services – Health Technical Memorandum 08-01; Acoustics. (2013)	Refer to the specific criteria recommended in the memorandum.
Industrial and commercial sites and plant	Factories, industrial premises, fixed installations, or sources of an industrial nature in commercial premises. This includes kennels and other forms of animal breeding and boarding establishments.	BS 4142:2014 + A1:2019. BS8233:2014. WHO (2009). WHO (2018) DMRB (2020). EMAQ (2018).	1 The rating level of plant, where practicable, shall be no greater that the existing background sound levels, when measured in accordance with BS 4142. 2 Where background sound levels are low, discussions shall be had with the LPA to agree an objective. 3 Apply the indoor ambient noise levels in Tables 4 and 6 of BS8233. 4 Apply the WHO 2009 Community Noise guidelines for outdoor amenity areas.

Development Category	Type of development	Relevant standards (See reference list below for full details)	Recommended noise thresholds at the most sensitive noise receptors.
Mineral sites	All mineral extraction sites	BS 4142:2014 + A1: 2019. WHO (2009)	1 The rating level of plant, where practicable, shall be no greater that the existing background sound levels, when measured in accordance with BS 4142. 2 Where background sound levels are low, discussions shall be had with the LPA to agree an objective.
Residential development	New houses, extensions, flats, and house conversions that require planning permission.	BS8233:2014. WHO (2009). ProPG (2017) Building Regulations 2010 Approved Document E.	1 Apply the indoor ambient noise levels in Tables 4 and 6 of BS8233. 2 Apply the WHO 2009 Community Noise guidelines for outdoor amenity areas.
Schools and residential care homes	New build, extensions or change of use that require planning permission.	BS8233:2014. WHO (2009). BS 4142:2014 + A1: 2019. ProPG (2017) BB93. IOA: Acoustics of Schools: A design guide, 2015.	For schools refer to BB93 and apply the IOA acoustics for schools guidance for external areas. For residential care homes apply the indoor ambient noise levels in Tables 4 and 6 of BS8233. Also apply the WHO 2009 Community Noise guidelines for outdoor amenity areas.
Outdoor sports and recreational facilities	Multi-use games areas, all weather pitches, stadia, leisure centres, clay target shooting, skate parks and off road motor sports.	BS8233:2014. WHO (2009). BS 4142:2014 + A1: 2019. Sport England Design Guidance Note – Acoustics 2015. CIEH Clay Target Shooting, guidance on the control of noise 2003. COP Noise Council 1994. COP NSCA 1996.	Refer to the specific criteria recommended in the relevant guidance.

Development Category	**Type of development**	**Relevant standards (See reference list below for full details)**	**Recommended noise thresholds at the most sensitive noise receptors.**
Transport	Road (new and improved roads) Rail	DMRB, The Noise Insulation Regulations 1975 (as amended 1988). ProPG (2017)	Apply the requirements of the Regulations and WHO's night noise guideline (NNG) of 40dB Lnight,outside.
	Ports Airports	BS8233:2014. WHO (2009) (2018) ProPG (2017)	For residential care homes apply the indoor ambient noise levels in Tables 4 and 6 of BS8233. Also apply the WHO 2009 Community Noise guidelines for outdoor amenity areas.
Waste sites	All waste sites, including waste water treatment sites.	BS8233:2014. WHO (2009). BS 4142:2014 + A1: 2019. DMRB. IPPC H3 (Part 2).	
Wind Turbines (NB. Due to concerns with ETSU-R-(& please discuss appropriate thresholds with the LPA as early as possible).	Single turbines	ETSU-R-97 WHO (2009) IOA (2013)	35 dBL90, 10 mins (free-field)
	Wind farms		1a. Daytime (07:00 – 23:00): <5dB above background. 1b. Daytime (07:00 – 23:00) in low noise environments (taken as below 30 dB): 35 dB L90, 10 mins (free-field). 2. night (23:00 – 07:00): 43 dBL90, 10 mins (free-field).

Annex 2 – Glossary of Terms

Ambient Noise	Totally encompassing sound in a given situation at a given time composed of sound from all sources near and far. This is normally defined as $L_{Aeq,T}$ where T is an appropriate time assessment period.
Background Noise	Sometimes referred to as the background sound level, this is the ambient noise, in the absence of the noise under investigation, measured using time weighting “F”, that is equaled or exceeded for 90% of the measurement time interval. Expressed as $L_{A90,T}$, where “T” refers to the measurement time interval in minutes.
dB(A)	The noise level in decibels, a measure including a correction for the sensitivity of the human ear defined in the International standard IEC61672:2003 and various national standards relating to the measurement of sound level. Measurements in dB(A) broadly agree with people’s assessment of loudness. A change of 3 dB(A) is the minimum perceptible under normal conditions, and a change of 10 dB(A) corresponds roughly to halving or doubling the loudness of a sound. The background noise level in a living room may be about 30 dB(A); normal conversation about 60 dB(A) at 1 metre; heavy road traffic about 80 dB(A) at 10 metres; the level near a pneumatic drill about 100 dB(A).
$L_{A90, T}$	This is the noise level exceeded for 90% of the measurement period. Often referred to as the background noise level.
$L_{Afmax, T}$	This is the maximum recorded sound pressure level within the relevant time interval (t) when the sound level meter is set to fast.
$L_{Aeq, T}$	This is the equivalent continuous A weighted sound pressure level and is the level of a notional steady sound which has the same acoustic energy as the fluctuating sound over a given time period. It often used as a measurement of environmental noise.

$L_{A10, T}$	This is the noise level exceeded for 10% of the measurement period.
Local Planning Authority (LPA)	A local planning authority is the local authority (usually the District, Borough or City Council) that is empowered by law to exercise statutory town planning functions for a particular area of the United Kingdom. In Sussex, the two County Councils are the Planning Authorities for waste and minerals planning applications for their areas. The South Downs National Park Authority is the Planning Authority for its area.
Modelling	The process of generating abstract, conceptual, graphical and/or mathematical models.
Noise	This was defined in the Wilson report published in 1963 as 'unwanted sound'. Noise includes vibration, except where the context indicates otherwise. Sound is a periodic fluctuation in pressure, typically in air. Noise is classified as a pollutant in the European Directive on Integrated Pollution Prevention and Control.
Noise climate	General description of existing noise levels in respect to a particular area.
Noise generating	A development that has the potential to create a negative noise impact on sensitive receptors.
Noise sensitive receptor	Any dwelling, hotel or hostel, health building, educational establishment, place of worship or entertainment, or any other facility or area of high amenity, which may be susceptible to noise.
Rating Level	The noise level of an industrial noise source which includes an adjustment for the character of the noise. Used in BS 4142: 2014 + A1: 2019.
Tonality	Whilst tonality can be judged subjectively, it is often useful to measure it. This can be achieved through 1/3rd octave band or by narrow band analysis. The level differences between adjacent one third octave bands that identify a tone are: • 15 dB in the low frequency one third octave bands (25Hz to 125 Hz); • 8 dB in the middle frequency one third octave bands (160 Hz to 400 Hz);

- 5 dB in the high frequency one third octave bands (500 Hz to 10,000 Hz).

The Standard used within an objective method for assessing the audibility of tones in BS 4142: 2014 + A1: 2019 is “ISO 1996 Acoustics – Description, measurement and assessment of environmental noise – Part 2: Determination of environmental noise levels”.

It is recognized that there are limitations to the use of assessing 1/3 octave bands to determine tonality. When it is considered that the 1/3 octave band method is not considered sufficient by the LPA, the reference method in Annex D, BS 4142: 2014 + A1: 2019 shall be used.

Annex 3 – References

1	ISO 1996 Parts 1,2 & 3 – Description, measurement and assessment of environmental noise.
2	BS 5228-1:2009 + A1:2014 – Code of practice for noise and vibration control on construction and open sites – Noise
3	BS 5228-2:2009 + A1:2014 – Code of practice for noise and vibration control on construction and open sites – Vibration
4	BS 7385 Part 2 1993 – Guide to damage levels from ground borne vibration
5	BS 6472:2008: Parts 1 & 2 – Guide to evaluation of human exposure to vibration.
6	BS 8233:2014: Guidance on sound insulation and noise reduction for buildings – Code of practice.
7	WHO (2009): World Health Organisation – Night noise guidelines for Europe.
	WHO (2018): World Health Organisation – Environmental Noise Guidelines For European Region. https://www.euro.who.int/en/health-topics/environment-and-health/noise/publications/2018/environmental-noise-guidelines-for-the-european-region-2018
8	BS 4142:2014 + A1:2019- Method for rating and assessing industrial and commercial sound.
9	DMRB: Design Manual for Roads & Bridges, LA111 – (April 2020). https://www.standardsforhighways.co.uk/prod/attachments/cc8cfcf7-c235-4052-8d32-d5398796b364?inline=true
10	The Control of odour and noise from commercial kitchen exhaust systems. EMAQ, September 2018.
11	The National Planning Policy Framework (2019).
12	The National Planning Practice Guidance – Noise
13	The Noise Insulation Regulations 1975 (as amended 1988).
14	IPPC H3 (Part 2): Horizontal Guidance Note, Integrated Pollution Prevention & Control (IPPC), Part 2 – Noise Assessment & Control (2004).
15	ETSU-R-97 (2006): The assessment of rating of noise from wind farms.
16	A Good Practice Guide to the Application of ETSU-R-97 (Institute of Acoustics, 2013).
17	Department for Education, Building Bulletin 93 – Acoustic Design for schools-Performance Standards 2015
18	Acoustic of Schools – A design guide. IOA and ANC 2015.
	Department of Health, Health Technical Memorandum 08-01; Acoustics. (2013)
19	ProPG (2017): Planning Noise – Professional Practice Guidance on Planning and Noise – New Residential Development. https://www.ioa.org.uk/sites/default/files/14720%20ProPG%20Main%20Document.pdf
20	Association of Noise Consultants, January 2020 – Acoustics, Ventilation and Overheating – A Residential Design Guide version 1.

	https://www.association-of-noise-consultants.co.uk/wp-content/uploads/2019/12/ANC-AVO-Residential-Design-Guide-January-2020-v-1.1.pdf
21	Sports England, Making a planning application – a guide for sports clubs. General site: https://www.sportengland.org/ https://sportengland-production-files.s3.eu-west-2.amazonaws.com/s3fs-public/making-a-planning-application-a-guide-for-sports-clubs.pdf?oNztVEsRixnVcAl06puzQDjf04xNP7hz
	Sports England, Artificial Grass Pitch (AGP) Acoustics – Planning Implications (2015) https://sportengland-production-files.s3.eu-west-2.amazonaws.com/s3fs-public/agp-acoustics-planning-implications.pdf?eORPPBrK6irJ2FqvHWitOASeYu6U.egt
22	Department of Health, Specialist Services Health Technical Memorandum 08-01: Acoustics of Health, Specialist Services, Health Technical Memorandum 08-01: Acoustics (2013) https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/144248/HTM_08-01.pdf
24	The Environmental Noise (England) Regulations 2006 https://www.legislation.gov.uk/uksi/2006/2238/contents/made
Codes of Practice	
• CoP Environmental Noise Control at Concerts; Noise Council 1995 (under review) • CoP on Noise from Model Aircraft, DoE, 1982. • CoP on Control of Noise from Pubs and Clubs: IOA 2003 • Clay Target Shooting - Guidance on the control of noise, CIEH 2003 • CoP on noise from organised off-road motorcycle sport, Noise Council 1984 • CoP on Powerboat Racing and Water-Ski racing, British Water Skiing Federation 1999 • CoP for Control of noise from Oval Motor racing Circuits, NSCA 1996.	