APPENDIX 13.1

GLOSSARY OF ACOUSTIC TERMINOLOGY

Acoustic Terminology

dB (decibel)	The scale on which sound pressure level is expressed. It is defined as 20 times the logarithm of the ratio between the root-mean-square pressure of the sound field and a reference pressure ($2x10^{-5}$Pa).
dB(A)	A-weighted decibel. This is a measure of the overall level of sound across the audible spectrum with a frequency weighting (i.e. 'A' weighting) to compensate for the varying sensitivity of the human ear to sound at different frequencies.
$L_{Aeq,T}$	L_{Aeq} is defined as the notional steady sound level which, over a stated period of time (T), would contain the same amount of acoustical energy as the A - weighted fluctuating sound measured over that period.
$L_{Aeq,16hour}$	the notional steady sound level which, over the 16 hour day (07:00 – 23:00), would contain the same amount of acoustical energy as the A - weighted fluctuating sound measured over that period.
L_{Amax}	L_{Amax} is the maximum A - weighted sound pressure level recorded over the period stated. L_{Amax} is sometimes used in assessing environmental noise where occasional loud noises occur, which may have little effect on the overall L_{eq} noise level but will still affect the noise environment.
L_{10} & L_{90}	If a non-steady noise is to be described it is necessary to know both its level and the degree of fluctuation. The L_n indices are used for this purpose, and the term refers to the level exceeded for n% of the time. Hence L_{10} is the level exceeded for 10% of the time and as such can be regarded as the 'average maximum level'. Similarly, L_{90} is the 'average minimum level' and is often used to describe the background noise. It is common practice to use the L_{10} index to describe traffic noise.
$L_{A90, 16hour}$	This is the noise level that is exceeded for 90% of the time during the 16 hour period (07:00 – 23:00).
$L_{A10\ 18hour}$	The noise index commonly used to describe road traffic noise, which is defined in the Calculation of Road Traffic Noise document as the arithmetic average of 18 $L_{A10\ 1hour}$ levels between 06:00 and 24:00 hours.
$L_{A10\ 1hour}$	This is the noise level that is exceeded for 10% of the time during the hour in question.
Free-field Level	A sound field determined at a point away from reflective surfaces other than the ground with no significant contributions due to sound from other reflective surfaces. Generally as measured outside and away from buildings.
Façade Level	A sound field determined at a distance of 1m in front of a large sound reflecting object such as a building façade.
Ambient Noise Level	The DMRB defines the Ambient noise level as "*the level of noise in the area before the change produced by the scheme under consideration has taken affect. It may include traffic noise as well as noise from other sources*".
Background Noise Level	The background noise level is commonly determined by use of the L_{A90} noise index and can be described as the 'average minimum level', or the underlying level during ambient conditions.

Vibration Terminology

Displacement, Acceleration and Velocity **Root Mean Square (r.m.s.) and Peak Values** **Peak Particle Velocity (PPV)**	Vibration is an oscillatory motion. The magnitude of vibration can be defined in terms of displacement (how far from the equilibrium position that something moves), velocity (how fast something moves), or acceleration (the rate of change of velocity). When describing vibration, one must specify whether peak values are used (i.e. the maximum displacement or maximum velocity) or r.m.s. / r.m.q. values (effectively an average value) are used. Standards for the assessment of building damage are usually given in terms of peak velocity (usually referred to as Peak Particle Velocity, or PPV), whilst human response to vibration is often described in terms of r.m.s. or r.m.q. acceleration.
Vibration Dose Value (VDV)	This is a measure of the amount of vibration that is experienced over a specified period, and has been defined so as to quantify the human response to vibration in terms of comfort and annoyance. The Vibration Dose Value is used to assess the likely levels of adverse comment about vibration, and is defined mathematically as the fourth root of the time integral of the fourth power of the acceleration, after it has been frequency weighted to take into account the frequency response of the human body to a vibration stimulus. Measured in units of $ms^{-1.75}$.