APPENDIX 3

HEPWORTH
ACOUSTICS
Noise and Vibration Consultants

COTTAGE FARM, NORTON JUXTA TWYCROSS, ATHERSTONE

USE OF LAND FOR LANDING AND TAKE-OFF OF MICROLITE AIRCRAFT
NOISE IMPACT ASSESSMENT

Report No. 10248.1v2

September 2009

On behalf of:
William Corbett Farms Ltd

DEVELOPMENT SERVICES
14 OCT 2009
RECEIVED

Report No. 10248.1v2

September 2009

COTTAGE FARM, NORTON JUXTA TWYCROSS, ATHERSTONE

USE OF LAND FOR LANDING AND TAKE-OFF OF MICROLIGHT AIRCRAFT NOISE IMPACT ASSESSMENT

Report prepared by:
Hepworth Acoustics Ltd
The Old Vicarage, Market Place
Castle Donington, Derbyshire
DE74 2JB

On behalf of:
William Corbett Farms Ltd
Cottage Farm, Cottage Lane
Norton Juxta Twycross
Atherstone, Warwickshire
CV9 3QH

Report prepared by: Richard Housley BSc MIOA – Principal Consultant	[redacted]
Report checked by: Matthew Gascoigne BSc CEng MICE MIOA – Regional Director	[redacted]

DEVELOPMENT SERVICES
14 OCT 2009
RECEIVED

CONTENTS

		PAGE
1.0	INTRODUCTION	1
2.0	DESCRIPTION OF SITE AND ACTIVITIES	2
3.0	NOISE SURVEYS	4
4.0	NOISE CRITERIA	7
5.0	NOISE IMPACT ASSESSMENT	9
6.0	RECOMMENDATIONS	13
7.0	CONCLUSIONS	14
FIGURE 1. LOCATION OF AIRSTRIP AND NOISE SENITIVE PROPERTIES		15
FIGURE 2. MICROLIGHT FLIGHTPATH CORRIDORS		16
APPENDIX I – NOISE UNITS AND INDICES		17
APPENDIX II – EXISTING NOISE – SURVEY RESULTS		19
APPENDIX III – RESULTS OF MICROLIGHT NOISE SURVEY		22

DEVELOPMENT SERVICES

14 OCT 2009

RECEIVED

1.0 INTRODUCTION

1.1 Hepworth Acoustics Limited was commissioned by William Corbett Farms Ltd to carry out an assessment of noise associated with the take-off and landing of microlight aircraft from land at Cottage Farm, Norton Juxta Twycross, Atherstone, Warwickshire CV9 3QH.

1.2 Permission is being sought for the continued use of the land for the take-off and landing of microlight aircraft.

1.3 The various noise units and indices referred to in this report are described in Appendix I. All noise levels mentioned in the text have been rounded to the nearest decibel, as fractions of decibels are imperceptible.

DEVELOPMENT SERVICES
14 OCT 2009
RECEIVED

E-mail: eastmidlands@hepworth-acoustics.co.uk
Tel: 01332 856324

2.0 DESCRIPTION OF SITE AND ACTIVITIES

Site of Airstrip

2.1 The land used for the take-off and landing of microlight aircraft is at Cottage Farm, Cottage Lane, Norton Juxta Twycross, Atherstone, Warwickshire, CV9 3QH.

2.2 The site lies in a rural area just to the north of the village of Norton Juxta Twycross between Tamworth and Leicester. The site is approximately 2km southeast of the M42 and 1km east of the A444.

2.3 The area surrounding the airstrip is primarily rural with farms, scattered villages and houses.

2.4 The airstrip lies in an isolated position at the north end of an agricultural field approximately 450m north of the farmhouse at Cottage Farm.

2.5 The airstrip is approximately 400m long and runs southwest – northeast.

2.6 Other than the farmhouse at Cottage Farm the closest noise sensitive properties to the airstrip are:
A: Cottage on the northern edge of Norton Juxta Twycross approximately 850m to the south.
B: Redhill Farm approximately 1100m to the north, northwest.

2.7 The airstrip lies in a designated airspace 'corridor' between airspace controlled by 'Air Traffic Control' at 'Birmingham Airport' to the west and 'East Midlands Airport' to the east. The airspace corridor is used by non commercial and military aircraft as a route through the centre of the country. The air space corridor has a series of 'Visual Reporting Points' (VRP) which pilots of light aircraft flying under 'Visual Flight Rules' (VFR) use to check their position.

See Figure 1

DEVELOPMENT SERVICES
14 OCT 2009
RECEIVED

Airstrip Activities

2.8 All of the aircraft using the airstrip are microlights which are defined as an aeroplane designed to carry not more than 2 persons which has:

i) A maximum weight not exceeding
- 300kg for a single seat landplane
- 450kg for a two seat landplane

ii) Either a wing loading at the maximum weight authorised not exceeding 25kg/m^2 or a stalling speed at the maximum weight authorised not exceeding 35 knots calibrated airspeed.

2.9 Microlight aircraft essentially fall into two categories:

i) Weightshift or flexiwing type aircraft where a trike unit is suspended under a wing evolved from the hang glider.

ii) A 3-axis type aircraft which has a fixed wing and looks like a traditional light aircraft but is covered by the definitions detailed in 2.8 above. It is understood that fixed wing microlights are generally quieter than the 'weightshift / flexiwing' type as they have enclosed engines.

2.10 Microlights are required to fly no closer than 152m (500ft) to any person, vessel, vehicle or structure except during take-off and landing.

2.11 Microlights using the Cottage Farm airstrip keep to a defined set of flight corridors to avoid undue disturbance to noise sensitive properties. The flight corridors are shown in Figure 2. The designated flight corridors mean that microlights using the airstrip come no closer than 500m to A: The Cottage, Norton Juxta Twycross or 1100m to B: Redhill Farm. (See Figure 1)

2.12 Microlights are powered by small 2 stroke or 4 stroke engines.

DEVELOPMENT SERVICES
14 OCT 2009
RECEIVED

3.0 NOISE SURVEYS

Survey of Noise Levels at Nearby Residential Properties

3.1 To establish the typical existing noise levels at residential properties close to the airstrip and the flight path of any aircraft using the airstrip noise levels were measured at the two fixed locations shown in Figure 1.

Location A: The Cottage, to the north of the property in the garden.

Location B: On Cottage Farm land approximately 480m north-northwest of the airstrip. This location was as close as measurements could be obtained to Redhill Farm without venturing onto the owners land. Although some distance from any residential property measurements obtained at this location were considered to be representative of noise levels at the property (indeed, as the survey location was further from any main road than Redhill Farm, it was considered to be a quieter location than the property).

3.2 Noise survey measurements were taken at during the following periods:

Location A: 1930hrs Friday 24/07/2009 – 1415hrs Saturday 25/07/2009
1300hrs Monday 24/08/2009 – 2100hrs Tuesday 24/08/2009

Location B: 1300hrs Monday 24/08/2009 – 2100hrs Tuesday 24/08/2009

3.3 The airstrip was not used during the noise survey periods

3.4 The noise survey measurements were obtained using:

Location A: 24-25/07/2009 – Larsen Davis 824 Type 1 sound level meter
24-26/08/2009 – Rion NL 31 Type 1 sound level meter

Location B: 24-26/08/2009 – Rion NA 28 Type 1 sound level meter

3.5 Noise was measured in terms of broadband A-weighted indices and third octave band noise measurements. Measurements were carried out at fixed locations approximately 1.5m above ground level in free-field conditions. Calibration checks were carried out both before and after the measurements with no variance observed. Weather conditions were dry and calm.

E-mail: eastmidlands@hepworth-acoustics.co.uk
Tel: 01332 856324

DEVELOPMENT SERVICES
14 OCT 2009
RECEIVED

3.6 The noise levels measured during the survey are summarised in Table 1. The full noise survey results are given in Appendix II.

Table 1. Summary of Existing Noise Levels Without Aircraft Using Airstrip: 0800-2100hrs dB(A)

Location	Period	Log Average $L_{eq(11hr)}$	Range $L_{eq(1hr)}$	Range L_{max}
A	Monday	47	39 - 52	52 - 80
	Tuesday	48	41 - 56	64 - 89
	Weekend	43	40 - 47	62 - 72
B	Monday	52	39 - 57	56 - 80
	Tuesday	55	42 - 63	59 - 87

3.7 At both survey locations the main sources of noise was from road traffic on the A444 and M42 and occasional noise from general aviation and commercial aircraft overflights.

Survey of Microlight Noise

3.8 A survey of the noise levels from microlights was carried out during the afternoon of Saturday 25th July 2009.

3.9 A survey location was used approximately 20m from the centre of the airstrip. Measurements were taken of the noise from the microlights as they taxied, landed and took off from the airstrip.

3.10 All measurements were obtained using a Bruel & Kjaer 2260 Type 1 sound level meter. Noise was measured in terms of broadband A-weighted indices and third octave band noise measurements. Measurements were carried out approximately 1.5m above ground level in free-field conditions.

DEVELOPMENT SERVICES
14 OCT 2009
RECEIVED

Calibration checks were carried out both before and after the measurements with no variance observed. Weather conditions were dry and calm.

3.11 The noise levels measured during the survey are summarised in Table 2. The full noise survey results are given in Appendix III.

Table 2. Summary of Noise from Microlights – dB(A)

Activity	Average SEL	$L_{max(fast)}$
Taxi-ing @ 10m	83	76
Landing @ 10m	86	79
Takeoff @ 10m	97	95

DEVELOPMENT SERVICES
14 OCT 2009
RECEIVED

E-mail: eastmidlands@hepworth-acoustics.co.uk
Tel: 01332 856324

4.0 NOISE CRITERIA

4.1 In undertaking the assessment of noise account has been taken of the following documents:

i) Department of the Environment, PPG 24 'Planning and Noise' HMSO, 1994

ii) A Review of the application of Planning Policy Guidance Note PPG24 to General Aviation airfields, with proposals for improved guidance: P. Moore, general Aviation Awareness Council 2002.

iii) World Health Organisation – Guidelines for Community Noise (1999)

4.2 The operators are seeking daytime use of the airstrip only, therefore, only daytime noise criteria are relevant.

4.3 Department of the Environment, PPG 24 'Planning and Noise' HMSO, 1994 sets out Government policies on the considerations to be taken into account in determining planning applications for proposed residential developments. The document sets out noise exposure categories and gives advice on the suitability of the site for each category. The noise exposure categories for sites where air traffic is the main noise source is given in Table 3.

Table 3. PPG24 Noise Exposure Categories for Aircraft Noise

	Noise Exposure Category dB L_{Aeq}			
	A	**B**	**C**	**D**
Air Traffic Daytime 0700-2300hrs	< 57	57 - 66	66 – 72	>72

DEVELOPMENT SERVICES
14 OCT 2009
RECEIVED

4.4 The advice given for each noise exposure category is:

Category A: Noise need not be considered as a determining factor in granting planning permission, although the noise level at the high end of the category should not be regarded as a desirable level

Category B: Noise should be taken into account when determining planning applications and, where appropriate, conditions imposed to ensure an adequate level of protection against noise.

Category C: Planning permission should not normally be granted. Where it is considered that permission should be given, for example because there are no alternative quieter sites available, conditions should be imposed to ensure a commensurate level of protection against noise.

Category D: Planning permission should normally be refused.

4.5 The level of 57dB L_{Aeq} (0700-2300hrs) was chosen as the boundary for NEC A and NEC B because previous noise measurement and social survey research has identified this level as the on set of annoyance for aircraft noise.

4.6 The level of 57dB L_{Aeq} (0700-2300hrs) has therefore become the starting point for setting noise limits applying for new or expanding airfields.

4.7 PPG24 does, however, go on to state (Annex 3, Para 7) that for small aerodromes planning authorities should not rely solely on L_{eq} where this is based on less than about 30 movements a day. The document does not give further guidance on any alternative parameters that should be used in any assessment.

4.8 Further guidance on acceptable levels of environmental noise is provided in the World Health Organisation (WHO) 'Guidelines for Community Noise'. The WHO guidelines suggests that '*to protect the majority of people from being seriously annoyed during the day time the sound pressure level in outdoor living areas should not exceed 55 dB* $L_{Aq(16hr)}$.'

DEVELOPMENT SERVICES
14 OCT 2009
RECEIVED

5.0 NOISE IMPACT ASSESSMENT

5.1 The impact of noise from the airstrip has been considered in detail for the two closest noise sensitive properties detailed in 2.6.

Comparison with PPG24 and WHO Noise Limiting Criteria

5.2 Noise from microlight aircraft using the airstrip has been compared with the following criteria after discussion in Section 4:

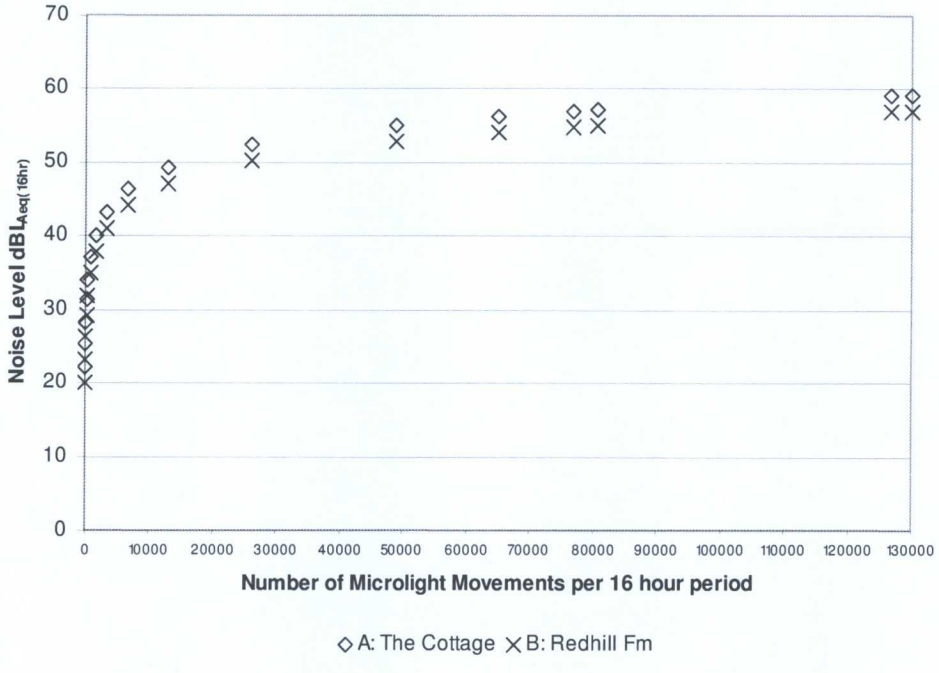
i) The noise level of 57dB $L_{Aeq(16hr)}$ (0700-2300hrs) derived from PPG24 which has become the starting point for setting noise limits applying for new or expanding airfields.

ii) The noise level of 55dB $L_{Aeq(16hr)}$ (0700-2300hrs) considered by WHO to be the upper limit for outdoor living areas.

5.3 The calculations include an allowance for taxi-ing for every take-off or landing of a microlight and take into account distance attenuation and attenuation due to ground absorption (taxi-ing only). See Plot 1.

DEVELOPMENT SERVICES
14 OCT 2009
RECEIVED

Plot 1: dB $L_{Aeq(16hr)}$ Noise Levels at Closest Noise Sensitive Properties



5.4 The number of microlight movements required to meet the noise limiting criteria detailed in 5.2 at the two closest properties are detailed in Table 4.

Table 4. Number of Microlight Movements Required to Meet dB $L_{Aeq(16hr)}$ Noise Limiting Criteria

Noise Limiting Criteria	No. Movements Required	
	A: The Cottage	B: Redhill Farm
PPG24: 57dB $L_{Aeq(16hr)}$	76750	126750
WHO: 55dB $L_{Aeq(16hr)}$	48750	80600

5.5 As the results of Plot 1 and Table 4 show, there is little likelihood of noise from microlight movements exceeding the 16 hour L_{Aeq} noise limiting criteria based on recommendations of PPG24 or WHO.

DEVELOPMENT SERVICES
14 OCT 2009
RECEIVED

E-mail: eastmidlands@hepworth-acoustics.co.uk
Tel: 01332 856324

Comparison with Existing Noise Levels at Closest Noise Sensitive Properties

5.6 As outlined in 4.7 above, PPG24 (Annex 3, Para 7) suggests that for small aerodromes planning authorities should not rely solely on L_{Aeq}. This is taken as not relying solely on the 16 hour L_{Aeq}. In the absence of any further guidance in PPG24 noise due to microlight movements has been compared with existing 1 hour L_{Aeq} and L_{Amax} noise levels.

5.7 1 hour L_{Aeq} and $L_{Amax(fast)}$ noise levels associated with microlight movements have been calculated for the two closest noise sensitive properties and then compared with the lowest measured $L_{Aeq(1hr)}$ and range of $L_{Amax(fast)}$ noise levels measured at the 2 survey locations. The calculations include an allowance for taxi-ing for every take-off or landing of a microlight. Calculations also take into account distance attenuation and attenuation due to ground absorption (taxi-ing only). The results are summarised in Table 5.

Table 5. Noise levels at Noise Sensitive Properties Due to Microlight Movements

No. microlight movements*	Noise Level at A: The Cottage		Noise Level at B: Redhill Farm	
	dB $L_{Aeq(1hr)}$	dB $L_{Amax(fast)}$	dB $L_{Aeq(1hr)}$	dB $L_{Amax(fast)}$
1 / hour	23.2	56.4	21.0	54.2
5 / hour	29.9	56.4	27.7	54.2
10 / hour	32.9	56.4	30.7	54.2
15 / hour	34.7	56.4	32.4	54.2
20 / hour	35.9	56.4	33.7	54.2
25 / hour	36.9	56.4	34.6	54.2
30 / hour	37.7	56.4	35.4	54.2
35 / hour	38.3	56.4	36.1	54.2
40 / hour	38.9	56.4	36.7	54.2

** Each microlight movement = landing + taxi-ing OR taxi-ing + take-off*

DEVELOPMENT SERVICES
14 OCT 2005
RECEIVED

E-mail: eastmidlands@hepworth-acoustics.co.uk
Tel: 01332 856324

5.8 At A: The Cottage the lowest measured 1 hour L_{Aeq} noise level 39dB $L_{Aeq(1hr)}$ with individual noise events of 52-89dB $L_{Amax(fast)}$.

5.9 At B: Redhill Farm the lowest measured 1 hour L_{Aeq} noise level 39dB $L_{Aeq(1hr)}$ with individual noise events of 56-87dB $L_{Amax(fast)}$.

5.10 By comparison of the calculated noise levels in Table 5 and the existing noise levels at the two closest noise sensitive properties it is suggested that the airstrip should be restricted to an upper limit of 35 microlight movements per hour.

5.11 A maximum of 35 microlight movements per hour would result in noise levels, due to microlights, of 38.3dB $L_{Aeq(1hr)}$ at A: The Cottage and 36.1B $L_{Aeq(1hr)}$ at B: Redhill Farm. When combined with the lowest existing noise levels of 39dB $L_{Aeq(1hr)}$ at both properties this would result in increases in noise ambient levels of less than 2.7dB $L_{Aeq(1hr)}$ at A: The Cottage or less than 1.8dB $L_{Aeq(1hr)}$ at B: Redhill Farm.

5.12 It is stated in, PPG 24 'Planning and Noise' (Department of the Environment HMSO, 1994) that a change of 3dB(A) is the minimum perceptible under normal circumstances. Therefore, microlight aircraft using the airstrip are not expected to result in a perceptible increase in ambient noise levels at the closest noise sensitive residential properties.

5.13 The maximum noise levels due to microlight movements have been calculated to be 56dB $L_{Amax(fast)}$ at A: the Cottage and 54dB $L_{Amax(fast)}$ at Redhill Farm. These levels are at the bottom end of the range of maximum noise levels experienced at The Cottage and below the range of maximum noise levels experienced at Redhill Farm when the airstrip is not in use.

DEVELOPMENT SERVICES
14 OCT 2009
RECEIVED

6.0 RECOMMENDATIONS

6.1 Activity at the airstrip should be limited to 35 microlight aircraft movements per hour.

6.2 A microlight movement is defined as:

Taxi-ing + Take-Off OR Landing + Taxi-ing

6.3 Microlights must keep within the flightpath corridors as shown in Figure 2.

6.4 The airstrip must only be used by microlight aircraft.

DEVELOPMENT SERVICES
14 OCT 2009
RECEIVED

7.0 CONCLUSIONS

7.1 A noise impact assessment has been carried out for the continued use of an airstrip by microlight aircraft at Cottage Farm, Norton Juxta Twycross, Atherstone, Warwickshire CV9 3QH.

7.2 Surveys were carried out in July and August 2009 of the existing noise levels at the closest noise sensitive properties. A survey was carried out in August 2009 of the noise levels associated with the normal operation of microlight aircraft.

7.3 The impact of noise from microlight aircraft using the airstrip has been assessed for the two closest noise sensitive properties.

7.4 Recommendations have been made for the control of noise from microlight aircraft.

7.5 If the recommendations are followed:

i) Noise levels due to microlight movements at the closest noise sensitive properties will be significantly below the noise limiting criteria detailed in:

- Department of the Environment, PPG 24 'Planning and Noise' HMSO, 1994
- World Health Organisation – Guidelines for Community Noise – 1999

ii) Noise from microlight movements will not result in a perceptible ncrease in ambient 1 hour L_{Aeq} noise levels at the closest noise sensitive properties.

iii) Maximum $L_{Amax(fast)}$ noise levels from microlight movements will be at the bottom end, or below, the range of maximum $L_{Amax(fast)}$ noise levels currently experienced at the closest noise sensitive properties when the airstrip is not in use.

7.6 The continued use of the airstrip at Cottage Farm by microlight aircraft will not have a detrimental impact upon the amenity of the occupants of nearby residential properties. It is therefore recommended that permission for the continued use of the airstrip should not be refused on noise grounds.

DEVELOPMENT SERVICES
14 OCT 2009
RECEIVED

FIGURE 1. LOCATION OF AIRSTRIP AND NOISE SENITIVE PROPERTIES



DEVELOPMENT SERVICES
14 OCT 2009
RECEIVED

FIGURE 2. MICROLIGHT FLIGHTPATH CORRIDORS



DEVELOPMENT SERVICES
14 OCT 2009
RECEIVED

APPENDIX I – NOISE UNITS AND INDICES

a) Sound Pressure Level and the decibel (dB)

A sound wave is a small fluctuation of atmospheric pressure. The human ear responds to these variations in pressure, producing the sensation of hearing. The ear can detect a very wide range of pressure variations. In order to cope with this wide range of pressure variations, a logarithmic scale is used to convert the values into manageable numbers. Although it might seem unusual to use a logarithmic scale to measure a physical phenomenon, it has been found that human hearing also responds to sound in an approximately logarithmic fashion. The dB (decibel) is the logarithmic unit used to describe sound (or noise) levels. The usual range of sound pressure levels is from 0 dB (threshold of hearing) to 120 dB (threshold of pain).

b) Frequency and hertz (Hz)

As well as the loudness of a sound, the frequency content of a sound is also very important. Frequency is a measure of the rate of fluctuation of a sound wave. The unit used is cycles per second, or hertz (Hz). Sometimes large frequency values are written as kilohertz (kHz), where 1 kHz = 1000 Hz.

Young people with normal hearing can hear frequencies in the range 20 Hz to 20,000 Hz. However, the upper frequency limit gradually reduces as a person gets older.

c) Glossary of Terms

When a noise level is constant and does not fluctuate, it can be described adequately by measuring the dB level. However, when the noise level varies with time, the measured dB level will vary as well. In this case it is therefore not possible to represent the noise climate with a simple dB value. In order to describe noise where the level is continuously varying, a number of other indices can be used. The index used in this report is described below together with a glossary of terms.

DEVELOPMENT SERVICES
14 OCT 2009
RECEIVED

L_{eq} This is the 'equivalent continuous noise level' which is an average of the total sound energy measured over a specified time period. In other words, L_{eq} is the level of a continuous noise which has the same total energy as the real fluctuating noise, measured over the same time period.

L_{Amax} This is the maximum A-weighted noise level that was recorded during the monitoring period.

L_{A10} This the A-weighted noise level exceeded for 10% of the time period. L_{A10} is used as a measure of traffic noise.

L_{A90} This is the A-weighted noise level exceeded for 90% of the time period. L_{A90} is used as a measure of background noise.

SEL This is the 'single event level', which is an average of the total sound energy of a single noise event, 'compressed' into 1 second. SEL is thus the level of a continuous noise lasting 1 second, which has the same total (A-weighted) energy as the entire real fluctuating noise event. It is usually used to measure short duration single events, such as trains passing by.

DEVELOPMENT SERVICES
14 OCT 2009
RECEIVED

APPENDIX II – EXISTING NOISE – SURVEY RESULTS

Noise Survey at A: The Cottage, Norton Juxta Twycross

Date: Saturday 25th July 2009

Equipment: Larsen Davis 824 sound level meter

Weather: Dry and calm

Saturday 25th July 2009

Start time	Freefield Noise Level - dB(A)				Comments
	Leq	Lmax	L10	L90	
07:00	44.8	61.6	46.5	41.9	Noise from distant road traffic and occasional commercial aircraft Airstrip not in use
08:00	40.4	65.3	40.8	34.9	
09:00	39.8	62.1	40.4	34.8	
10:00	41.4	63.5	42.1	36.3	
11:00	46.9	72.4	45.8	37.1	
12:00	42.8	67.2	44.1	37.2	
13:00	41.6	62.7	42.3	36.2	
Av	**42.9**	**-**	**42.6**	**36.1**	



Date: Monday 24th August – Tuesday 25th August 2009

Equipment: Rion NL-31 Type 1 sound level meter

Weather: Dry and calm

Monday 24th August 2009

Start time	Freefield Noise Level - dB(A)				Comments
	Leq	Lmax	L10	L90	
13:02	40.0	64.3	40.1	31.9	
14:02	48.7	76.0	43.9	37.2	
15:02	47.0	71.1	45.1	40.9	Noise from distant road
16:02	44.0	70.2	43.5	38.6	traffic and occasional
17:02	51.7	79.2	47.6	37.0	commercial aircraft
18:02	49.7	79.7	44.0	36.5	Airstrip not in use
19:02	39.2	61.0	41.1	35.8	
20:02	40.4	52.1	42.3	37.4	
Av	**47.2**	**-**	**43.4**	**36.9**	

Tuesday 25th August 2009

Start time	Freefield Noise Level - dB(A)				Comments
	Leq	Lmax	L10	L90	
07:02	44.9	66.7	45.9	41.0	
08:02	43.3	67.3	42.7	38.3	
09:02	44.7	71.6	44.6	38.1	
10:02	44.3	68.8	44.4	38.3	
11:02	43.8	66.4	44.6	39.0	
12:02	48.5	71.0	45.7	39.2	Noise from distant road
13:02	44.9	70.0	45.0	40.0	traffic and occasional
14:02	55.8	88.8	48.9	40.7	commercial aircraft
15:02	50.2	77.7	47.1	39.9	Airstrip not in use
16:02	46.4	70.8	46.0	40.0	
17:02	44.7	66.2	45.7	41.2	
18:02	43.2	66.5	43.9	39.5	
19:02	41.4	65.9	42.5	38.0	
20:02	41.4	64.2	43.1	37.1	
Av	**47.9**	**-**	**44.9**	**39.2**	

DEVELOPMENT SERVICES
14 OCT 2009
RECEIVED

Noise Survey at B: Cottage Farm – 480m north of airstrip

Date: **Monday 24th August – Tuesday 25th August 2009**

Equipment: Rion NA-28 Type 1 sound level meter

Weather: Dry and calm

Monday 24th August 2009

Start time	Freefield Noise Level - dB(A)				Comments
	Leq	Lmax	L10	L90	
13:02	44.2	69.0	39.9	33.3	
14:02	56.8	80.3	49.0	38.7	
15:02	56.9	79.2	49.8	42.9	Noise from distant road
16:02	46.7	75.6	44.0	40.2	traffic and occasional
17:02	45.0	63.4	46.3	37.9	commercial aircraft
18:02	41.7	68.0	42.6	37.0	Airstrip not in use
19:02	39.3	55.5	41.2	35.8	
20:02	42.5	75.9	42.9	38.3	
Av	**51.5**	**-**	**44.5**	**38.0**	

Tuesday 25th August 2009

Start time	Freefield Noise Level - dB(A)				Comments
	Leq	Lmax	L10	L90	
07:02	57.5	79.3	52.3	43.0	
08:02	62.7	80.3	62.6	41.3	
09:02	61.7	87.0	49.9	38.4	
10:02	47.2	74.5	46.3	39.3	
11:02	49.2	78.3	46.0	39.7	
12:02	49.9	80.8	45.4	39.5	Noise from distant road
13:02	45.2	68.0	45.5	39.6	traffic and occasional
14:02	54.3	78.6	51.3	43.9	commercial aircraft
15:02	51.0	79.6	47.4	41.2	Airstrip not in use
16:02	45.8	74.6	47.0	41.2	
17:02	44.8	63.9	46.5	42.1	
18:02	45.2	66.2	45.8	40.4	
19:02	43.6	58.7	45.3	39.9	
20:02	42.1	65.7	43.1	39.3	
Av	**55.1**	**-**	**47.8**	**40.4**	

DEVELOPMENT SERVICES
14 OCT 2009
RECEIVED

APPENDIX III – RESULTS OF MICROLIGHT NOISE SURVEY

Noise Survey at Cottage Farm Airfield – Microlight Noise

Date: **Saturday 25th July 2009**

Equipment: Bruel & Kjaer 2260 Type 1 sound level meter

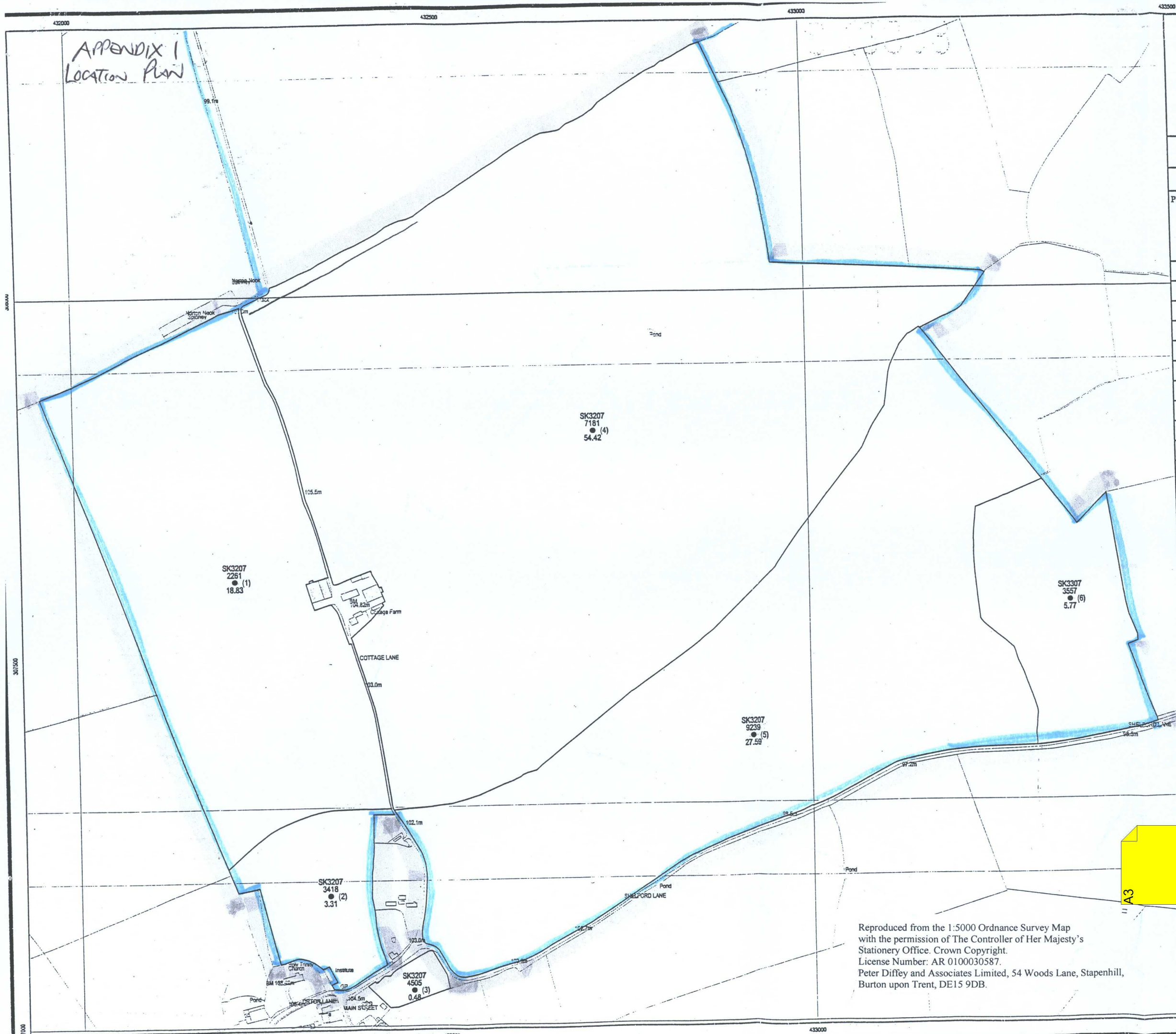
Weather: Dry and calm

Microlight movements

Comment	Measurement Distance (m)			Start	End	Duration	Measured levels (dB)			Normalised to 10m	
	Vert	Hori	Direct	Time	Time	(sec)	L_{Aeq}	$L_{Amax(f)}$	SEL	SEL	$L_{Amax(f)}$
Taxi-ing	0	5	5	16:50:31	16:50:59	28	73.3	82.2	87.8	81.8	**76.2**
Taxi-ing	0	20	20	17:08:36	17:09:25	49	61.4	70.0	78.3	84.3	76.0
Average										**83.1**	
Landing	0	20	20	17:45:35	17:46:01	26	64.7	70.9	78.9	84.9	76.9
Landing	0	20	20	17:47:04	17:47:34	30	63.8	70.4	78.6	84.6	76.4
Landing	0	20	20	17:57:35	17:58:11	36	65.9	73.3	81.5	87.5	**79.3**
Average										**85.7**	
Take-off	0	20	20	17:01:26	17:01:52	26	76.2	87.9	90.3	96.3	93.9
Take-off	0	20	20	17:10:01	17:10:45	44	75.2	89.4	91.7	97.7	**95.4**
Take-off	0	20	20	17:25:30	17:25:53	23	76.0	86.5	89.7	95.7	92.5
Average										**96.6**	

DEVELOPMENT SERVICES
14 OCT 2009
RECEIVED

APPENDIX 1
LOCATION PLAN



rpa
rural payments agency

Sheet Holding Number : 22/239/0046

Rural Land Register

Plot ID	Map Sheet OS Map Sheet	Field Nos. NG Field	Original Field Size (ha)	New Digital Field Size (ha)	Incorrect Boundary
1	SK3207	2261	18.83	18.83	
2	SK3207	3418	3.31	3.31	
3	SK3207	4505	0.48	0.48	
4	SK3207	7181	54.42	54.42	
5	SK3207	9239	27.59	27.59	
6	SK3307	3557	5.77	5.77	

A3

DEVELOPMENT SERVICES
14 OCT 2009
RECEIVED

Signed : ..... Date : .....

Reproduced from the 1:5000 Ordnance Survey Map with the permission of The Controller of Her Majesty's Stationery Office. Crown Copyright.
License Number: AR 0100030587.
Peter Diffey and Associates Limited, 54 Woods Lane, Stapenhill, Burton upon Trent, DE15 9DB.

Scale 1:5000 — Date printed : 02/03/2005 — Version : Final

0m 50m 100m 150m 200m 250m

This map is reproduced from Ordnance Survey material with the permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationery Office. © Crown copyright. Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings. DEFRA licence No 100018880 2005

Printed by : CIRL