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NOISE ASSESSMENT
AGRICULTURAL BUILDINGS

High Head Barn, Moss Lane
Chipping PR3 2TR

Report by
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Site Visit by:	M A Kenyon
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1.0 INTRODUCTION

On the instructions of M L Planning Consultancy, Martec Environmental Consultants Ltd carried out a noise assessment at Agricultural Buildings at High Head Barn, Moss Lane, Chipping in connection with a planning application for the change of use of existing buildings from cheese manufacture to welding and fabrication, plus the erection of an industrial building for storage for an agricultural contractor.

Acoustic terminology is explained at Appendix 1 of this report and the author's qualifications and experience are described in Appendix 2.

2.0 SITE DESCRIPTION

It is understood that the applicant, Andrew Hodkinson, has recently purchased the site in order to operation his mixed rural business, Ashcon, which combines agricultural contracting services with welding and fabrication work. The two elements of the business are complementary, with welding services supporting both the maintenance of agricultural machinery and the provision of fabrication services to third parties.

Due to the proximity of nearby properties, particularly High Head Farm on the opposite [east] side of Moss Lane, the Council have requested that a noise survey be commissioned.

The existing, proposed and nearby buildings are as shown in Figure 1 below.

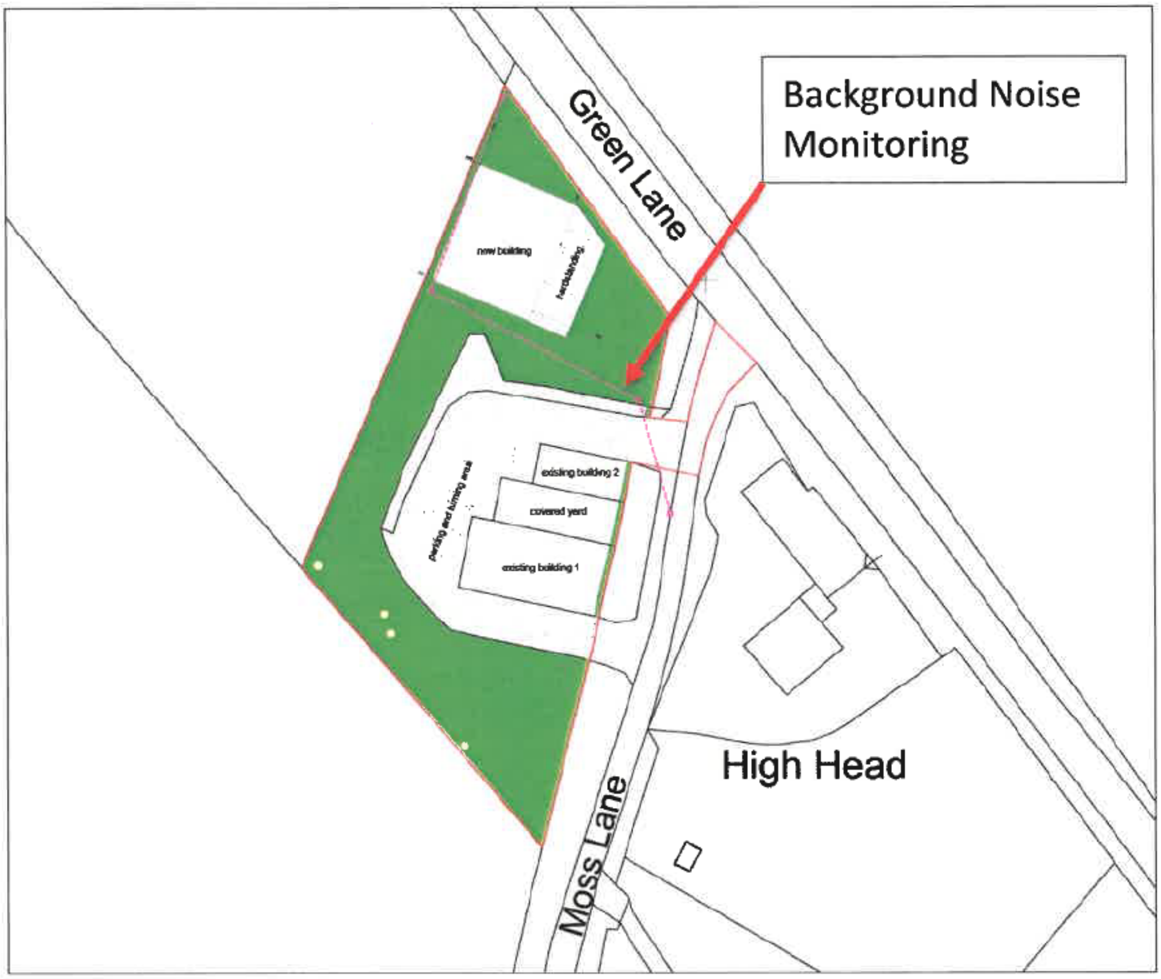

Figure 1: Proposed Site Plan [ML Planning Drwng SP/AH/4428/02]

From discussions with the applicant work processes would involve welding, grinding, occasional hammering, use of a pillar drill, cropping machine, spanners etc. There is currently a compressor on site which operates intermittently.

It is envisaged that there would be a maximum of two people working in the building; however, due to the nature of the work, there would be long periods during the day of quiet activity such as measuring, fetching and carrying parts in the building or picking up parts off site, dry assembly prior to working etc. Some of the projects involve working off site at client's premises.

Similarly, the applicant's business involves work as an agricultural contractor operating machinery off site, such that for approximately 50% of the year he would be off site all day, mostly during the summer.

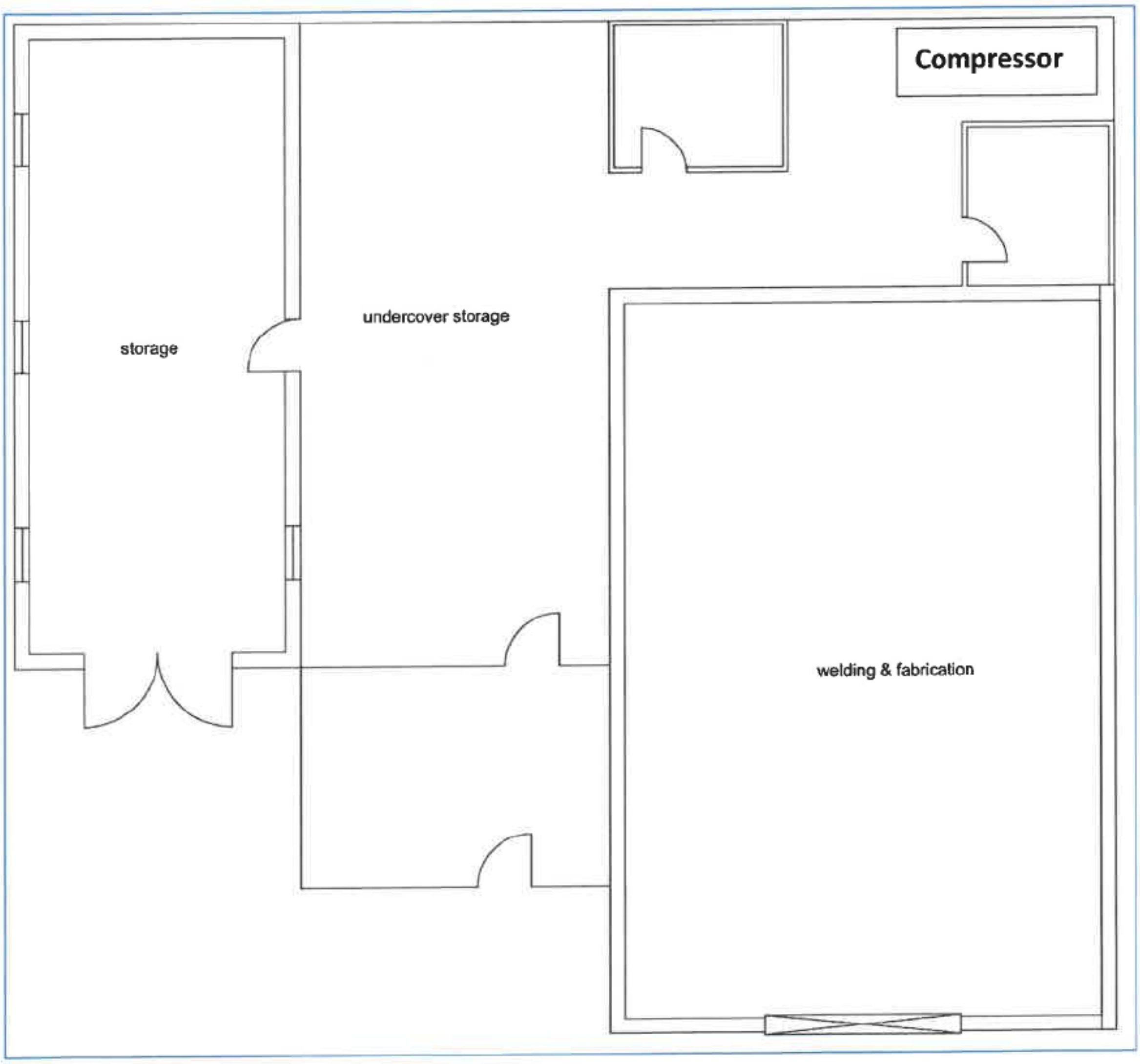

Figure 2: Proposed Use of Existing Buildings - [ML Planning Drawing SP/AH/4429/01] – North to Left, High Head to top of plan

3.0 NOISE CRITERIA

3.1 BS4142:2014+A1:2019 - Method for Rating and Assessing Industrial and Commercial Sound

BS4142:2014 states, *"Response to sound can be subjective and is affected by many factors, both acoustic and non-acoustic. The significance of its impact, for example, can depend on such factors as the margin by which a sound exceeds the background sound level, its absolute level, time of day and change in the acoustic environment, as well as local attitudes to the source of the sound and the character of the neighbourhood…This British Standard describes methods for rating and assessing sound of an industrial and/or commercial nature".*

The Standard requires that the ambient noise ***(totally encompassing sound in a given situation at a given time, usually composed of sound from many sources near and far)*** including the "specific" sound from the source in question is measured in terms of the equivalent continuous sound level LAeq [see Appendix 1 for acoustic terms], which is then corrected for the residual sound (total LAeq excluding the "specific" sound).

A correction for character is made if ***"a tone, impulse or other characteristic occurs".*** For tonality, a correction of between +2dB and 6dB is considered acceptable and for impulsivity between 3 and 9dB. See table below.

Character	Just Perceptible	Clearly Perceptible	Highly Perceptible
Tonality	+2dB	+4dB	+6dB
Impulsivity	+3dB	+6dB	+9dB

Where the specific sound features characteristics that are neither tonal nor impulsive, though otherwise are readily distinctive against the residual acoustic environment, a penalty of 3 dB can be applied.

Where tonal and impulsive characteristics are present in the specific sound within the same reference period then these two corrections can both be taken into account. If one feature is dominant, then it might be appropriate to apply a single correction. Where both features are likely to affect perception and response, the corrections ought normally to be added in a linear fashion.

Intermittency
When the specific sound has identifiable on/off conditions, the specific sound level ought to be representative of the time period of length equal to the reference time interval which contains the greatest total amount of on time. This can necessitate measuring the specific sound over a number of shorter sampling periods that are in combination less than the reference time interval in total, and then calculating the specific sound level for the reference time interval allowing for time when the specific sound is not present. If the intermittency is readily distinctive against the residual acoustic environment, a penalty of 3 dB can be applied."

The final figure, including any character correction is known as the Rating level.

This Rating Level is then compared with the measured background [LA90] level. The greater this difference the greater the likelihood of "adverse impact" (See Notes 1 & 2 from BS4142:2014 below).

"NOTE 1

a) Typically, the greater this difference, the greater the magnitude of the impact.

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

c) A difference of around +5 dB is likely to be an indication of an adverse impact, depending on the context.

d) The lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact or a significant adverse impact. Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact, depending on the context.

NOTE 2

Adverse impacts include, but are not limited to, annoyance and sleep disturbance. Not all adverse impacts will lead to complaints and not every complaint is proof of an adverse impact."

4.0 MEASUREMENT PROCEDURE

Two sound level meters were used on site. Meter E in Table 1 was used to make the background noise measurements it was fitted with a RION WS02 'all weather' windmuff with the microphone mounted on a pole approximately 2.5m above local ground height in free field conditions at the location shown in Figure 1. Meter C in Table 1 was used hand-held and was fitted with a standard windmuff.

Both instruments field calibrated correctly before and after the measurements.

Model	Instrument	Serial No.	Lab Cal Certificate	Re-Calibration Due
C Svan 957	Sound Level Meter	23201	TCRT25/1260	24/03/2027
Svan SV12L	Preamp	24265	TCRT25/1260	24/03/2027
PCB 377B02	Microphone	LW136090	TCRT25/1260	24/03/2027
E Svan 957	Sound Level Meter	23202	TCRT25/1263	24/03/2027
Svan SV12L	Preamp	33542	TCRT25/1263	24/03/2027
MTG MK255	Microphone	15795	TCRT25/1263	24/03/2027
RION NC74	Calibrator	34262041	TCRT26/2271	16/4/2027

Table 1: Instrumentation

5.0 MEASUREMENT RESULTS

5.1 Background Levels

During the measurements on Thursday 23rd July 2026, the weather conditions were 10% cloud cover and a temperature of around 20-25 degrees Centigrade, and with a wind of 10-15 kph i.e. less than 5 m/s with the direction generally from the west sector.

Wind through foliage and distant traffic were the main sources of background noise at the time of the assessment.

Date & End time	Duration	LAmax,F	LAmin	LAeq	LA01	LA10	LA50	LA90
23/07/2026 11:19:40	00:15:00	73	24	49.1	62	50.3	33.8	26.9
23/07/2026 11:34:40	00:15:00	68.1	25.4	48.5	59.7	50.8	36.7	30.3
23/07/2026 11:49:40	00:15:00	77.6	26.6	48	59.6	45.3	34	29.5
23/07/2026 12:04:40	00:15:00	73.8	30.2	48.9	62.6	46.8	37.8	33.4
23/07/2026 12:19:40	00:15:00	70.1	30.6	47.8	60.9	48.2	38.3	34
23/07/2026 12:34:40	00:15:00	78.8	31.6	52.9	64.8	49.7	39.9	35.3
23/07/2026 12:49:40	00:15:00	74.6	32.2	49.2	61.3	49.4	40.6	36
23/07/2026 13:04:40	00:15:00	78.2	32.5	54.1	66.8	50.5	42.8	37.1
23/07/2026 13:19:40	00:15:00	66.7	34.1	48.1	61.6	49.7	40.8	36.5
23/07/2026 13:34:40	00:15:00	70.7	31.3	50.3	63.6	49.7	41	35.8
23/07/2026 13:49:40	00:15:00	66.8	29.1	48	62.2	46.7	36.1	32.4
23/07/2026 14:04:40	00:15:00	71	30.3	50.4	64.7	49.5	36.6	32.5
23/07/2026 14:19:40	00:15:00	68.8	29.6	48.3	61.6	48.3	36.9	33.9
23/07/2026 14:34:40	00:15:00	68.6	30.5	45.1	57.8	41.2	36.7	33
23/07/2026 14:43:26	00:08:46	73.2	32.7	52	64.9	53	41.6	37.1

Table 2: Background noise levels [dBA free field]

The average of the above LA90 results was 34 LA90, and a plot of the distribution of the results [as per Sn.8.0 of BS4142] is shown in Figure 3 below:

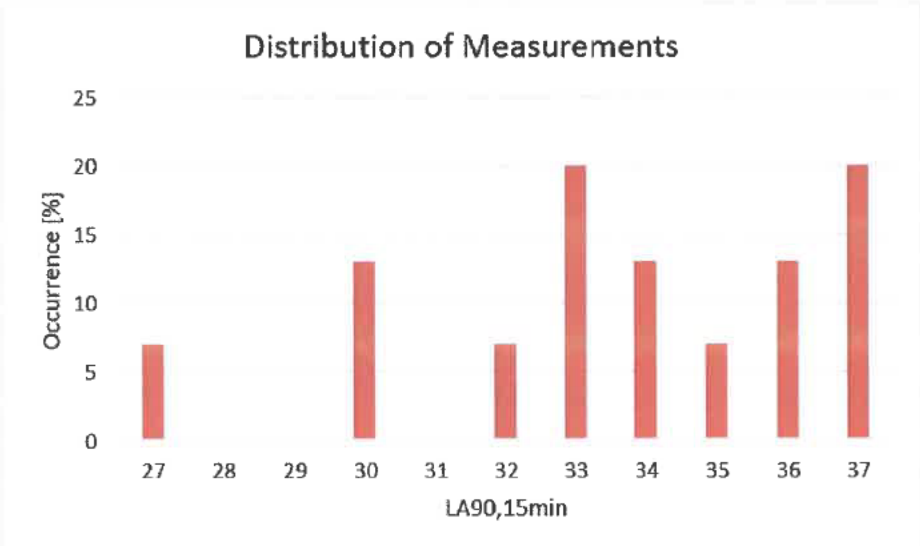

Figure 3: Measurement Results [dBA free-field]

Based on the above it seems reasonable to assume a figure of 33 LA90 as being the background noise level.

5.2 Sound Propagation

Using the sound level meter 'C' in Table 1 above and a PA speaker fed with pink noise, a very loud continuous noise was generated within the existing building ["welding and fabrication" in Figure 2] with the main doors at the western end of the building open; the reverberant sound pressure level was measured internally in terms of the LAeq in each octave band. The corresponding sound level in the gateway to High Head (see Figure 1) was similarly measured, as well as the residual level at this location; the difference in each octave band was used to derive a sound correction term taking into account such factors as distance from the building, the sound insulation capabilities of the building.

Measuremt Location	Condition	LAeq	Octave Band Centre Frequency [Hz] 63	125	250	500	1k	2k	4k
Inside Existing Bldg	Sound Source ON	99.7	88.6	102.4	98.1	94.5	90.3	93.7	93.4
High Head Gateway	Sound Source ON	52.7	58	65.7	53.6	50.4	42.5	40	40
High Head Gateway	Sound Source OFF	32.2	41	33	29.3	28.3	26.2	24.8	24.2
High Head Gateway	Compressor ON	45.8	42.4	45.1	39.9	42	42.8	37.4	34.4
High Head Gateway	Sound Source-Specific Level	52.7	57.9	65.7	53.6	50.4	42.4	39.9	39.9
High Head Gateway	Compressor-Specific Level	45.6	41.0	44.8	39.5	41.8	42.7	37.2	34.0
Diff between Int & External		--	30.7	36.7	44.5	44.1	47.9	53.8	53.5

Table 3: Propagation Measurements & Predictions

5.3 Predicted Levels

The above "Diff between Int & External" factors can be used to establish the likely noise level at the nearest point [gateway] of the nearest property, High Head, based on an assumed typical level inside the existing building.

Martec [Ref.9872] recently made measurements at a similar but larger facility producing structures and machinery for agricultural clients; they had approximately 20 employees working in their "welding and fabrication" area, and the internal measured "typical" level when welding, hammering grinding etc was occurring was 79.0 LAeq.

The above level can be compared with measurements made at a vehicle repair shot with four employees where the corresponding "typical" level with welding, hammering, grinding, wheel balancing etc was taking place was 71.9 LAeq [Martec Ref.9563], or a "two man MOT" garage with a calculated typical level of 74.9 LAeq including a horn and brake test [Martec Ref.9329], or a one man agricultural fabrication and vehicle repair [tractors] facility where, based on measurements, the predicted internal "typical" level was 68.3 LAeq [Martec Ref.5920].

At the application site, there would be a maximum of two people working, so it seems reasonable to assume a typical level in the low to mid-seventies, say 73.0 LAeq. Table 4 below shows the predicted level for activities in the "welding and fabrication" area:

Measurernt Location	Condition	LAeq	Octave Band Centre Frequency [Hz] 63	125	250	500	1k	2k	4k
Internal - Martec Ref. 9872	Adjusted to	73.0	60.9	62.5	61.2	64.6	67.7	68.0	64.5
Diff between Int & External		–	30.7	36.7	44.5	44.1	47.9	53.8	53.5
High Head Gateway	Predicted Level	23.4	30.2	25.8	16.7	20.5	19.8	14.2	11.0

Table 4: Predicted Level produced by "Typical" activities in the "welding and fabrication" area

6.0 ASSESSMENT OF RESULTS

It will be recalled that the background noise level was 33 LA90, as compared with the predicted noise level of 23 LAeq, which is 10dB below the background level, i.e. the background will tend to mask the impact of noise from the building; nevertheless, in the BS4142 assessment in Table 5 below it has been assumed that tonal noise will be just apparent and that impulsive noise will be clearly apparent:

Condition	Level
Specific Noise Level	23
Tonal Correction	+2
Impulsive Character	+6
Other Character	0
Intermittancy	0
Rating Level [Specific + Character Correction]	31
Background Noise Level LA90	33
Excess over Background	-2
Indication of Low Impact, depending on the context	

Table 5: BS4142 Assessment – High Head – Welding Fabrication

Measurements of the compressor would not be masked by background noise; however, the say 2 minutes of operation per hour would reduce the average hourly noise level, albeit that the intermittency of the operation would tend to be noticeable. The assessment appears at Table 6.

Condition	Level
Measured Ambient Level	45.8
Residual Level	32.2
Specific Noise Level	45.6
Specific Noise Level - 2min/hour	30.8
Tonal Correction	0
Impulsive Character	0
Other Character	0
Intermittancy	+3
Rating Level [Specific + Character Correction]	34
Background Noise Level LA90	33
Excess over Background	1
Indication of Low Impact, depending on the context	

Table 6: BS4142 Assessment – High Head – Compressor

In reaching the above conclusions, it should be borne in mind that for most of the time, operations would produce little noise and that the above probably represents a significantly higher noise level than the typical situation; it is understood that this would be a rare occurrence, if noise levels were higher than the above.

6.2 Discussion

It is a requirement of BS4142:2014 that uncertainty within the assessment it considered:

1. Background noise in can be variable and possibly modal, depending on the wind direction; however, the background noise levels were measured over a representative midweek day it is considered that the appropriate level of background noise has been established.

2. BS.4142 assessments are based on using a single hour to represent the specific noise level [noise being investigated] and compared against a single figure to represent background noise levels; background noise levels often vary significantly and BS4142 outlines a procedure to select the representative background [not the worst case]; unfortunately no guidance is given when the specific noise level varies very significantly; however, it must be assumed that a "representative" specific noise level should also be selected [i.e., not the worst case]; here there is likely to be a very wide variation in hourly noise levels, and there will be many hours of working days when little of no noise occurs and the approach outlined above will result in a significant overestimate of the typical impact.

Overall, it is considered that the approach is in accord with the standard and that the assessment is reasonably robust.

7.0 CONCLUSIONS

The above assessment indicates that the noise impact of the proposed operations would be "Low" as defined in BS.4142.

Overall, it is considered that the noise impact of the development should be acceptable in planning terms.

APPENDIX 1

EXPLANATION OF ACOUSTIC TERMS

The dB or the decibel, is the unit of noise. The number of decibels or the level, is measured using a sound level meter. It is common for the sound level meter to filter or 'weight' the incoming sound so as to mimic the frequency response of the human ear. Such measurements are designated **dB(A)**.

A doubling of the sound is perceived, by most people, when the level has increased by 10 dB(A). The least discernible difference is 2 dB(A). Thus, most people cannot distinguish between, say 30 and 31 dB(A).

The Background level of noise is most commonly represented by the level which is exceeded for 90% of the time i.e. the LA90.

If a noise varies over time then the **equivalent continuous level, or LAeq**, is the notional constant level of noise which would contain the same amount of acoustic energy as the time varying noise.

The following table gives an approximate indication of the comparative loudness of various noises expressed in terms of the A weighted scale:

Source of noise	dB(A)	Nature of Noise
Inside Quiet bedroom at night	25-30	Very Quiet
Quiet office	40-45	
Rural background noise	35-45	
Normal conversational level	55-65	
Busy restaurant	65-75	
Inside suburban electric train	70-80	
Hand clap @ 1m	75-85	
HGV accelerating @ 5m away	85-90	Very Loud

APPENDIX 2

QUALIFICATIONS AND EXPERIENCE OF M. A. KENYON

My full name is Melville Alexander Kenyon. I am the principal of the firm of Martec Environmental Consultants Ltd, a consultancy company that specialises in environmental noise assessment and control. I graduated in 1982 with a Bachelor's degree in Engineering and subsequently a Master's degree in Environmental Acoustics. I have been a corporate member of the professional body for noise and vibration specialists, the Institute of Acoustics, since 1988, and have sat on the British Standards Committee dealing with noise in buildings [BS.8233:1999].

I have lectured at Liverpool John Moores University on the Diploma of Acoustics course and at Manchester Metropolitan University on their Environmental Health degree course. I have been an MSc Dissertation Supervisor at The University of Manchester.

The firm of Martec Environmental Engineering was formed in the 1970's and joined The Association of Noise Consultants in 1996. It is now known as Martec Environmental Consultants Ltd.

Since its formation, Martec has advised many groups of both residents and developers about the problems of noise and vibration in the environment.