

# SHARPS REDMORE

ACOUSTIC CONSULTANTS ▪ Established 1990



## Report

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### Environmental Noise Report

Residential Development –  
Stickling Green, Clavering

### Prepared by

Gary King MIOA MCIEH

**Date** 12th May 2020

**Project No** 2019578

#### Head Office

##### Sharps Redmore

The White House, London Road,  
Copdock, Ipswich, IP8 3JH

**T** 01473 730073

**E** [contact@sharpsredmore.co.uk](mailto:contact@sharpsredmore.co.uk)

**W** [sharpsredmore.co.uk](http://sharpsredmore.co.uk)

#### Regional Locations

South England (Head Office),  
North England, Wales, Scotland

#### Sharps Redmore Partnership Limited

Registered in England No. 2593855

#### Directors

RD Sullivan BA(Hons), PhD, CEng, MIOA, MAAS, MASA;

DE Barke MSc, MIOA;

KJ Metcalfe BSc(Hons), MIOA

#### Company Consultant

TL Redmore BEng, MSc, PhD, MIOA



sponsoring organisation



# Contents

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- 1.0 Introduction
- 2.0 Assessment Methodology and Criteria
- 3.0 Assessment of existing baseline noise levels
- 4.0 Summary and Conclusions

# Appendices

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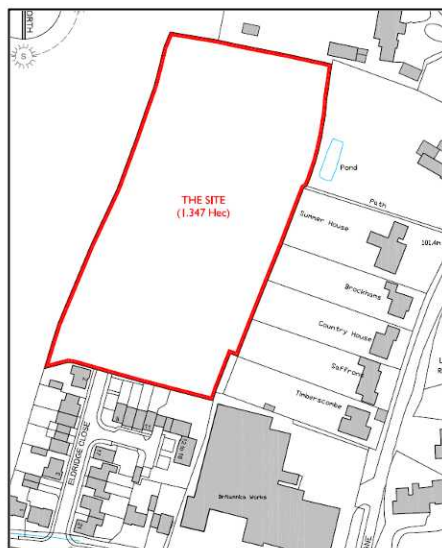
- A. Proposed Layouts
- B. Acoustic Terminology

This report has been prepared with all reasonable skill, care and diligence commensurate with an acoustic consultancy practice under the terms and brief agreed with our client at that time. Sharps Redmore provides no duty or responsibility whatsoever to any third party who relies upon its content, recommendations or conclusions.

## 1.0 Introduction

- 1.1 Sharps Redmore (SR) have been instructed to carry out an environmental noise assessment for a residential development for land off Eldridge Close, Stickling Green. The site location is shown in Figure 1 below:

**FIGURE 1: Site location**



- 1.2 The site is located in the village of Stickling Green in the administrative area of Uttlesford District Council. The application site is an agricultural field located to the north of Eldridge Close and to the west of the residential properties in Clatterbury Lane. The land to the north and east is open agricultural land. To the south east of the site is a known as the Britannia Works site. This site includes several commercial/industrial premises which face onto to Stickling Green Road. Use of the units include a tractor service and repairs workshop (East Anglian Tractors Ltd), a distribution business, an equine sales shop (West Essex Saddlery) and a labelling/printer (Immediate labelling) and a small gym (Get Up "n" Go).
- 1.3 Outline planning permission is being sought for redevelopment of the site for residential use. An indicative layout is shown in Appendix A to this report.
- 1.4 The purpose of this report is therefore to consider the impact of noise, both from employment uses and road traffic noise, on the living conditions of future residents. The report also considers whether the proposed change of use will result in any unreasonable restrictions on the existing use of the adjacent businesses. The report considers national and local policy aims and relevant noise guidance including BS 8233:2014 and BS 4142:2014.
- 1.5 Section 2.0 contains a discussion of the available methods of assessment and assessment criteria.
- 1.6 Section 3.0 of this report contains an assessment of existing baseline noise levels. The report conclusions are presented in section 4.0.
- 1.7 A glossary of the acoustic terminology used within in this report is included in Appendix B

## 2.0 Assessment Methodology and Criteria

### National Policy

- 2.1 The National Planning Policy Framework (NPPF), February 2019, sets out the Government's planning policies for England and "these policies articulate the Government's vision of sustainable development." In respect of noise, Paragraph 180 of the NPPF states the following:

*"Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development. In doing so they should:*

- a) mitigate and reduce to a minimum potential adverse impacts resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life;*
- b) identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason; and*
- c) limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation".*

- 2.2 Further guidance on the impact of new developments is considered in Paragraph 182 which states the following

*"Planning policies and decisions should ensure that new development can be integrated effectively with existing businesses and community facilities (such as places of worship, pubs, music venues and sports clubs). Existing businesses and facilities should not have unreasonable restrictions placed on them as result development permitted after they were established. Where the operating of an existing business or community facility could have a significant adverse effect on new development (including changes of use) in its vicinity, the applicant (or 'agent of change') should be required to provide suitable mitigation before the development has been completed."*

- 2.3 The NPPF and NPPG reinforce the March 2010 DEFRA publication, "Noise Policy Statement for England" (NPSE), which states three policy aims, as follows:

*"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."



- 2.4 Together, the first two aims require that no significant adverse impact should occur and that, where a noise level which falls between a level which represents the lowest observable adverse effect and a level which represents a significant observed adverse effect, then according to the explanatory notes in the statement:

*“... all reasonable steps should be taken to mitigate and minimise adverse effects on health and quality of life whilst also taking into consideration the guiding principles of sustainable development. This does not mean that such effects cannot occur.”*

#### Design Guidance

- 2.5 The current nationally recommended internal noise levels for dwellings are given in BS 8233:2014 'Guidance on Sound Insulation & Noise Reduction for Buildings'. BS 8233 recommends the following internal noise standards:

**TABLE 1: BS 8233:2014**

BS 8233:2014 Table 4 – Indoor ambient noise levels for dwellings			
Activity	Location	0700 to 2300	2300 to 0700
Resting	Living room	35 dB $L_{Aeq,16hour}$	-
Dining	Dining room/area	40 dB $L_{Aeq,16hour}$	-
Sleeping (daytime resting)	Bedroom	35 dB $L_{Aeq,16hour}$	30 dB $L_{Aeq,8hour}$

- 2.6 There is no longer a  $L_{AMAX}$  standard for bedrooms in BS 8233. However, footnote 4 to Table 4 states that *“Regular individual noise events (for example, scheduled aircraft or passing trains) can cause sleep disturbance. A guideline value may be set in terms of SEL or  $L_{Amax}$  depending on the character and number of events per night. Sporadic noise events could require separate values.”* In this case, it is proposed that the previous BS 8233 internal standard (also referenced in World Health Organisation Guidelines for Community Noise) is applied. This is 45 dB  $L_{AMAX}$ , inside bedrooms.
- 2.7 The above guidelines are based on the advice in WHO Guidelines for Community Noise which as reference in the Noise Policy Statement for England can be considered the lowest observed adverse effect level (LOAEL).

#### *External Areas (Garden and Balconies)*

- 2.8 For outdoor areas (i.e. balconies), BS 8233:2014 recommends that *“it is desirable that the external noise level does not exceed 50 dB  $L_{Aeq}$ , with an upper guideline value of 55 dB  $L_{AeqT}$ ”* However, the document recognises that that these guideline values are not achievable in all circumstances and in higher noise areas, a compromise might be warranted. In such circumstances, development should be designed to achieve the lowest practicable levels in these external amenity spaces.

## Design Guidance

- 2.9 The current nationally recommended internal noise levels for dwellings are given in BS 8233:2014 'Guidance on Sound Insulation & Noise Reduction for Buildings'. BS 8233 recommends the following internal noise standards:

**TABLE 2: Guideline noise values**

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Activity	Location	0700 to 2300	2300 to 0700
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- 2.12 The Planning Practice Guidance on Noise, published on [planningportal.gov.uk](http://planningportal.gov.uk), gives further consideration relating to mitigating the impact of noise on residential developments and considers that noise may be partially off-set if residents of the dwellings have access to:
- A relatively quiet façade (containing windows to habitable rooms as part of their dwelling;
  - A relatively quiet external amenity space for their sole use such as a balcony which is generally considered as desirable.
  - A relatively quiet nearby external space for use by a number of residents as part of the amenity of their dwellings, and/or;
  - A relatively quiet external, publicly accessible amenity space that is nearby (e.g. within a 5-minute walk)
- 2.13 Whilst not official government advice the ProPG professional practice guidance on planning and noise has been jointly produced by the Chartered Institute of Environmental Health (CIEH), Institute of Acoustic (IOA) and Association of Noise Consultants (ANC).



2.14 The primary goal of the ProPG is to assist the delivery of sustainable development by promoting good health and well-being through the effective management of noise. The ProPG recommends a 2-stage approach, an initial noise risk assessment of the proposed development and where the results indicate that noise requires further consideration a full assessment in the form of an Acoustic Design Statement (ADS) which would include four key elements as follows:

- Element 1 – demonstrating a “Good Acoustic Design Process”;
- Element 2 – observing internal “Noise Level Guidelines.”
- Element 3 – Undertaking an “External Amenity Area Noise Assessment”
- Element 4 – Consideration of “Other Relevant Issues.”

2.15 The advice contained within ProPG is based on the policy objectives contained within the NPPF and the objective noise guidelines within BS 8233:2014. However, the ProPG does not constitute an official government code of practice.

#### Commercial and Industrial Premises

2.16 BS 4142:2014+A1:2019 describes a method for rating and assessing sound of industrial and/or commercial nature, including unloading of goods, according to the following summary process:

- i) Carry out a numerical assessment by comparing the rating level of sound from deliveries (specific sound plus feature correction) against the existing background noise level. The greater the difference between the two the greater the impact. Differences (rating – background) of around +10 dB is likely to be an indication of significant adverse impact (SOAEL) depending on context; a difference of +5 dB is likely to be an indication of adverse impact, depending on context. 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 upon context.
- ii) Consider the impact of noise from deliveries against the context of the site in which it is placed. There are many contextual points to consider when determine the impact of the sound including the following:
  - The absolute level of sound;
  - The character and level of the specific sound compared to the existing noise climate;
  - The sensitivity of the receptors;
  - The time and duration that the specific sound occurs;
  - The conclusions of assessments undertaken using alternative assessment methods, for example WHO guideline noise values or change in noise level;
  - The ability to mitigate the specific sound through various methods.

2.17 It is therefore entirely possible that whilst the numerical outcome of a BS 4142 assessment is indicative of adverse or even significant adverse impact, when the proposal is considered in context the significance of the impact is reduced to an acceptable level.

### 3.0 Assessment of Baseline Noise Levels

3.1 The first stage of any assessment is to determine existing baseline noise levels. A site visit was carried out 7th May 2020, to identify possible noise sources that may impact on the proposed residential development.

#### Environmental Noise Sources

3.2 The main sources of environmental noise identified were road traffic and potential noise from London Stanstead Airport. It was not considered appropriate to carry a noise survey as both traffic conditions and aircraft activity were lower than normal due to the Covid-19 travel restrictions in place at the time of the visit. However, it was noted that the site is in a village location away from sources of road traffic, this is confirmed by the noise assessment which accompanied the planning application<sup>1</sup> for the residential development immediately south of the proposed site, which is now known as Eldridge Close.

3.3 The noise assessment, dated July 2011, prepared by Capita Symmonds including a noise survey carried out at the southern boundary of the site. The results of the survey are shown in Table 3 below:

**TABLE 3: Noise Survey Results – July 2011**

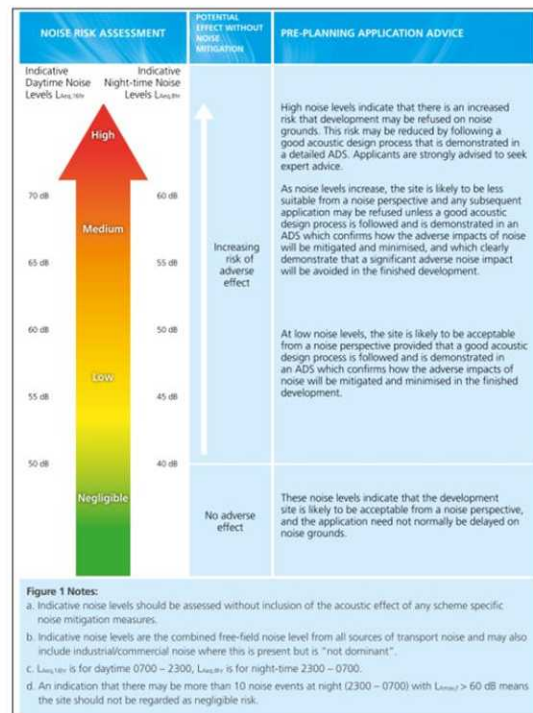
	Noise Level dB L <sub>AeqT</sub>	
	Day (0700 – 2300 hrs)	Night (2300 – 0700 hrs)
Weekday	45 dB	44 dB
Saturday	47 dB	41 dB
Sunday	45 dB	39 dB

3.4 There are no significant changes in the area which will have affected road traffic levels and therefore the noise levels in Table 2 are still considered representative of the noise levels in the area.

3.5 To determine the impact of existing noise an initial site noise risk assessment has been carried out in accordance with the Professional Practice Guidance on Noise and Residential Developments. (ProPG).

3.6 Using ProPG, as shown, the measured noise levels indicate there is negligible risk of planning permission being refused on the noise impact on the residential development. The ProPG advises states that for negligible risk sites

*“...noise levels indicate tat the development is likely to be acceptable from a noise perspective and the application need not normally be delayed on noise grounds.”*



<sup>1</sup> Planning Application UTT/2149/11/OP – Outline Application for erection of 24 dwellings and associated and ancillary development with all matters reserved.

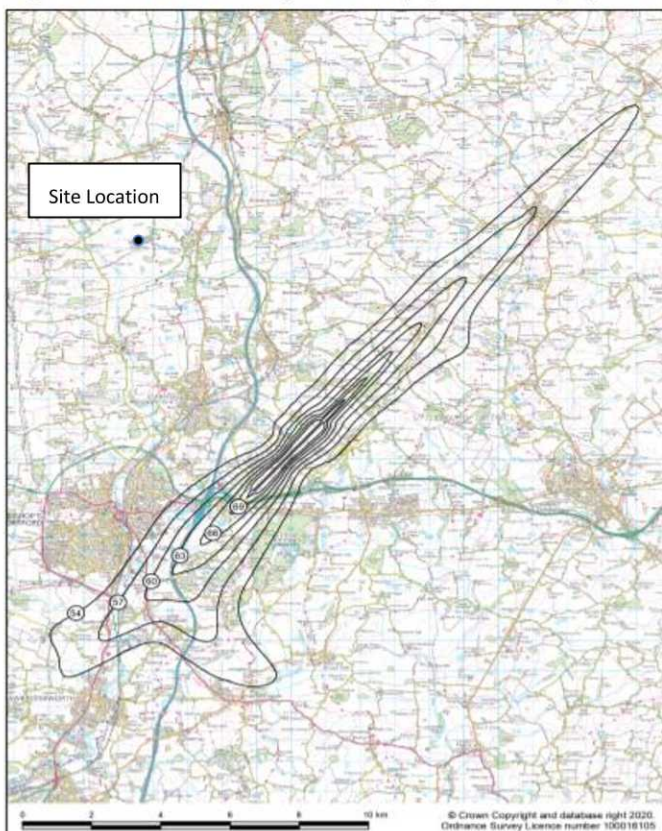


### Aircraft Noise

- 3.7 The site is located to the north of London Stanstead airport. As shown in the noise contours produced in the Civil Aviation Authority ERCD Report dated April 2020, the site is outside the 54 dB noise contour and noise from aircraft is not considered to be significant.

**FIGURE 3: Stanstead Noise Contours**

Figure B12 Stanstead 2019 summer day actual modal split (75% SW / 25% NE) Leq contours



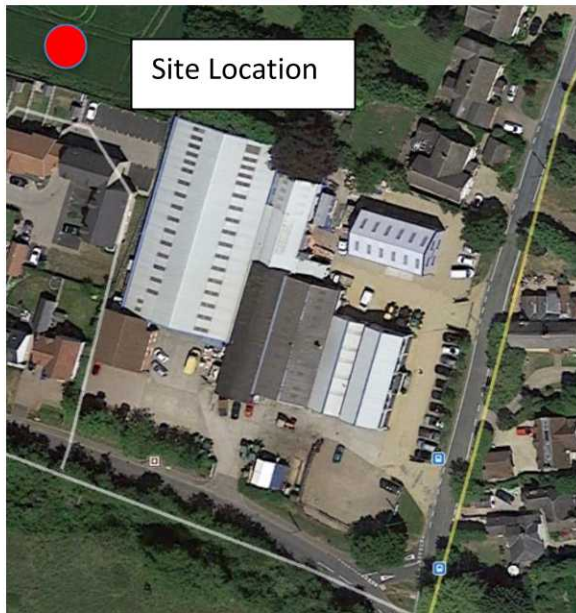
### Industrial/Commercial Noise

- 3.8 To the south east of the site is a known as the Britannica Works site. This site includes several commercial/industrial premises which face onto to Stickling Green Road. Use of the units include a tractor service and repairs workshop (East Anglian Tractors Ltd), a distribution business, an equine sales shop (West Essex Saddlery) and a labelling/printer (Immediate labelling) and a small gym (Get Up "n" Go).
- 3.9 At the time of the visit no noise was noted coming from the industrial units, however as a result of the Covid-19 restrictions not all the units were operating at the time of the site visit. However, based on experience of similar sites the following potential impacts have been identified and assessed. In determining the impact of the noise from the Units, SR has considered the existing planning consents for the site.

### Noise from external activity – Servicing, movement of vehicles, car parking

- 3.10 As shown in the figure below the layout of the Britannica Works site is also designed with open yard areas located on southern side of the buildings. Therefore, any external activity such as deliveries, movement of vehicles are screened from the proposed residential properties by the buildings on the site.

**FIGURE 4: Britannica Works**



- 3.11 The existing planning permissions for the site have conditions restricting activity to daytime hours only and also restricting any external activity.
- 3.12 Considering, the layout of the site and existing planning conditions it is not considered that noise from external activity will cause impact to future residents.

Noise from mechanical services plant

- 3.13 As shown below there are no mechanical services plant such as vents, extracts or fans located on the rear wall of the units.

**FIGURE 5: View of site from Proposed residential**



- 3.14 It also noted that the planning consents for the existing units, including UTT/16/0619/CLE – Use of Buildings for B1 and B8 and UTT/15/3631/FUL, proposed new industrial unit at East Anglian Tractors, include planning conditions which require that the rating level of plant must be below the existing background noise levels measured at adjacent properties. There are existing residential properties closer than the proposed and therefore considering the existing layout and planning conditions it is not considered that noise from mechanical services plant will cause impact to future residents.

Noise from internal activity

- 3.15 Acoustically the weakest points in any building are doors and windows. As shown in Figure 5 above the façades of the building closest to the proposed residential properties consist of solid block walls with no openings.
- 3.16 In terms of noise the use of the existing units is low key and unlikely to generate high internal noise levels. The previous survey carried out in relation to the residential development, now known as Eldridge Close, did not note any noise coming from the adjacent industrial units. The properties in Eldridge Close are closer and more exposed to the commercial/industrial units than the proposed residential properties.
- 3.17 It is therefore concluded that noise break-out from the buildings will not cause impact to future residents.



## **4.0 Summary and Conclusions**

- 4.1 Sharps Redmore have carried out a noise assessment for the proposed residential development at land to the north of Eldridge Close, Stickling Green.
- 4.2 Having carried out a site visit and considering noise survey data previously recorded for a similar residential development it is concluded that environmental noise i.e. road traffic and aircraft will have negligible impact on future residents.
- 4.3 In relation to noise from the adjacent commercial/industrial units known as Britannica Works site, taking into account, the design of the units and existing planning restrictions on the use, it is concluded that noise from units will not cause adverse impact to future residents. Accordingly, the change of use of the land to the north of Eldridge Close will not cause unreasonable restrictions on continued use of the adjacent commercial/industrial units.
- 4.4 It is therefore concluded that the proposed residential development will be in line with the policy aims of the NPPF (Para's 180 and 182).

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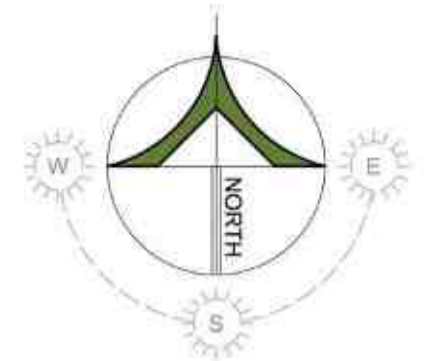
**APPENDIX A**

**PROPOSED LAYOUT**

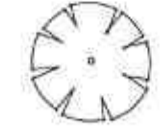


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Do not scale from this drawing.  
All information shown is to be checked on site for accuracy and fit. Any discrepancies or omissions to be reported to Arcady Architects immediately.



**KEY**

-  PROPOSED TREE
-  EXISTING CLUSTER OF TREES
-  ROOT PROTECTION AREA

SITE PLAN BASED UPON  
TOPOGRAPHICAL SURVEY PREPARED BY:  
LANDLINE SURVEY LTD  
REF: GY3401

**ACCOMMODATION SCHEDULE**

PLOT 1	4 Bed Detached House	200 Sq.M	2152 sqft
PLOT 2	4 Bed Detached House	212 Sq.M	2281 sqft
PLOT 3	4 Bed Detached House	231 Sq.M	2492 sqft
PLOT 4	4 Bed Detached House	212 Sq.M	2281 sqft
PLOT 5	4 Bed Detached House	200 Sq.M	2152 sqft
PLOT 6	5 Bed Detached House	206 Sq.M	2217 sqft
PLOT 7	3 Bed Bungalow	90 Sq.M	969 sqft
PLOT 8	3 Bed Bungalow	90 Sq.M	969 sqft
PLOT 9	5 Bed Detached House	287 Sq.M	3090 sqft
<b>TOTAL</b>		<b>1728 Sq.M</b>	<b>18603 sqft</b>

REVISION	DATE	DRAWN
PROJECT: LAND NORTH OF ELDRIDGE CLOSE, STICKLING GREEN, CLAVERING		
TITLE: ILLUSTRATIVE SITE PLAN		
SCALE: 1:500	DATE: MAY 20	DRAWN: CW
REV: 18/17/06	REV:	CHRD:
Unit 4   Philloes Barns   Hammonds Road Little Baddow   Essex   CM3 4BG Tel: 01245 464881   www.arcadyarchitects.co.uk		



**ILLUSTRATIVE SITE PLAN**  
1:500 SCALE - METRES (A1 SHEET)  
0 5 10 15 20 30 40 50





## **APPENDIX B**

### **ACOUSTIC TERMINOLOGY**

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## Acoustic Terminology

B1 Noise, defined as unwanted sound, is measured in units of decibels, dB. The range of audible sounds is from 0 dB to 140 dB. Two equal sources of sound, if added together will result in an increase in level of 3 dB, i.e.  $50\text{ dB} + 50\text{ dB} = 53\text{ dB}$ . Increases in continuous sound are perceived in the following manner:

1 dB increase - barely perceptible

3 dB increase - just noticeable

10 dB increase - perceived as twice as loud

B2 Frequency (or pitch) of sound is measured in units of Hertz. 1 Hertz (Hz) = 1 cycle/second. The range of frequencies audible to the human ear is around 20Hz to 18000Hz (or 18kHz). The capability of a person to hear higher frequencies will reduce with age. The ear is more sensitive to medium frequency than high or low frequencies.

B3 To take account of the varying sensitivity of people to different frequencies a weighting scale has been universally adopted called "A-weighting". The measuring equipment has the ability automatically to weight (or filter) a sound to this A scale so that the sound level it measures best correlates to the subjective response of a person. The unit of measurement thus becomes dBA (decibel, A-weighted).

B4 The second important characteristic of sound is amplitude or level. Two units are used to express level, a) sound power level -  $L_w$  and b) sound pressure level -  $L_p$ . Sound power level is an inherent property of a source whilst sound pressure level is dependent on surroundings/distance/directivity, etc. The sound level that is measured on a meter is the sound pressure level,  $L_p$ .

B5 External sound levels are rarely steady but rise or fall in response to the activity in the area - cars, voices, planes, birdsong, etc. A person's subjective response to different noises has been found to vary dependent on the type and temporal distribution of a particular type of noise. A set of statistical indices have been developed for the subjective response to these different noise sources.

B6 The main noise indices in use in the UK are:

$L_{A90}$ : The sound level (in dBA) exceeded for 90% of the time. This level gives an indication of the sound level during the quieter periods of time in any given sample. It is used to describe the "background sound level" of an area.

$L_{Aeq}$ : The equivalent continuous sound level in dBA. This unit may be described as "the notional steady noise level that would provide, over a period, the same energy as the intermittent noise". In other words, the energy average level. This unit is now used to measure a wide variety of different types of noise of an industrial or commercial nature, as well as aircraft and trains.

$L_{A10}$ : The sound level (in dBA) exceeded for 10% of the time. This level gives an indication of the sound level during the noisier periods of time in any given sample. It has been used over many years to measure and assess road traffic noise.

$L_{AMAX}$  The maximum level of sound measured in any given period. This unit is used to measure and assess transient noises, i.e. gun shots, individual vehicles, etc.

C7 The sound energy of a transient event may be described by a term SEL - Sound Exposure Level. This is the  $L_{Aeq}$  level normalised to one second. That is the constant level in dBA which lasting for one second has the same amount of acoustic energy as a given A weighted noise event lasting for a period of time. The use of this unit allows the prediction of the  $L_{Aeq}$  level over any period and for any number of events using the equation;

$$L_{AeqT} = SEL + 10 \log n - 10 \log T \text{ dB.}$$

Where

n = Number of events in time period T.

T = Total sample period in seconds.

C8 In the open, known as free field, sound attenuates at a rate of 6 dB per each doubling of distance. This is known as geometric spreading or sometimes referred to as the Inverse Square Law. As noise is measured on a Logarithmic scale, this attenuation in distance =  $20 \log$  (ratio of distances), e.g. for a noise level of 60 dB at ten metres, the corresponding level at 160 metres is:

$$60 - 20 \log \frac{160}{10} = 60 - 24 = 36 \text{ dB}$$