Appendix H
ReFH Calculations

4 Pages

Revitalised FSR/FEH rainfall runoff method

Spreadsheet application report

User name	BREAR	**Catchment name**	on site tributary	**Date/time modelled**	25-Apr-2012 17:21
Company name	AMEC E&I	**Catchment easting**	374300	**Version**	1 4
Project name	Standen estate - on site tri	**Catchment northing**	440600		
		Catchment area	0 3		

Summary of model setup

Design rainfall parameters		Loss model parameters		Routing model parameters		Baseflow model parameters	
Return period (yr)	100	**C_{max} (mm)**	255	**T_p (hr)**	0 76	**BL (hr)**	18 6
Duration (hr)	3 6	**C_{ini} (mm)**	134	**U_p**	0 65	**BR**	0 96
Timestep (hr)	0 4	**α factor**	0 83	**U_k**	0 8	**BF_0 (m^3/s)**	0
Season	Winter						

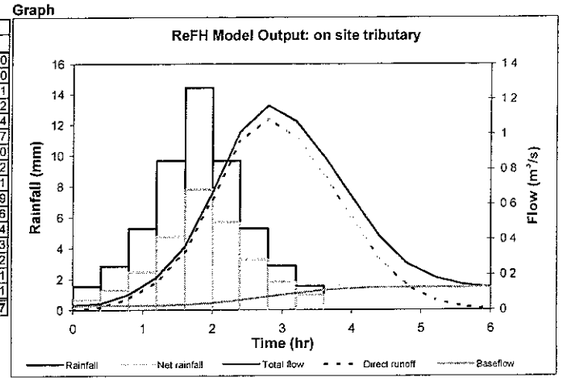
Summary of results

FEH DDF rainfall (mm)	68 1	**Peak rainfall (mm)**	14 4
Design rainfall (mm)	53 1	**Peak flow (m^3/s)**	1 2

Results

Series	Design Rainfall	Net rainfall	Direct runoff	Baseflow	Total flow
Unit	mm	mm	m^3/s	m^3/s	m^3/s
0.0	1.5	0.7	0.0	0.0	0.0
0.4	2.8	1.3	0.0	0.0	0.0
0.8	5.3	2.5	0.1	0.0	0.1
1.2	9.7	4.8	0.2	0.0	0.2
1.6	14.4	7.8	0.3	0.0	0.4
2.0	9.7	5.7	0.6	0.0	0.7
2.4	5.3	3.3	1.0	0.1	1.0
2.8	2.8	1.8	1.1	0.1	1.2
3.2	1.5	1.0	1.0	0.1	1.1
3.6	0.0	0.0	0.8	0.1	0.9
4.0	0.0	0.0	0.5	0.1	0.6
4.4	0.0	0.0	0.3	0.1	0.4
4.8	0.0	0.0	0.1	0.1	0.3
5.2	0.0	0.0	0.1	0.1	0.2
5.6	0.0	0.0	0.0	0.1	0.1
6.0	0.0	0.0	0.0	0.1	0.1
Total (mm)	53.1	28.7	28.7	6.0	34.7

Graph



Audit comments

Model run with ReFH dll version 1 4 0005

Catchment
Catchment descriptors imported from file
Catchment descriptor file = 'Pendleton csv'
Catchment decriptor file exported from CD ROM version 3
Catchment descriptor file exported on 24-Apr-2012 13:55
BFIHOST value of 0 349 used
PROPWET value of 0.54 used
SAAR value of 1275 used
DPLBAR value of 0.516966555164323 used
DPLBAR changed from imported value of 3 12 to 0 516966555164323
DPSBAR value of 35 used
DPSBAR changed from imported value of 111 8 to 35
URBEXT value of 0.0023 used
Catchment area changed from imported value of 6 34 to 0 3
C value of -0.02571 used
D1 value of 0 40198 used
D2 value of 0 37887 used
D3 value of 0.39993 used
E value of 0 30185 used
F value of 2 46836 used

Rainfall
Recommended season is Winter as URBEXT < 0.125
ReFH design standard Seasonal Correction Factor of 0.79 applied
ReFH design standard Areal Reduction Factor of 0 98 applied

Loss Model
C_{Max} derived from catchment descriptors
ReFH design standard C_{ini} used
ReFH design standard α factor used

Routing Model
T_p derived from catchment descriptors
ReFH design standard used for U_p
ReFH design standard used for U_k

Baseflow Model
BL derived from catchment descriptors
BR derived from catchment descriptors
ReFH design standard BF_0 used

Revitalised FSR/FEH rainfall runoff method

Spreadsheet application report

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Project name	Standen estate - on site tri	**Catchment northing**	440600		
		Catchment area	0 15		

Summary of model setup

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Return period (yr)	100	**C_{max} (mm)**	255	**T_p (hr)**	0 76	**BL (hr)**	18 6
Duration (hr)	3 6	**C_{ini} (mm)**	134	**U_p**	0 65	**BR**	0 96
Timestep (hr)	0 4	**α factor**	0 83	**U_k**	0 8	**BF_0 (m^3/s)**	0
Season	Winter						

Summary of results

FEH DDF rainfall (mm)	68 1	**Peak rainfall (mm)**	14 5
Design rainfall (mm)	53 3	**Peak flow (m^3/s)**	0 6

Results

Series	Design Rainfall	Net rainfall	Direct runoff	Baseflow	Total flow
Unit	mm	mm	m^3/s	m^3/s	m^3/s
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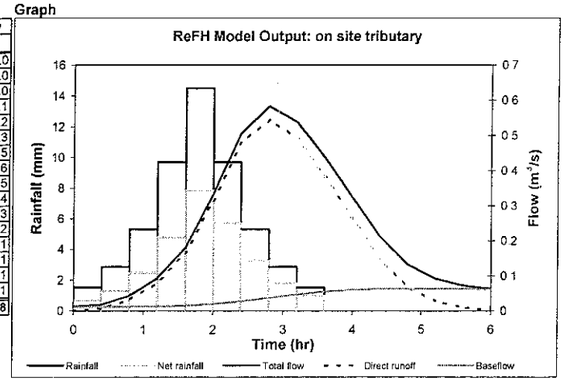
0.4	2.9	1.3	0.0	0.0	0.0
0.8	5.3	2.5	0.0	0.0	0.0
1.2	9.7	4.8	0.1	0.0	0.1
1.6	14.5	7.8	0.2	0.0	0.2
2.0	9.7	5.7	0.3	0.0	0.3
2.4	5.3	3.3	0.5	0.0	0.5
2.8	2.9	1.8	0.5	0.0	0.6
3.2	1.5	1.0	0.5	0.0	0.5
3.6	0.0	0.0	0.4	0.1	0.4
4.0	0.0	0.0	0.3	0.1	0.3
4.4	0.0	0.0	0.1	0.1	0.2
4.8	0.0	0.0	0.1	0.1	0.1
5.2	0.0	0.0	0.0	0.1	0.1
5.6	0.0	0.0	0.0	0.1	0.1
6.0	0.0	0.0	0.0	0.1	0.1
Total (mm)	53.3	28.9	28.9	6.0	34.8

Graph



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Rainfall
Recommended season is Winter as URBEXT < 0.125
ReFH design standard Seasonal Correction Factor of 0.79 applied
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Loss Model
C_{Max} derived from catchment descriptors
ReFH design standard C_{ini} used
ReFH design standard α factor used

Routing Model
T_p derived from catchment descriptors
ReFH design standard used for U_p
ReFH design standard used for U_k

Baseflow Model
BL derived from catchment descriptors
BR derived from catchment descriptors
ReFH design standard BF_0 used

7.1.1 Plant Species Lists

Tables 7.1.1 to 7.1.5 present the plant species lists collated for the vegetation and habitats within the site at Standen. All fields, ditches and hedgerow references are annotated on **Figure 7.2.**

Table 7.1.1 Plant Species Composition of the Improved Grassland in Fields 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 (part), 11 12 and 13 and A, B, C, D and E (part)

Scientific Name	Common Name	Frequency	Abundance
Agrostis capillaris	Common Bent	F	<1%
Agrostis stolonifera	Creeping Bent	LF	<1%
Alopecurus geniculatus	Marsh Foxtail	VLF	<1%
Alopecurus pratensis	Meadow Foxtail	LF*	10%
Anthoxanthum odoratum	Sweet Vernal-grass	VL	<1%
Arrhenatherum elatius	False Oat-grass	VLA	<1%
Capsella bursa-pastoris	Shepherd's-purse	VLA	<1%
Cardamine flexuosa	Wavy Bitter-cress	VL	<1%
Cardamine pratensis	Cuckooflower	VL	<1%
Centaurea nigra	Common Knapweed	R	<1%
Cerastium fontanum	Common Mouse-ear	VL	<1%
Cirsium arvense	Creeping Thistle	LF	<1%
Cirsium vulgare	Spear Thistle	VL	<1%
Dactylis glomerata	Cock's-foot	LF	3%
Epilobium montanum	Broad-leaved Willowherb	VLF	<1%
Equisetum arvense	Field Horsetail	R	<1%
Festuca rubra	Red Fescue	LF	<1%
Galium aparine	Cleavers	VL	<1%
Heracleum sphondylium	Hogweed	VL	<1%
Holcus lanatus	Yorkshire-fog	F*	10%
Holcus mollis	Creeping Soft-grass	R	<1%
Lolium perenne	Perennial Rye-grass	LD/A*	70%
Matricaria discoidea	Pineappleweed	VLA	<1%
Phleum pratense	Timothy	VL	<1%
Picris echioides	Bristly Oxtongue	R	<1%
Plantago lanceolata	Ribwort Plantain	O/LF	<1%
Plantago major	Great Plantain	VLF	<1%
Poa annua	Annual Meadow-grass	VL	<1%
Poa trivialis	Rough Meadow-grass	F*/VLA	10%
Polygonum aviculare	Knotgrass	R	<1%
Ranunculus acris	Meadow Buttercup	VL	<1%
Ranunculus repens	Creeping Buttercup	F*/LA	<1%
Rubus fruticosus agg	Bramble	VL	<1%
Rumex crispus	Curled Dock	VL	<1%
Rumex obtusifolius	Broad-leaved Dock	VO	<1%
Stellaria media	Common Chickweed	LF	<1%
Taraxacum officinalis	Dandelion	V0	<1%
Trifolium pratense	Red Clover	R	<1%
Trifolium repens	White Clover	F*	<1%
Tripleurospermum inodorum	Scentless Mayweed	LF/VLA	<1%
Urtica dioica	Common Nettle	LF	<1%
Veronica chamaedrys	Germander Speedwell	R	<1%

Key to DAFOR: D=Dominant, A=Abundant, F=Frequent, O=Occasional, R=Rare, V=Very, L=Local and *denotes a constant species

Table 7.1.2 Plant Species Composition of the Semi-improved Grassland Area in Field 10

Scientific Name	Common Name	Frequency	Abundance
Woody Species			
Acer pseudoplatanus	Sycamore	LF	<1%
Crataegus monogyna	Hawthorn	VLF	<1%
Fraxinus excelsior	Ash	LF	<1%
Quercus robur	Pedunculate Oak	LF	<1%
Rosa canina	Dog Rose	R	<1%
Herb Species			
Agrostis stolonifera	Creeping Bent	LF	1%
Alliaria petiolata	Garlic Mustard	VL	<1%
Alopecurus geniculatus	Marsh Foxtail	VL	<1%
Anthoxanthum odoratum	Sweet Vernal-grass	LF	<1%
Anthriscus sylvestris	Cow Parsley	VL	<1%
Bellis perennis	Daisy	VO	<1%
Briza media	Quaking-grass	VL	<1%
Bromus ramosus	Hairy Brome	VL	<1%
Carex flacca	Glaucous Sedge	VL	<1%
Carex hirta	Hairy Sedge	VL	<1%
Cirsium arvense	Creeping Thistle	VLF	<1%
Cirsium vulgare	Spear Thistle	VLF	<1%
Cynosurus cristatus	Crested Dog's-tail	F*	10%
Dactylis glomerata	Cock's-foot	VL	<1%
Deschampsia cespitosa	Tufted hair-grass	VLF	<1%
Dryopteris filix-mas	Male-fern	R	<1%
Epilobium montanum	Broad-leaved Willowherb	VLF	<1%
Festuca rubra	Red Fescue	F/LA*	10%
Filipendula ulmaria	Meadowsweet	VL	<1%
Fragaria vesca	Wild Strawberry	R	<1%
Galium aparine	Cleavers	R	<1%
Geranium robertianum	Herb-robert	LF	<1%
Hedera helix	Ivy	VLF	<1%
Heracleum sphondylium	Hogweed	VL	<1%
Hieracium sp.	Hawkweed species	VL	<1%
Holcus lanatus	Yorkshire-fog	F*	20%
Juncus effusus	Soft-rush	VL	<1%
Juncus inflexus	Hard Rush	VLA	<1%
Leontodon hispidus	Rough Hawkbit	R	<1%
Linum catharticum	Fairy Flax	R	<1%
Lolium perenne	Perennial Rye-grass	A*	50%
Lysimachia nummularia	Creeping Jenny	VL	<1%
Myosotis arvense	Field Forget-me-not	R	<1%
Petasites hybridus	Butterbur	VLA	<1%
Phleum pratense	Timothy	LF	1%
Plantago lanceolata	Ribwort Plantain	F*	1%
Poa pratensis	Smooth Meadow-grass	LF	<1%
Poa trivialis	Rough Meadow-grass	LF	<1%
Potentilla reptans	Creeping Cinquefoil	LF	<1%
Prunella vulgaris	Selfheal	LF	<1%
Ranunculus acris	Meadow Buttercup	LF	<1%
Ranunculus repens	Creeping Buttercup	F*	5%
Rumex acetosa	Common Sorrel	LF	<1%
Rumex crispus	Curled Dock	R	<1%
Senecio jacobaea	Common Ragwort	VL	<1%
Silene dioica	Red Campion	VL	<1%
Stellaria media	Common Chickweed	LF	<1%
Taraxacum officinale	Dandelion	VL	<1%
Trifolium pratense	Red Clover	VLF	<1%
Trifolium repens	White Clover	F*	<1%
Veronica chamaedrys	Germander Speedwell	VLF	<1%
Veronica persica	Common Field Speedwell	LF	<1%
Vicia sativa	Tufted Vetch	R	<1%

Key to DAFOR: D=Dominant, A=Abundant, F=Frequent, O=Occasional, R=Rare, V=Very, L=Local and *denotes a constant species

Table 7.1.3 Plant Species Composition of the Area of Calcareous Grassland in Field 10

Scientific Name	Common Name	Frequency	Abundance
Agrostis stolonifera	Creeping Bent	VL	10%
Anthoxanthum odoratum	Sweet Vernal-grass	LF	<1%
Briza media	Quaking-grass	LF	5%
Carex flacca	Glaucous Sedge	F	5%
Cirsium arvense	Creeping Thistle	VL	<1%
Cynosurus cristatus	Crested Dog's-tail	VL	<1%
Dactylis glomerata	Cock's-foot	LF	5%
Deschampsia cespitosa	Tufted hair-grass	VLF	1%
Festuca rubra	Red Fescue	F*	20%
Fragaria vesca	Wild Strawberry	R	<1%
Holcus lanatus	Yorkshire-fog	F*	10%
Hypochaeris radicata	Common Cat's-ear	F	<1%
Leontodon hispidus	Rough Hawkbit	F	<1%
Linum catharticum	Fairy Flax	LF	<1%
Pilosella officinarum	Mouse-ear Hawkweed	LA	30%
Plantago lanceolata	Ribwort Plantain	F	5%
Potentilla reptans	Creeping Cinquefoil	LF	1%
Prunella vulgaris	Selfheal	F	1%
Trifolium pratense	Red Clover	LF	7%
Key to DAFOR: D=Dominant, A=Abundant, F=Frequent, O=Occasional, R=Rare, V=Very, L=Local and *denotes a constant species			

Table 7.1.4 Plant Species Composition of the Area of Marshy Grassland in Field E Adjacent to Ditch 4 and Hedgerow Hm

Scientific Name	Common Name	Frequency	Abundance
Herb Species			
Alopecurus pratensis	Meadow Foxtail	LF	10%
Anthoxanthum odoratum	Sweet Vernal-grass	LF	5%
Anthriscus sylvestris	Cow Parsley	LF	<1%
Briza media	Quaking-grass	R	<1%
Bromus hordeaceus	Soft-brome	VLF	<1%
Cirsium arvense	Creeping Thistle	R	<1%
Cruciata laevipes	Crosswort	VLF	<1%
Cynosurus cristatus	Crested Dog's-tail	VLF	<1%
Dryopteris filix-mas	Male-fern	R	<1%
Epilobium hirsutum	Great Willowherb	VLF	10%
Equisetum arvense	Field Horse-tail	VLF	<1%
Filipendula ulmaria	Meadowsweet	F	10%
Galium aparine	Cleavers	LF	<1%
Geranium robertianum	Herb-robert	R	<1%
Geum rivale	Water Avens	VLF	<1%
Geum urbanum	Wood Avens	R	<1%
Glyceria fluitans	Floating Sweet-grass	LA	5%
Hedera helix	Ivy	R	<1%
Holcus lanatus	Yorkshire-fog	F*	15%
Juncus effusus	Soft-rush	F*	10%
Lolium perenne	Perennial Rye-grass	LF	5%
Mercurialis perennis	Dog's-mercury	R	<1%
Petasites hybridus	Butterbur	LF	3%
Poa trivialis	Rough Meadow-grass	F*	10%
Ranunculus repens	Creeping Buttercup	VLA	<1%
Rubus fruticosus agg.	Bramble	VLF	3%
Silene dioica	Red Campion	R	<1%
Stellaria media	Common Chickweed	R	<1%
Urtica dioica	Common Nettle	LA	10%
Veronica chamaedrys	Germander Speedwell	VLF	<1%
Key to DAFOR: D=Dominant, A=Abundant, F=Frequent, O=Occasional, R=Rare, V=Very, L=Local and *denotes a constant species			

Table 7.1.5 Plant Species Composition of Ditch 1 and its Surrounds

Scientific Name	Common Name	Frequency	Abundance
Woody Species			
Acer pseudoplatanus	Sycamore	LF	5%
Alnus glutinosa	Alder	R	1%
Corylus avellana	Hazel	LA	3%
Crataegus monogyna	Hawthorn	LA	30
Fagus sylvatica	Beech	VL	3%
Fraxinus excelsior	Ash	LF	10
Ilex aquifolium	Holly	LA	5%
Prunus spinosa	Blackthorn	LA	15
Quercus robur	Pedunculate Oak	LA	5%
Rose canina	Dog-rose	LF	1%
Sambucus nigra	Elder	VL	<1%
Sorbus aucuparia	Rowan	VL	<1%
Ulmus sp.	Elm species	VLF	3%
Herb species			
Alliaria petiolata	Garlic mustard	VLF	<1%
Allium ursinum	Ramsons	VL	<1%
Arrhenatherum elatius	False Oat-grass	VLF	1%
Arum maculatum	Lord's-and-Ladies	VL	<1%
Asplenium scolopendrium	Hart's-tongue-fern	O*	<1%
Carex remota	Remote Sedge	VL	<1%
Chamerion angustifolium	Rosebay Willowherb	R	<1%
Dryopteris dilatata	Broad Buckler-fern	LF	<1%
Dryopteris filix-mas	Male-fern	R	<1%
Filipendula ulmaria	Meadowsweet	VL	<1%
Galium aparine	Cleavers	LF	<1%
Geranium robertianum	Herb-robert	F*	<1%
Geum urbanum	Wood Avens	LF	<1%
Hedera helix	Ivy	F*	1%
Heracleum sphondylium	Hogweed	La	1%
Lapsana communis	Nipplewort	L	<1%
Lonicera periclymenum	Honeysuckle	VL	<1%
Lysimachia nemorum	Yellow Pimpernel	R	<1%
Mercurialis perennis	Dog's Mercury	LA*	1%
Oxalis acetosella	Wood-sorrel	LF	<1%
Rubus fruticosus agg	Bramble	LF	5%
Scrophularia nodosa	Common Figwort	VL	<1%
Silene dioica	Red Campion	VL	<1%
Stachys sylvatica	Hedge Woundwort	VLF	<1%
Urtica dioica	Common Nettle	LA	10
Veronica chamaedrys	Germander Speedwell	LF	<1%

Key to DAFOR: D=Dominant, A=Abundant, F=Frequent, O=Occasional, R=Rare, V=Very, L=Local and *denotes a constant species

7.1.2 Hedgerow Survey and Assessment Tables

Tables 7.1.6 to 7.1.31 present the results of the hedgerow surveys and assessments carried out in accordance with *The Hedgerows Regulations 1997*. All hedgerow references are annotated on **Figure 7.2**.

Table 7.1.6 Description and Importance in Accordance with *The Hedgerows Regulations 1997*

		Hedgerow 1	Hedgerow 2	Hedgerow 3
Description	Height(m) x width(m) x length(m)	3 x 3 x 340	1.75 x 1.5 x 485	1.75 x 1.5 x 140
	Continuity	100%	99%	100%
	Management	Unmanaged	Trimmed	Trimmed
Number of Qualifying Woody Species	Total number of woody species	11	9	7
	Section number	1 | 2 | 3	1 | 2 | 3	1 | 2 | -
	Qualifying woody species	5 | 4 | 5	3 | 4 | 4	5 | 5 | -
	Average number	5	4	5
Number of Features Present	(a) Bank or wall along at least ½ length	No	No	No
	(b) Gaps which in aggregate do not exceed 10%	Yes	Yes	Yes
	(c)-(e) 1 standard tree per 50m	Yes (28)	No (5)	No
	(f) At least 3 woodland species	Yes (3)	Yes (7)	Yes (5)
	(g) Ditch along at least 1/2 its length	Yes	No	No
	(h) Connections scoring 4 points or more	No	Yes (4)	No
	(i) Parallel hedge within 15m	No	No	Yes
	Total Features	**4**	**3**	**3**
Criteria 1*:	(1)Part 1 of Schedule 1, Schedule 5 or Schedule 8 of W&C Act 1981	No	No	No
	(2)Declining breeders in 'Red Data Birds of Britain'	No	No	No
	(3)Categorised as 'endangered', 'extinct' or 'vulnerable'	No	No	No
Criteria 2**:	(i)At least 7 Woody Species	No	No	No
	(ii)At least 6 woody species and at least 3 features	**Yes**	No	**Yes**
	(iii)At least 6 woody species, inc. one of: Black poplar, L-leaved Lime, S-leaved Lime or Wild Service Tree	No	No	No
	(iv)At least 5 woody species, and has 4 features	**Yes**	No	No
Criteria 3:***	Qualifies:	No	No	**Yes**
Hedgerow qualifies as 'important'?		**Yes**	**No**	**Yes**

** Hedgerow contains species listed as (1), (2) and/or (3)*
***Hedgerow includes all woody species mentioned in (i)-(iv), with each number reduced by one in Lancashire (for this criterion only)*
****Hedgerow is adjacent to a bridleway, footpath or byway and includes at least 4 woody species on average and 2 features from (a) to (g).*

Table 7.1.7 Species Composition, Frequency and Percentage Cover for Hedgerows 1, 2 and 3

Scientific Name	Common Name	Hedgerow 1		Hedgerow 2		Hedgerow 3	
		Freq.[1]	%[2]	Freq.[1]	%[2]	Freq.[1]	%[2]
Woody Species							
Acer pseudoplatanus	Sycamore	VL	<1%	-	-	R	<1%
Corylus avellana	Hazel	LF/VLA	1%	R	<1%	VL	1%
Crataegus monogyna	Hawthorn	LD*	70%	D*	90%	A/LD*	80%
Fagus sylvatica	Beech	-	-	VLA	<1%	-	-
Fraxinus excelsior	Ash	F	1%	VO	1%	-	-
Ilex aquifolium	Holly	LF	<1%	R	<1%	R	<1%
Malus sylvestris	Apple species	-	-	R	<1%	-	-
Prunus avium	Wild Cherry	R	<1%	-	-	-	-
Prunus spinosa	Blackthorn	LA/LD	20%	VLA	1%	LVA/LD*	10%
Quercus robur	Pedunculate Oak	VL	<1%	-	-	-	-
Rosa canina	Dog Rose	VL	<1%	VL	<1%	F*	1%
Salix caprea	Goat Willow	VL	<1%	-	-	-	-
Sambucus nigra	Elder	F	<1%	VL/VLA	1%	O/VLA*	1%
Understorey							
Alliaria petiolata	Garlic Mustard	-	-	VLA	<1%	VLF	<1%
Allium ursinum	Ramsons	-	-	R	<1%	-	-
Alopecurus pratensis	Meadow Foxtail	-	-	VLA	<1%	VL	<1%
Anthoxanthum odoratum	Sweet Vernal-grass	-	-	VLA	<1%	VL	<1%
Anthriscus sylvestris	Cow Parsley	LF	<1%	VL	<1%	F*	10%
Arrhenatherum elatius	False Oat-grass	-	-	VL	<1%	VL	2%
Arum maculatum	Lord's-and-Ladies	-	-	-	-	VL	<1%
Bellis perennis	Daisy	-	-	LF	<1%	VL	<1%
Bromus ramosus	Hairy Brome	-	-	VL	<1%	R	<1%
Calystegia sp.	Bindweed species	-	-	R	<1%	R	<1%
Cardamine flexuosa	Wavy Bitter-cress	-	-	VL	<1%	-	-
Cardamine pratensis	Cuckooflower	-	-	-	-	R	<1%
Cerastium fontanum	Common Mouse-ear	-	-	R	<1%	-	-
Chamerion angustifolium	Rosebay Willowherb	-	-	-	-	VL	<1%
Carex remota	Remote Sedge	R	<1%	-	-	-	-
Cirsium arvense	Creeping Thistle	VLF	<1%	VLF	<1%	R	<1%
Cirsium vulgare	Spear Thistle	-	-	R	<1%	-	-
Cruciata laevipes	Crosswort	-	-	VLF	<1%	-	-
Dactylis glomerata	Cock's-foot	LF	<1%	VLF	1%	VLF	5%
Dryopteris dilatata	Broad Buckler-fern	-	-	VL	<1%	-	-
Dryopteris filix-mas	Male-fern	-	-	VL	<1%	-	-
Epilobium hirsutum	Great Willowherb	LA	<1%	-	-	-	-
Equisetum arvense	Field Horsetail	-	-	VLA	<1%	VLF	<1%
Festuca rubra	Red Fescue	-	-	-	-	VLA	1%
Filipendula ulmaria	Meadowsweet	-	-	-	-	VLF	1%
Fragaria vesca	Wild Strawberry	-	-	R	<1%	-	-
Galium aparine	Cleavers	F*	<1%	F*	1%	LA	3%
Geranium robertianum	Herb-robert	VL	<1%	VL	<1%	VLF	<1%

Table 7.1.7 (continued) Species Composition, Frequency and Percentage Cover for Hedgerows 1, 2 and 3

Scientific Name	Common Name	Hedgerow 1		Hedgerow 2		Hedgerow 3	
		Freq.[1]	%[2]	Freq.[1]	%[2]	Freq.[1]	%[2]
Geum urbanum	Wood Avens	VL	<1%	VLF	<1%	VL	<1%
Hedera helix	Ivy	F*/LA	<1%	VLF	<1%	VLF	<1%
Heracleum sphondylium	Hogweed	VL	<1%	VO	<1%	O	2%
Holcus lanatus	Yorkshire-fog	LF	<1%	VL	<1%	-	-
Hyacinthoides hispanica	Spanish Bluebell	-	-	R	<1%	-	-
Lolium perenne	Perennial Rye-grass	F*	2%	VLA	1%	VLF	5%
Lonicera periclymenum	Honeysuckle	-	-	-	-	VLF	<1%
Continued overleaf							
Continued.							
Mercurialis perennis	Dog's Mercury	LA	<1%	-	-	LVA	10%
Plantago lanceolata	Ribwort Plantain	-	-	VL	<1%	-	-
Poa annua	Annual Meadow-grass	-	-	VLF	<1%		
Poa pratensis	Smooth Meadow-grass	-	-	VLF	<1%	VLF	<1%
Poa trivialis	Rough Meadow-grass	VLF	<1%	LVA	1%	-	-
Potentilla anserina	Silverweed	-	-	-	-	R	<1%
Ranunculus acris	Meadow Buttercup	-	-	VL	<1%	-	-
Ranunculus repens	Creeping Buttercup	LF	<1%	VO	<1%	VL	<1%
Rubus fruticosus agg.	Bramble	-	-	VLF	<1%	LF	1%
Rumex crispus	Curled Dock	-	-	R	<1%	-	-
Rumex obtusifolius	Broad-leaved Dock	VL	<1%	O	<1%	VL	<1%
Silene dioica	Red Campion	F	<1%	-	-	-	-
Solanum dulcamara	Woody Nightshade	-	-	-	-	R	<1%
Stachys sylvatica	Hedge Woundwort	VL	<1%	-	-	-	-
Stellaria media	Common Chickweed	-	-	VL	<1%	-	-
Taraxacum officinale	Dandelion	-	-	VLF	<1%	VL	<1%
Urtica dioica	Common Nettle	LA	10%	VLA	10%	VLF	3%
Veronica chamaedrys	Germander Speedwell	R	<1%	VLF	<1%	VL	<1%
Vicia cracca	Tufted Vetch	-	-	VLF	<1%	-	-
Vicia sepium	Bush Vetch	-	-	VL	<1%	-	-
	Total Woody Species	11		9		7	
	Total Qualifying Woody Species	10		9		6	
	Total Qualifying Woodland Species	3		7		5	

[1]**Freq.**=Frequency. [2]**%**=Percentage Cover

Key to DAFOR: D=Dominant, A=Abundant, F=Frequent, O=Occasional, R=Rare, V=Very, L=Local and *denotes a constant species

Species shaded grey are those listed as either woody or woodland species in *The Hedgerows Regulations 1997*

Table 7.1.8 Description and Importance in accordance With *The Hedgerows Regulations 1997* of Hedgerows 4, 5 and 6

		Hedgerow 4	Hedgerow 5	Hedgerow 6
Description	Height(m) x width(m) x length(m)	1.75 x 2 x 115	1.75 x 1.5 x 220	1.75 x 1.5 x 135
	Continuity	99%	100%	100%
	Management	Trimmed	Trimmed	Trimmed
Number of Qualifying Woody Species	Total number of woody species	6	7	4
	Section number	1 | 2 | -	1 | 2 | 3	1 | 2 | -
	Qualifying woody species	4 | 5 | -	4 | 5 | 2	3 | 2 | -
	Average number	5	4	3
Number of Features Present	(a) Bank or wall along at least ½ length	No	No	No
	(b) Gaps which in aggregate do not exceed 10%	Yes	Yes	Yes
	(c)-(e) 1 standard tree per 50m	No	Yes (11)	No
	(f) At least 3 woodland species	Yes (3)	Yes (4)	No (0)
	(g) Ditch along at least 1/2 its length	No	No	No
	(h) Connections scoring 4 points or more	Yes	Yes	No
	(i) Parallel hedge within 15m	Yes	No	No
	Total Features	**4**	**4**	**1**
Criteria 1*:	(1)Part 1 of Schedule 1, Schedule 5 or Schedule 8 of W&C Act 1981	No	No	No
	(2)Declining breeders in 'Red Data Birds of Britain'	No	No	No
	(3)Categorised as 'endangered', 'extinct' or 'vulnerable'	No	No	No
Criteria 2**:	(i)At least 7 Woody Species	No	No	No
	(ii)At least 6 woody species and at least 3 features	**Yes**	No	No
	(iii)At least 6 woody species, inc. one of: Black poplar, L-leaved Lime, S-leaved Lime or Wild Service Tree	No	No	No
	(iv)At least 5 woody species, and has 4 features	**Yes**	**Yes**	No
Criteria 3:***	Qualifies:	**Yes**	**Yes**	No
Hedgerow qualifies as 'important'?		**Yes**	**Yes**	**No**

** Hedgerow contains species listed as (1), (2) and/or (3)*
***Hedgerow includes all woody species mentioned in (i)-(iv), with each number reduced by one in Lancashire (for this criterion only)*
****Hedgerow is adjacent to a bridleway, footpath or byway and includes at least 4 woody species on average and 2 features from (a) to (g).*

Table 7.1.9 Species Composition, Frequency and Percentage Cover for Hedgerows 4, 5 and 6

Scientific Name	Common Name	Hedgerow 4		Hedgerow 5		Hedgerow 6	
		Freq.[1]	%[2]	Freq.[1]	%[2]	Freq.[1]	%[2]
Woody Species							
Acer pseudoplatanus	Sycamore	-	-	-	-	-	-
Alnus glutinosa	Alder	R	<1%	LF	1%	-	-
Crataegus monogyna	Hawthorn	D*	95%	D*	95%	D*	95%
Fraxinus excelsior	Ash	VLA	1%	VL	1%	VLA	1%
Ilex aquifolium	Holly	VLA	1%	-	-	-	-
Malus sylvestris	Apple species	-	-	VLA	1%	-	-
Prunus spinosa	Blackthorn	VLA	2%	-	-	-	-
Quercus robur	Pedunculate Oak	-	-	R	<1%	-	-
Rosa canina	Dog Rose	-	-	VL	<1%	R	<1%
Sambucus nigra	Elder	LF	<1%	VL	<1%	VLF	<1%
Understorey							
Aegopodium podagraria	Ground-elder	VLA	<1%	-	-	-	-
Alliaria petiolata	Garlic Mustard	LF	1%	-	-	-	-
Alopecurus pratensis	Meadow Foxtail	F*	10%	F/VLA*	10%	F*	3%
Anthriscus sylvestris	Cow Parsley	F*	2%	VLA	3%	VLF	<1%
Arrhenatherum elatius	False Oat-grass	VL	1%	LF	1%	VLA	<1%
Arum maculatum	Lord's-and-Ladies	-	-	R	<1%	-	-
Calystegia sp.	Bindweed species	LF	<1%	-	-	-	-
Cirsium arvense	Creeping Thistle	-	-	VLA/LF	<1%	-	-
Cruciata laevipes	Crosswort	VLA	<1%	-	-	-	-
Dactylis glomerata	Cock's-foot	VL	<1%	LF	3%	LA	<1%
Dryopteris dilatata	Broad Buckler-fern	-	-	R	<1%	-	-
Dryopteris filix-mas	Male-fern	VLF	<1%	-	-	-	-
Filipendula ulmaria	Meadowsweet	VL	<1%	-	-	-	-
Galium aparine	Cleavers	F*	3%	F*	5%	A*	5%
Geum urbanum	Wood Avens	VLF	<1%	VL	<1%	-	-
Heracleum sphondylium	Hogweed	VLA	3%	-	-	-	-

Table 7.1.9 (continued) Species Composition, Frequency and Percentage Cover for Hedgerows 4, 5 and 6

Scientific Name	Common Name	Hedgerow 4		Hedgerow 5		Hedgerow 6	
		Freq.[1]	%[2]	Freq.[1]	%[2]	Freq.[1]	%[2]
Hyacinthoides hispanica	Spanish Bluebell	R	<1%	-	-	-	-
Lolium perenne	Perennial Rye-grass	LF	3%	-	-	F*	5%
Mercurialis perennis	Dog's Mercury	LF/VLA	3%	VL	<1%	-	-
Poa pratensis	Smooth Meadow-grass	VLF	3%	LF	3%	-	-
Ranunculus ficaria	Lesser Celandine	R	<1%	-	-	-	-
Ranunculus repens	Creeping Buttercup	VL	<1%	VL	<1%	F*	<1%
Rubus fruticosus agg.	Bramble	LF	5%	VLA	2%	LF	1%
Rumex acetosa	Common Sorrel	R	<1%	-	-	-	-
Rumex obtusifolius	Broad-leaved Dock	R	<1%	VL	<1%	-	-
Silene dioica	Red Campion	R	<1%	-	-	-	-
Stachys sylvatica	Hedge Woundwort	VLF	1%	-	-	-	-
Stellaria media	Common Chickweed	-	-	VLA	<1%	-	-
Symphytum officinale	Common Comfrey	R	<1%	-	-	-	-
Urtica dioica	Common Nettle	F*	10%	F*	10%	A*	20%
Veronica chamaedrys	Germander Speedwell	R	<1%	VL	<1%	-	-
Vicia sepium	Bush Vetch	-	-	VLF	<1%	R	<1%
Total Woody Species		6		7		4	
Total Qualifying Woody Species		6		7		4	
Total Qualifying Woodland Species		3		4		0	

[1]**Freq.**=Frequency. [2]**%**=Percentage Cover

Key to DAFOR: D=Dominant, A=Abundant, F=Frequent, O=Occasional, R=Rare, V=Very, L=Local and *denotes a constant species

Species shaded grey are those listed as either woody or woodland species in *The Hedgerows Regulations 1997*

Table 7.1.10 Description and Importance in Accordance With *The Hedgerows Regulations 1997 of:*

		Hedgerow 7	Hedgerow 8	Hedgerow 9
Description	Height(m) x width(m) x length(m)	1.5 x 1 x 110	1.5 x 1.5 x 120	1.75 x 2.5 x 130
	Continuity	80%	100%	100%
	Management	Trimmed	Trimmed	Trimmed
Number of Qualifying Woody Species	Total number of woody species	8	4	5
	Section number	1 | 2 | -	1 | 2 | -	1 | 2 | -
	Qualifying woody species	5 | 4 | -	3 | 4 | -	4 | 2 | -
	Average number	5	4	3
Number of Features Present	(a) Bank or wall along at least ½ length	No	No	Yes
	(b) Gaps which in aggregate do not exceed 10%	No	Yes	Yes
	(c)-(e) 1 standard tree per 50m	No	Yes (4)	Yes (5)
	(f) At least 3 woodland species	No (1)	Yes (4)	Yes (4)
	(g) Ditch along at least 1/2 its length	No	No	No
	(h) Connections scoring 4 points or more	No	Yes	No
	(i) Parallel hedge within 15m	No	No	Yes
	Total Features	**0**	**4**	**5**
Criteria 1*:	(1)Part 1 of Schedule 1, Schedule 5 or Schedule 8 of W&C Act 1981	No	No	No
	(2)Declining breeders in 'Red Data Birds of Britain'	No	No	No
	(3)Categorised as 'endangered', 'extinct' or 'vulnerable'	No	No	No
Criteria 2**:	(i)At least 7 Woody Species	No	No	No
	(ii)At least 6 woody species and at least 3 features	No	No	No
	(iii)At least 6 woody species, inc. one of: Black poplar, L-leaved Lime, S-leaved Lime or Wild Service Tree	No	No	No
	(iv)At least 5 woody species, and has 4 features	No	**Yes**	No
Criteria 3:***	Qualifies:	No	No	No
Hedgerow qualifies as 'important'?		**No**	**Yes**	**No**

** Hedgerow contains species listed as (1), (2) and/or (3)*
***Hedgerow includes all woody species mentioned in (i)-(iv), with each number reduced by one in Lancashire (for this criterion only)*
****Hedgerow is adjacent to a bridleway, footpath or byway and includes at least 4 woody species on average and 2 features from (a) to (g).*

Table 7.1.11 Species Composition, Frequency and Percentage Cover for Hedgerows 7, 8 and 9

Scientific Name	Common Name	Hedgerow 7		Hedgerow 8		Hedgerow 9	
		Freq.[1]	% [2]	Freq.[1]	% [2]	Freq.[1]	% [2]
Woody Species							
Cotoneaster sp.	Cotoneaster species	R	<1%	-	-	-	-
Crataegus monogyna	Hawthorn	A*	70%	D*	95%	D*	95%
Fagus sylvatica	Beech	LA	10%	-	-	-	-
Fraxinus excelsior	Ash	VL	<1%	VLA	1%	VA	1%
Ilex aquifolium	Holly	VL	<1%	VL	<1%	-	-
Prunus spinosa	Blackthorn	-	-	-	-	LA	1%
Rosa canina	Dog Rose	R	<1%	-	-	VLF	<1%
Rosa rugosa	Japanese Rose	R	<1%	-	-	-	-
Sambucus nigra	Elder	VLF	2%	VLF	1%	VLF	1%
Understorey							
Alliaria petiolata	Garlic Mustard	-	-	-	-	VL	<1%
Allium ursinum	Ramsons	R	<1%	-	-	-	-
Alopecurus pratensis	Meadow Foxtail	F*	15%	VL	<1%	F*	20%
Anthriscus sylvestris	Cow Parsley	VLF	<1%	VLF	<1%	LA	<1%
Arrhenatherum elatius	False Oat-grass	-	-	LF	3%	-	-
Arum maculatum	Lord's-and-Ladies	-	-	-	-	VL	<1%
Cirsium arvense	Creeping Thistle	-	-	VL	<1%		
Dactylis glomerata	Cock's-foot	-	-	-	-	VLF	1%
Dryopteris dilatata	Broad Buckler-fern	-	-	R	<1%	-	-
Dryopteris filix-mas	Male-fern	-	-	R	<1%	-	-
Equisetum arvense	Field Horsetail	-	-	R	<1%	R	<1%
Filipendula ulmaria	Meadowsweet	-	-	R	<1%		
Galium aparine	Cleavers	A*	2%	F*	3%	A*	3%
Geranium robertianum	Herb-robert	-	-	R	<1%	VL	<1%
Geum urbanum	Wood Avens	-	-	R	<1%	VL	<1%
Hedera helix	Ivy	-	-	-	-	VLF	<1%
Lolium perenne	Perennial Rye-grass	F*	5%	VLA	2%	LF	2%
Lonicera periclymenum	Honeysuckle	VLF	<1%	-	-	-	-
Mercurialis perennis	Dog's Mercury	-	-	-	-	VLA	2%
Poa pratensis	Smooth Meadow-grass	F*	3%	VLA	10%	VLF	1%
Ranunculus repens	Creeping Buttercup	LF	<1%	VLF	<1%	VL	<1%
Rubus fruticosus agg.	Bramble			LV	2%	LF	<1%
Rumex obtusifolius	Broad-leaved Dock	-	-	R	<1%	VL	<1%
Stachys sylvatica	Hedge Woundwort	-	-	-	-	VLA	3%
Taraxacum officinale	Dandelion	R	<1%	-	-	-	-
Urtica dioica	Common Nettle	A*	3%	F*	10%	F*	10%
Veronica chamaedrys	Germander Speedwell			VL	<1%	-	-
Vicia sepium	Bush Vetch	VLF	<1%	-	-	-	-

Table 7.1.11 (continued) Species Composition, Frequency and Percentage Cover for Hedgerows 7, 8 and 9

Scientific Name	Common Name	Hedgerow 7		Hedgerow 8		Hedgerow 9	
		Freq.[1]	%[2]	Freq.[1]	%[2]	Freq.[1]	%[2]
Total Woody Species		8		4		5	
Total Qualifying Woody Species		6		4		5	
Total Qualifying Woodland Species		1		4		4	

[1]**Freq.**=Frequency. [2]**%**=Percentage Cover
Key to DAFOR: D=Dominant, A=Abundant, F=Frequent, O=Occasional, R=Rare, V=Very, L=Local and *denotes a constant species
Species shaded grey are those listed as either woody or woodland species in *The Hedgerows Regulations 1997*

Table 7.1.12 Description and Importance in Accordance With *The Hedgerows Regulations 1997 of:*

		Hedgerow 10	Hedgerow 11	Hedgerow 12
Description	Height(m) x width(m) x length(m)	2 x 2 x 175	2 x 1.5 x 105	2 x 1.5 x 105
	Continuity	100%	80%	100%
	Management	Trimmed	Trimmed	Trimmed
Number of Qualifying Woody Species	Total number of woody species	6	6	8
	Section number	1 | 2 | -	1 | 2 | -	1 | 2 | -
	Qualifying woody species	2 | 3 | -	3 | 3 | -	6 | 4 | -
	Average number	3	3	5
Number of Features Present	(a) Bank or wall along at least ½ length	Yes	No	No
	(b) Gaps which in aggregate do not exceed 10%	Yes	Yes	Yes
	(c)-(e) 1 standard tree per 50m	Yes (5)	No (1)	Yes (5)
	(f) At least 3 woodland species	Yes (4)	Yes (4)	Yes (3)
	(g) Ditch along at least 1/2 its length	No	No	No
	(h) Connections scoring 4 points or more	Yes	Yes	No
	(i) Parallel hedge within 15m	Yes	No	Yes
	Total Features	**6**	**3**	**4**
Criteria 1*:	(1)Part 1 of Schedule 1, Schedule 5 or Schedule 8 of W&C Act 1981	No	No	No
	(2)Declining breeders in 'Red Data Birds of Britain'	No	No	No
	(3)Categorised as 'endangered', 'extinct' or 'vulnerable'	No	No	No

Table 7.1.12 (continued) Description and Importance in Accordance With *The Hedgerows Regulations 1997 of:*

		Hedgerow 10	Hedgerow 11	Hedgerow 12
Criteria 2**:	(i)At least 7 Woody Species	No	No	No
	(ii)At least 6 woody species and at least 3 features	No	No	**Yes**
	(iii)At least 6 woody species, inc. one of: Black poplar, L-leaved Lime, S-leaved Lime or Wild Service Tree	No	No	No
	(iv)At least 5 woody species, and has 4 features	No	No	**Yes**
Criteria 3:***	Qualifies:	No	No	**Yes**
Hedgerow qualifies as 'important'?		**No**	**No**	**Yes**

** Hedgerow contains species listed as (1), (2) and/or (3)*
***Hedgerow includes all woody species mentioned in (i)-(iv), with each number reduced by one in Lancashire (for this criterion only)*
****Hedgerow is adjacent to a bridleway, footpath or byway and includes at least 4 woody species on average and 2 features from (a) to (g).*

Table 7.1.13 Species Composition, Frequency and Percentage Cover for Hedgerows 10, 11 and 12

Scientific Name	Common Name	Hedgerow 10		Hedgerow 11		Hedgerow 12	
		Freq.[1]	% [2]	Freq.[1]	% [2]	Freq.[1]	% [2]
Woody Species							
Acer campestre	Field Maple	LVF	1%	-	-	LVA	1%
Acer pseudoplatanus	Sycamore	-	-	-	-	R	<1%
Corylus avellana	Hazel	VL	<1%	VLA	<1%	LA	2%
Crataegus monogyna	Hawthorn	D*	70%	D	70%	A/LD*	80%
Fraxinus excelsior	Ash	VLA	1%	VL	<1%	LVA	2%
Ilex aquifolium	Holly	-	-	-	-	VL	1%
Malus sylvestris	Apple species	-	-	R	<1%	-	-
Prunus spinosa	Blackthorn	A/LD*	30%	VLA	1%	LA	10%
Rosa canina	Dog Rose	-	-	VL	<1%	-	-
Sambucus nigra	Elder	VL	<1%	-	-	LA	10%
Understorey							
-	Exotic species	-	-	-	-	R	<1%
Alliaria petiolata	Garlic Mustard	F*	3%	VL	<1%	LF	1%
Alopecurus pratensis	Meadow Foxtail	LA	3%	LF	3%	VLA	3%
Anthriscus sylvestris	Cow Parsley	LA	1%	VLF	<1%	VLF	5%
Arctium minus	Lesser Burdock	-	-	-	-	R	<1%
Arrhenatherum elatius	False Oat-grass	-	-	-	-	F	5%
Arum maculatum	Lord's-and-Ladies	VL	<1%	R	<1%	VL	<1%

Table 7.1.13 (continued) Species Composition, Frequency and Percentage Cover for Hedgerows 10, 11 and 12

Scientific Name	Common Name	Hedgerow 10		Hedgerow 11		Hedgerow 12	
		Freq.[1]	% [2]	Freq.[1]	% [2]	Freq.[1]	% [2]
Bromus ramosus	Hairy Brome	VL	<1%	-	-	-	-
Calystegia sp.	Bindweed species	VLF	<1%	VL	<1%	-	-
Centaurea cyanus	Cornflower	-	-	-	-	VLF	<1%
Chamerion angustifolium	Rosebay Willowherb	VL	<1%	-	-	-	-
Cirsium arvense	Creeping Thistle			VL	<1%	-	-
Cruciata laevipes	Crosswort	VLF	<1%	-	-	VL	<1%
Dactylis glomerata	Cock's-foot	VL	<1%	VLF	<1%	F	3%
Dryopteris dilatata	Broad Buckler-fern	-	-	R	<1%	-	-
Epilobium hirsutum	Great Willowherb	-	-	VL	<1%	-	-
Equisetum arvense	Field Horsetail	VL	<1%	R	<1%	-	-
Festuca rubra	Red fescue	-	-	-	-	VLF	3%
Galium aparine	Cleavers	A*	5%	F*	5%	A*	3%
Geum urbanum	Wood Avens	VLF	<1%	VL	<1%	VL	<1%
Geranium robertianum	Herb-robert	R	<1%	VL	<1%		
Hedera helix	Ivy	-	-	-	-	F	<1%
Heracleum sphondylium	Hogweed	VL	<1%	VL	<1%	VL	3%
Lolium perenne	Perennial Rye-grass	LA	5%	VLF	5%	VLA	7%
Mercurialis perennis	Dog's Mercury	VLA	<1%	-	-	LVA/F	7%
Myosotis arvense	Field Forget-me-not	-	-	R	<1%	R	<1%
Narcissus pseudonarcissus	Daffodil	-	-	-	-	R	<1%
Poa annua	Annual Meadow-grass	-	-	VLF	<1%	-	-
Poa pratensis	Smooth Meadow-grass	LA	3%	VLF	3%	-	-
Ranunculus acris	Meadow Buttercup	-	-	R	<1%	-	-
Ranunculus repens	Creeping Buttercup	-	-	VLF	<1%	-	-
Rubus fruticosus agg.	Bramble	LF	1%	VLA	1%	-	-
Rumex obtusifolius	Broad-leaved Dock	VL	<1%	-	-	-	-
Solanum dulcamara	Woody Nightshade	R	<1%	-	-	-	-
Stachys sylvatica	Hedge Woundwort	LF	1%	-	-	VLF	<1%
Stellaria media	Common Chickweed	-	-	-	-	R	<1%
Continued overleaf continued							
Veronica chamaedrys	Germander Speedwell	R	<1%	-	-	VL	<1%
Vicia sepium	Bush Vetch	VLF	<1%	-	-	VL	<1%
Urtica dioica	Common Nettle	F*	10%	LVF	3%	-	-
Total Woody Species		6		6		8	
Total Qualifying Woody Species		6		6		7	
Total Qualifying Woodland Species		5		4		3	

[1]**Freq.**=Frequency. [2]**%**=Percentage Cover
Key to DAFOR: D=Dominant, A=Abundant, F=Frequent, O=Occasional, R=Rare, V=Very, L=Local and *denotes a constant species
Species shaded grey are those listed as either woody or woodland species in *The Hedgerows Regulations 1997*

Table 7.1.14 Description and Importance in Accordance With *The Hedgerows Regulations 1997 of:*

		Hedgerow 13	Hedgerow 14	Hedgerow 15
Description	Height(m) x width(m) x length(m)	1 x 1 x 60	1.75 x 1.5 x 130	3 x 3 x75
	Continuity	90%	100%	95%
	Management	Trimmed	Trimmed	Trimmed
Number of Qualifying Woody Species	Total number of woody species	8	6	10
	Section number	1 | - | -	1 | 2 | -	1 | - | -
	Qualifying woody species	6 | - | -	4 | 4 | -	6 | - | -
	Average number	6	4	6
Number of Features Present	(a) Bank or wall along at least ½ length	No	No	No
	(b) Gaps which in aggregate do not exceed 10%	Yes	Yes	Yes
	(c)-(e) 1 standard tree per 50m	Yes (4)	Yes (6)	Yes (7)
	(f) At least 3 woodland species	Yes (5)	No (0)	Yes (4)
	(g) Ditch along at least 1/2 its length	No	No	No
	(h) Connections scoring 4 points or more	No	Yes	No
	(i) Parallel hedge within 15m	Yes	No	No
	Total Features	**4**	**3**	**3**
Criteria 1*:	(1)Part 1 of Schedule 1, Schedule 5 or Schedule 8 of W&C Act 1981	No	No	No
	(2)Declining breeders in 'Red Data Birds of Britain'	No	No	No
	(3)Categorised as 'endangered', 'extinct' or 'vulnerable'	No	No	No
Criteria 2**:	(i)At least 7 Woody Species	**Yes**	No	**Yes**
	(ii)At least 6 woody species and at least 3 features	**Yes**	No	**Yes**
	(iii)At least 6 woody species, inc. one of: Black poplar, L-leaved Lime, S-leaved Lime or Wild Service Tree	No	No	No
	(iv)At least 5 woody species, and has 4 features	**Yes**	No	No
Criteria 3:***	Qualifies:	**Yes**	No	**Yes**
	Hedgerow qualifies as 'important'?	**Yes**	**No**	**Yes**

** Hedgerow contains species listed as (1), (2) and/or (3)*
***Hedgerow includes all woody species mentioned in (i)-(iv), with each number reduced by one in Lancashire (for this criterion only)*
****Hedgerow is adjacent to a bridleway, footpath or byway and includes at least 4 woody species on average and 2 features from (a) to (g).*

Table 7.1.15 Species Composition, Frequency and Percentage Cover for Hedgerows 13, 14 and 15

Scientific Name	Common Name	Hedgerow 13		Hedgerow 14		Hedgerow 15	
		Freq.[1]	%[2]	Freq.[1]	%[2]	Freq.[1]	%[2]
Woody Species							
Acer campestre	Field Maple	-	-	-	-	-	-
Acer pseudoplatanus	Sycamore	R	<1%	-	-	LF	<1%
Alnus glutinosa	Alder	-	-	-	-	-	-
Corylus avellana	Hazel	VLA	1%	VLF	<1%	LA	1%
Crataegus monogyna	Hawthorn	A*	90%	D*	95%	D*	90%
Fraxinus excelsior	Ash	-	-	VLF	1%	LF	<1%
Ilex aquifolium	Holly	VL	<1%	VL	1%	LA	1%
Malus sylvestris	Apple species	R	<1%	-	-	-	-
Prunus spinosa	Blackthorn	LF	1%	-	-	VL	<1%
Quercus robur	Pedunculate Oak	-	-	-	-	LA	<1%
Rosa canina	Dog Rose	LF	<1%	LF	<1%	R	<1%
Sambucus nigra	Elder	LA	3%	VL	<1%	LF	<1%
Ulmus glabra	Wych Elm	-	-	-	-	VL	<1%
Understorey							
Alliaria petiolata	Garlic Mustard	F*	5%	-	-		
Alopecurus pratensis	Meadow Foxtail			VLF	1%		
Anthriscus sylvestris	Cow Parsley	LA	1%	VLA	<1%	LF	<1%
Arrhenatherum elatius	False Oat-grass	LF*	3%	-	-	F*	5%
Arum maculatum	Lord's-and-Ladies	VL	<1%	-	-	VL	<1%
Bromus ramosus	Hairy Brome	LF	1%	-	-	-	-
Cirsium arvense	Creeping Thistle	-	-	VL	<1%	-	-
Cirsium vulgare	Spear Thistle	-	-	R	<1%	-	-
Cruciata laevipes	Crosswort	VLA	<1%	-	-	-	-
Dactylis glomerata	Cock's-foot	F*	2%	VLF	<1%	F*	5%
Dryopteris dilatata	Broad Buckler-fern	-	-	-	-	VL	<1%
Epilobium hirsutum	Great Willowherb	-	-	VL	<1%	-	-
Equisetum arvense	Field Horsetail	R	<1%	VL	<1%	-	-
Galium aparine	Cleavers	F*	10%	A*	1%	F*	3%
Geum urbanum	Wood Avens	VL	<1%	-	-	LF	<1%
Geranium robertianum	Herb-robert	F*	1%	-	-	-	-
Hedera helix	Ivy	LA	<1%	-	-	LA	<1%
Heracleum sphondylium	Hogweed	VLF	<1%	VL	<1%	-	-
Lamium purpureum	Red Dead-nettle	R	<1%	-	-	-	-
Lolium perenne	Perennial Rye-grass			LA*	3%	-	-
Lonicera periclymenum	Honeysuckle	-	-	VLA	<1%	-	-
Mercurialis perennis	Dog's Mercury	LA/F*	20%	-	-	VLF	<1%
Papaver sp.	Poppy species (exotic)	-	-	-	-	R	<1%
Poa pratensis	Smooth Meadow-grass	VL	<1%	-	-	-	-
Poa trivialis	Rough Meadow-grass	-	-	-	-	F*	1%
Ranunculus repens	Creeping Buttercup	-	-	LF	<1%	-	-
Rubus fruticosus agg.	Bramble	LF	<1%	LA	3%	VL	<1%
Rumex obtusifolius	Broad-leaved Dock	-	-	R	<1%	-	-

Table 7.1.15 (continued) Species Composition, Frequency and Percentage Cover for Hedgerows 13, 14 and 15

Scientific Name	Common Name	Hedgerow 13		Hedgerow 14		Hedgerow 15	
		Freq.[1]	%[2]	Freq.[1]	%[2]	Freq.[1]	%[2]
Stachys sylvatica	Hedge Woundwort	VL	<1%	-	-	-	-
Stellaria holostea	Greater Stitchwort	VL	<1%	-	-	-	-
Stellaria media	Common Chickweed	R	<1%	-	-	-	-
Taraxacum officinale	Dandelion	VL	<1%	-	-	VL	<1%
Urtica dioica	Common Nettle	LF	<1%	VLA	2%	A*	10%
Veronica chamaedrys	Germander Speedwell	VL	<1%	VLF	<1%	-	-
Continued overleaf							
Continued							
	Total Woody Species	8		6		10	
	Total Qualifying Woody Species	7		6		9	
	Total Qualifying Woodland Species	5		0		4	

[1]**Freq.**=Frequency. [2]**%**=Percentage Cover
Key to DAFOR: D=Dominant, A=Abundant, F=Frequent, O=Occasional, R=Rare, V=Very, L=Local and *denotes a constant species
Species shaded grey are those listed as either woody or woodland species in *The Hedgerows Regulations 1997*

Table 7.1.16 Description and Importance in Accordance with *The Hedgerows Regulations 1997 of:*

		Hedgerow 16	Hedgerow 17	Hedgerow 18
Description	Height(m) x width(m) x length(m)	1.5 x 1.5 x 225	1.5 x 1.5 x 28	1.5 x 1.5 x 135
	Continuity	80%	100%	100%
	Management	Trimmed	Trimmed	Trimmed
Number of Qualifying Woody Species	Total number of woody species	7	3	6
	Section number	1 | 2 | 3	1 | - | -	1 | 2 | -
	Qualifying woody species	4 | 3 | 5	3 | - | -	4 | 3 | -
	Average number	4	3	4
Number of Features Present	(a) Bank or wall along at least ½ length	No	No	No
	(b) Gaps which in aggregate do not exceed 10%	Yes	Yes	Yes
	(c)-(e) 1 standard tree per 50m	Yes (11)	No (0)	No (2)
	(f) At least 3 woodland species	No (1)	No (0)	No (1)
	(g) Ditch along at least 1/2 its length	No	No	No
	(h) Connections scoring 4 points or more	No	No	No
	(i) Parallel hedge within 15m	No	No	No
	Total Features	**2**	**1**	**1**

Table 7.1.16 (continued) **Description and Importance in accordance with *The Hedgerows Regulations 1997 of:***

		Hedgerow 16	Hedgerow 17	Hedgerow 18
Criteria 1*:	(1)Part 1 of Schedule 1, Schedule 5 or Schedule 8 of W&C Act 1981	No	No	No
	(2)Declining breeders in 'Red Data Birds of Britain'	No	No	No
	(3)Categorised as 'endangered', 'extinct' or 'vulnerable'	No	No	No
***Criteria 2**:*	(i)At least 7 Woody Species	No	No	No
	(ii)At least 6 woody species and at least 3 features	No	No	No
	(iii)At least 6 woody species, inc. one of: Black poplar, L-leaved Lime, S-leaved Lime or Wild Service Tree	No	No	No
	(iv)At least 5 woody species, and has 4 features	No	No	No
Criteria 3:*	Qualifies:	No	No	**No**
	Hedgerow qualifies as 'important'?	**No**	**No**	**No**

** Hedgerow contains species listed as (1), (2) and/or (3)*
***Hedgerow includes all woody species mentioned in (i)-(iv), with each number reduced by one in Lancashire (for this criterion only)*
****Hedgerow is adjacent to a bridleway, footpath or byway and includes at least 4 woody species on average and 2 features from (a) to (g).*

Table 7.1.17 Species Composition, Frequency and Percentage Cover for Hedgerows 16, 17 and 18

Scientific Name	Common Name	Hedgerow 16		Hedgerow 17		Hedgerow 18	
		Freq.[1]	%[2]	Freq.[1]	%[2]	Freq.[1]	%[2]
Woody Species							
Acer pseudoplatanus	Sycamore	VL	<1%	-	-	VLA	<1%
Crataegus monogyna	Hawthorn	LA	40%	D	100%	LD	70%
Fraxinus excelsior	Ash	LA	5%	-	-	LF	<1%
Prunus spinosa	Blackthorn	VLA	<1%	-	-	LD	20%
Quercus robur	Pedunculate Oak	VL	<1%	-	-	-	-
Rosa canina	Dog Rose	VL	<1%	R	<1%	VL	<1%
Sambucus nigra	Elder	LA	10%	VL	<1%	F	3%
Understorey		-	-	-	-	-	-
Alopecurus pratensis	Meadow Foxtail	F	5%	F*	1%	F	1%
Anthriscus sylvestris	Cow Parsley	LF	<1%	-	-	VL	<1%
Arrhenatherum elatius	False Oat-grass	F/LA	5%	-	-	F	3%
Cirsium arvense	Creeping Thistle	VL	<1%	-	-	VL	<1%

Table 7.1.17 (continued) Species Composition, Frequency and Percentage Cover for Hedgerows 16, 17 and 18

Scientific Name	Common Name	Hedgerow 16		Hedgerow 17		Hedgerow 18	
		Freq.[1]	%[2]	Freq.[1]	%[2]	Freq.[1]	%[2]
Dactylis glomerata	Cock's-foot	F*	10%	-	-	LA	1%
Filipendula ulmaria	Meadowsweet	-	-	-	-	LF	<1%
Galium aparine	Cleavers	F*	1%	A	1%	-	-
Heracleum sphondylium	Hogweed	-	-	-	--	VLF	<1%
Lolium perenne	Perennial Rye-grass	F*	2%	F*	5%	F*	1%
Mercurialis perennis	Dog's Mercury	LA	<1%	-	-	LA	<1%
Poa trivialis	Rough Meadow-grass	F/LA	10%	-	-	-	-
Ranunculus repens	Creeping Buttercup	VL	<1%	-	-	LF	<1%
Rubus fruticosus agg.	Bramble	LA	5%	-	-	-	-
Rumex obtusifolius	Broad-leaved Dock	VL	<1%	-	-	-	-
Stachys sylvatica	Hedge Woundwort	F	<1%	-	-	-	-
Stellaria media	Common Chickweed	-	-	-	-	VL	<1%
Stellaria holostea	Greater Stitchwort	-	-	-	-	VL	<1%
Trifolium pratense	Red Clover	VL	<1%	-	-	VL	<1%
Urtica dioica	Common Nettle	LD	20%	A	10%	F*	1%
Total Woody Species		7		3		6	
Total Qualifying Woody Species		6		3		5	
Total Qualifying Woodland Species		1		0		1	

[1]**Freq.**=Frequency. [2]**%**=Percentage Cover
Key to DAFOR: D=Dominant, A=Abundant, F=Frequent, O=Occasional, R=Rare, V=Very, L=Local and *denotes a constant species
Species shaded grey are those listed as either woody or woodland species in *The Hedgerows Regulations 1997*

Table 7.1.18 Description and Importance in Accordance with *The Hedgerows Regulations 1997 of:*

		Hedgerow 19				
Description	Height(m) x width(m) x length(m)	1.5 x 2 x 230				
	Continuity	70%				
	Management	Trimmed				
Number of Qualifying Woody Species	Total number of woody species	11				
	Section number	1	2	3		
	Qualifying woody species	5	4	7		
	Average number	5				

Table 7.1.18 (continued) Description and Importance in Accordance with *The Hedgerows Regulations 1997 of:*

		Hedgerow 19		
Number of Features Present	(a) Bank or wall along at least ½ length	No		
	(b) Gaps which in aggregate do not exceed 10%	Yes		
	(c)-(e) 1 standard tree per 50m	Yes (11)		
	(f) At least 3 woodland species	Yes (5)		
	(g) Ditch along at least 1/2 its length	No		
	(h) Connections scoring 4 points or more	No		
	(i) Parallel hedge within 15m	No		
	Total Features	**3**		
Criteria 1*:	(1)Part 1 of Schedule 1, Schedule 5 or Schedule 8 of W&C Act 1981	Yes (Bluebell)		
	(2)Declining breeders in 'Red Data Birds of Britain'	No		
	(3)Categorised as 'endangered', 'extinct' or 'vulnerable'	No		
Criteria 2**:	(i)At least 7 Woody Species	No		
	(ii)At least 6 woody species and at least 3 features	Yes		
	(iii)At least 6 woody species, inc. one of: Black poplar, L-leaved Lime, S-leaved Lime or Wild Service Tree	No		
	(iv)At least 5 woody species, and has 4 features	No		
Criteria 3:***	Qualifies:	No		
	Hedgerow qualifies as 'important'?	**Yes**		

** Hedgerow contains species listed as (1), (2) and/or (3)*
***Hedgerow includes all woody species mentioned in (i)-(iv), with each number reduced by one in Lancashire(for this criterion only)*
****Hedgerow is adjacent to a bridleway, footpath or byway and includes at least 4 woody species on average and 2 features from (a) to (g).*

Table 7.1.19 Species Composition, Frequency and Percentage Cover for Hedgerow 19

Scientific Name	Common Name	Hedgerow 19							
		Freq.[1]	% [2]						
Woody Species									
Acer campestre	Field Maple	VL	<1%						
Acer pseudoplatanus	Sycamore	F*	3%						
Corylus avellana	Hazel	VL	<1%						
Crataegus monogyna	Hawthorn	F/LA*	60%						
Fagus sylvatica	Beech	VL	<1%						
Fraxinus excelsior	Ash	LF	1%						
Ilex aquifolium	Holly	VL	<1%						
Prunus spinosa	Blackthorn	LA	2%						
Quercus robur	Pedunculate Oak	LF	1%						
Rosa canina	Dog Rose	LF	<1%						
Sambucus nigra	Elder	F	2%						
Ulmus glabra	Wych Elm	VLF	<1%						
Understorey									
Alopecurus pratensis	Meadow Foxtail	LF	1%						
Anthriscus sylvestris	Cow Parsley	LF	<1%						
Arrhenatherum elatius	False Oat-grass	F	1%						
Dactylis glomerata	Cock's-foot	F*	1%						
Dryopteris filix-mas	Male-fern	R	<1%						
Epilobium hirsutum	Great Willowherb	R	<1%						
Galium aparine	Cleavers	F*	<1%						
Geum urbanum	Wood Avens	VL	<1%						
Geranium robertianum	Herb-robert	LF	<1%						
Hedera helix	Ivy	LA	<1%						
Hyacinthoides non-scripta	Bluebell	R	<1%						
Impatiens glandulifera	Indian Balsam	LF	<1%						
Lolium perenne	Perennial Rye-grass	F*	1%						
Mercurialis perennis	Dog's Mercury	LA	<1%						
Poa trivialis	Rough Meadow-grass	LF	<1%						
Ranunculus acris	Meadow Buttercup	VL	<1%						
Ranunculus repens	Creeping Buttercup	LF	<1%						
Rubus fruticosus agg.	Bramble	LF	<1%						
Urtica dioica	Common Nettle	F/LA*	1%						
Total Woody Species		12							
Total Qualifying Woody Species		11							
Total Qualifying Woodland Species		5							

[1]**Freq.**=Frequency. [2]**%**=Percentage Cover

Key to DAFOR: D=Dominant, A=Abundant, F=Frequent, O=Occasional, R=Rare, V=Very, L=Local and *denotes a constant species

Species shaded grey are those listed as either woody or woodland species in *The Hedgerows Regulations 1997*

Table 7.1.20 Description and Importance in Accordance With *The Hedgerows Regulations 1997 of:*

		Hedgerow a	Hedgerow b	Hedgerow c
Description	Height(m) x width(m) x length(m)	2x1.5-2x140	2-2.5x2x140	2x3x135
	Continuity	95%	95%	99%
	Management	Trimmed	Trimmed	Trimmed
Number of Qualifying Woody Species	Total number of qualifying woody species	5	2	3
	Section number	**S1 | S2 | S3**	**S1 | S2 | S3**	**S1 | S2 | S3**
	Qualifying woody species	3 | 4 | -	2 | 2 | 1	2 | 2 | 2
	Average number	4	2	2
Number of Features Present	(a) Bank or wall along at least ½ length	No	No	No
	(b) Gaps which in aggregate do not exceed 10%	Yes	Yes	Yes
	(c)-(e) 1 standard tree per 50m	Yes (7)	Yes (12)	Yes (7)
	(f) At least 3 woodland species	No (2)	No (0)	No (1)
	(g) Ditch along at least 1/2 its length	No	No	No
	(h) Connections scoring 4 points or more	No	No	No
	(i) Parallel hedge within 15m	No	No	No
	Total Features	**2**	**2**	**2**
Criteria 1*:	(1)Part 1 of Schedule 1, Schedule 5 or Schedule 8 of W&C Act 1981	No	No	No
	(2)Declining breeders in 'Red Data Birds of Britain'	No	No	No
	(3)Categorised as 'endangered', 'extinct' or 'vulnerable'	No	No	No
Criteria 2**:	(i)At least 7 Woody Species	No	No	No
	(ii)At least 6 woody species and at least 3 features	No	No	No
	(iii)At least 6 woody species, inc. one of: Black poplar, L-leaved Lime, S-leaved Lime or Wild Service Tree	No	No	No
	(iv)At least 5 woody species, and has 4 features	No	No	No
Criteria 3:***	Qualifies:	**Yes**	No	No
Hedgerow qualifies as 'important'?		**Yes**	**No**	**No**

** Hedgerow contains species listed as (1), (2) and/or (3)*
***Hedgerow includes all woody species mentioned in (i)-(iv), with each number reduced by one in Lancashire(for this criterion only)*
****Hedgerow is adjacent to a bridleway, footpath or byway and includes at least 4 woody species on average and 2 features from (a) to (g).*

Table 7.1.21 Species Composition, Frequency and Percentage Cover for Hedgerows Ha, Hb and Hc

Scientific Name	Common Name	Hedgerow a		Hedgerow b		Hedgerow c	
		Freq.[1]	%[2]	Freq[1]	%[2]	Freq.[1]	%[2]
Woody Species							
Alnus glutinosa	Alder	-	-	-	-	VL	<1%
Crataegus monogyna	Hawthorn	A/LD*	90%	D*	95%	D*	99%
Fraxinus excelsior	Ash	LA	5%	LF	2%	L	1%
Malus sp.	Apple species	R	<1%	-	-	-	-
Prunus spinosa	Blackthorn	LA	5%	-	-	-	-
Sambucus nigra	Elder	R	<1%	-	-	-	-
Understorey							
Aegopodium podagraria	Ground Elder	LVA	2%	-	-	VLF	<1%
Alopecurus pratensis	Meadow Foxtail	F*	5%	LA*	5%	F*	1%
Anthriscus sylvestris	Cow Parsley	VL	<1%	LF	<1%	VLF	<1%
Arrhenatherum elatius	False Oat-grass	LA	1%	F*	10%	LA	3%
Arum maculatum	Lord's-and-Ladies	R	<1%	-	-	-	-
Cirsium arvense	Creeping Thistle	VL	<1%	VL	<1%	VL	<1%
Dactylis glomerata	Cock's-foot	-	-	VL	<1%	-	-
Dryopteris filix-mas	Male-fern	-	-	-	-	R	<1%
Filipendula ulmaria	Meadowsweet	VLF	<1%	-	-	-	-
Galium aparine	Cleavers	F*	1%	A*	1%	F*	1%
Hedera helix	Ivy	LA	<1%	-	-	-	-
Heracleum sphondylium	Hogweed	LF	<1%	VLF	<1%	LF	<1%
Mercurialis perennis	Dog's Mercury	VL	<1%	-	-	-	-
Petasites hybridus	Butterbur	R	<1%	-	-	-	-
Poa trivialis	Rough Meadow-grass	F	2%	F*	3%	LF	<1%
Ranunculus repens	Creeping Buttercup	LF	<1%	VL	<1%	VL	<1%
Rubus fruticosus agg.	Bramble	VL	<1%	VL	<1%	VLF	<1%
Rumex obtusifolius	Broad-leaved Dock	-	-	-	-	VL	<1%
Taraxacum officinale	Dandelion	-	-	-	-	VL	<1%
Urtica dioica	Common Nettle	LA	3%	F*	3%	LA	5%
Veronica chamaedrys	Germander Speedwell	VLF	<1%	-	-	R	<1%
Vicia cracca	Tufted Vetch	VL	<1%	-	-	-	-
Total Qualifying Woody Species		5		2		3	
Total Qualifying Woodland Species		2		0		1	

[1]**Freq.**=Frequency. [2]**%**=Percentage Cover
Key to DAFOR: D=Dominant, A=Abundant, F=Frequent, O=Occasional, R=Rare, V=Very, L=Local and *denotes a constant species
Species shaded grey are those listed as either woody or woodland species in *The Hedgerows Regulations 1997*

Table 7.1.22 Description and Importance in Accordance with *The Hedgerows Regulations 1997* of:

		Hedgerow d			Hedgerow e			Hedgerow f		
Description	Height(m) x width(m) x length(m)	2x1.5-2x270			1.5x1.5x130			2x1x60		
	Continuity	95%			90%			30%		
	Management	Trimmed			Trimmed			Trimmed		
Number of Qualifying Woody Species	Total number of qualifying woody species	3			9			3		
	Section number	**S1**	**S2**	**S3**	**S1**	**S2**	**S3**	**S1**	**S2**	**S3**
	Qualifying woody species	3	2	2	8	5	-	3	-	-
	Average number	2			7			3		
Number of Features Present	(a) Bank or wall along at least ½ length	No			No			No		
	(b) Gaps which in aggregate do not exceed 10%	Yes			Yes			No		
	(c)-(e) 1 standard tree per 50m	Yes (8)			Yes (12)			Yes (5)		
	(f) At least 3 woodland species	No (0)			Yes (4)			No (1)		
	(g) Ditch along at least 1/2 its length	No			No			No		
	(h) Connections scoring 4 points or more	No			No			No		
	(i) Parallel hedge within 15m	No			Yes			No		
	Total Features	**2**			**4**			**1**		
Criteria 1*:	(1)Part 1 of Schedule 1, Schedule 5 or Schedule 8 of W&C Act 1981	No			No			No		
	(2)Declining breeders in 'Red Data Birds of Britain'	No			No			No		
	(3)Categorised as 'endangered', 'extinct' or 'vulnerable'	No			No			No		
Criteria 2**:	(i)At least 7 Woody Species	No			**Yes**			No		
	(ii)At least 6 woody species and at least 3 features	No			**Yes**			No		
	(iii)At least 6 woody species, inc. one of: Black poplar, L-leaved Lime, S-leaved Lime or Wild Service Tree	No			No			No		
	(iv)At least 5 woody species, and has 4 features	No			**yes**			No		
Criteria 3:***	Qualifies:	No			**Yes**			No		
Hedgerow qualifies as 'important'?		**No**			**Yes**			**No**		

** Hedgerow contains species listed as (1), (2) and/or (3)*
***Hedgerow includes all woody species mentioned in (i)-(iv), with each number reduced by one in Lancashire(for this criterion only)*
****Hedgerow is adjacent to a bridleway, footpath or byway and includes at least 4 woody species on average and 2 features from (a) to (g).*

Table 7.1.23 Species Composition, Frequency and Percentage Cover for Hedgerows Hd, He and Hf

Scientific Name	Common Name	Hedgerow d		Hedgerow e		Hedgerow f	
		Freq.[1]	%[2]	Freq[1]	%[2]	Freq.[1]	%[2]
Woody Species							
Acer pseudoplatanus	Sycamore	-	-	VLA	1%	-	-
Alnus glutinosa	Alder	-	-	-	-	LF	5%
Corylus avellana	Hazel	-	-	VL	<1%	-	-
Crataegus monogyna	Hawthorn	D*	97%	D*	90%	LF	20%
Fraxinus excelsior	Ash	F/LA	3%	F	3%	VL	5%
Ilex aquifolium	Holly	-	-	LA	5%	-	-
Prunus spinosa	Blackthorn	-	-	VLF	<1%	-	-
Quercus robur	Pedunculate Oak	-	-	VL	<1%	-	-
Rosa canina	Dog Rose	-	-	VL	<1%	-	-
Sambucus nigra	Elder	-	-	R	<1%	-	-
Ulmus sp.	Elm species	R	<1%	R	<1%	-	-
Understorey							
Alliaria petiolata	Garlic Mustard	-	-	LF	<1%	-	-
Alopecurus pratensis	Meadow Foxtail	F*	3%	-	-	LF	1%
Anthoxanthum oderatum	Sweet Vernal-grass	-	-	-	-	VL	<1%
Anthriscus sylvestris	Cow Parsley	VLF	<1%	LF	<1%	VL	<1%
Arrhenatherum elatius	False Oat-grass	F/LA*	5%	LA	2%	LF	1%
Arum maculatum	Lord's-and-Ladies	-	-	R	<1%	-	-
Bromus hordeaceus	Soft-brome	-	-	R	<1%	-	-
Cirsium arvense	Creeping Thistle	VLF	<1%	-	-	R	<1%
Cruciata laevipes	Crosswort	-	-	R	<1%	-	-
Dactylis glomerata	Cock's-foot	-	-	VL	<1%1	VLF	<1%
Equisetum arvense	Field Horsetail	-	-	R	<1%	R	<1%
Epilobium hirsutum	Great Willowherb	VL	<1%	-	-	-	-
Galium aparine	Cleavers	F*	1%	F*	1%	LF	<1%
Geranium robertianum	Herb-robert	-	-	VL	<1%	-	-
Geum urbanum	Wood Avens	-	-	LA	2%	VL	<1%
Hedera helix	Ivy	-	-	VLA	<1%	-	-
Heracleum sphondylium	Hogweed	VLF	<1%	VL	<1%	-	-
Lolium perenne	Perennial Rye-grass	-	-	LF	<1%	-	-
Mercurialis perennis	Dog's Mercury	-	-	VLA	1%	-	-
Poa annua	Annual Meadow-grass	-	-	VL	<1%	-	-
Poa pratensis	Smooth Meadow-grass						
Poa trivialis	Rough Meadow-grass	F	<1%	F	2%	F/LA*	3%
Ranunculus acris	Meadow Buttercup	-	-	-	-	R	<1%
Ranunculus repens	Creeping Buttercup	VL	<1%	LF	<1%	-	-
Rubus fruticosus agg.	Bramble	-	-	VL	<1%	-	-
Stachys sylvatica	Hedge Wound-wort	-	-	R	<1%	-	-
Taraxacum officinale	Dandelion	-	-	R	<1%	-	-
Urtica dioica	Common Nettle	F/LA	3%	VLF	1%	LF	1%
Veronica chamaedrys	Germander Speedwell	-	-	LF	<1%	-	-

Table 7.1.23 (continued) Species Composition, Frequency and Percentage Cover for Hedgerows Hd, He and Hf

Scientific Name	Common Name	Hedgerow d		Hedgerow e		Hedgerow f	
		Freq.[1]	%[2]	Freq[1]	%[2]	Freq.[1]	%[2]
Total Qualifying Woody Species		3		9		3	
Total Qualifying Woodland Species		0		4		1	

[1]**Freq.**=Frequency. [2]**%**=Percentage Cover **Key to DAFOR:** D=Dominant, A=Abundant, F=Frequent, O=Occasional, R=Rare, V=Very, L=Local and *denotes a constant species
Species shaded grey are those listed as either woody or woodland species in *The Hedgerows Regulations 1997*

Table 7.1.24 Description and Importance in Accordance with *The Hedgerows Regulations 1997 of:*

		Hedgerow g	Hedgerow h	Hedgerow i
Description	Height(m) x width(m) x length(m)	2x1.5x90	2x2x45	1.5-2x2mx180
	Continuity	30%	100%	80%
	Management	Trimmed	Trimmed	Trimmed
Number of Qualifying Woody Species	Total number of qualifying woody species	5	2	5
	Section number	S1 | S2 | S3	S1 | S2 | S3	S1 | S2 | S3
	Qualifying woody species	4 | - | -	2 | - | -	2 | 2 | -
	Average number	4	2	2
Number of Features Present	(a) Bank or wall along at least ½ length	No	No	No
	(b) Gaps which in aggregate do not exceed 10%	No	Yes	Yes
	(c)-(e) 1 standard tree per 50m	Yes (6)	No (0)	Yes (6)
	(f) At least 3 woodland species	No (0)	No (0)	Yes (0)
	(g) Ditch along at least 1/2 its length	No	No	No
	(h) Connections scoring 4 points or more	No	No	No
	(i) Parallel hedge within 15m	No	No	No
	Total Features	1	1	3
Criteria 1*:	(1)Part 1 of Schedule 1, Schedule 5 or Schedule 8 of W&C Act 1981	No	No	No
	(2)Declining breeders in 'Red Data Birds of Britain'	No	No	No
	(3)Categorised as 'endangered', 'extinct' or 'vulnerable'	No	No	No

Table 7.1.24 (continued) **Description and Importance in Accordance with *The Hedgerows Regulations 1997 of:***

		Hedgerow g	Hedgerow h	Hedgerow i
Criteria 2**:	(i)At least 7 Woody Species	No	No	No
	(ii)At least 6 woody species and at least 3 features	No	No	No
	(iii)At least 6 woody species, inc. one of: Black poplar, L-leaved Lime, S-leaved Lime or Wild Service Tree	No	No	No
	(iv)At least 5 woody species, and has 4 features	No	No	No
Criteria 3:***	Qualifies:	No	No	No
Hedgerow qualifies as 'important'?		**No**	**No**	**No**

** Hedgerow contains species listed as (1), (2) and/or (3)*
***Hedgerow includes all woody species mentioned in (i)-(iv), with each number reduced by one in Lancashire (for this criterion only)*
****Hedgerow is adjacent to a bridleway, footpath or byway and includes at least 4 woody species on average and 2 features from (a) to (g).*

Table 7.1.25 Species Composition, Frequency and Percentage Cover for Hedgerows Hg, Hh and Hi

Scientific Name	Common Name	Hedgerow g		Hedgerow h		Hedgerow i	
		Freq.[1]	%[2]	Freq.[1]	%[2]	Freq.[1]	%[2]
Woody Species							
Acer pseudoplatanus	Sycamore	-	-	-	-	VLF	<1%
Alnus glutinosa	Alder	LF	5%	-	-	-	-
Crataegus monogyna	Hawthorn	LA	15%	D*	100%	A*	70%
Fagus sylvatica	Beech	-	-	-	-	-	-
Fraxinus excelsior	Ash	VL	<1%	-	-	LF	5%
Prunus spinosa	Blackthorn	VLA	10%	-	-	VLA	1%
Salix fragilis	Crack Willow	VL	<1%	-	-	-	-
Sambucus nigra	Elder	-	-	VL	<1%	VLF	<1%
Ulmus sp.	Elm species	-	-	-	-	VLF	<1%
Understorey							
Alopecurus pratensis	Meadow Foxtail	F*	10%	LF	<1%	F	3%
Anthriscus sylvestris	Cow Parsley	-	-	VL	<1%	VL	<1%
Arrhenatherum elatius	False Oat-grass	LF	5%	-	-	VLA	1%
Bromus hordeaceus	Soft-brome	VL	<1%	-	-	-	-
Calystegia sp.	Bindweed species	-	-	R	<1%	R	<1%
Cirsium arvense	Creeping Thistle	-	-	-	-	R	<1%
Dactylis glomerata	Cock's-foot	-	-	-	-	VL	<1%
Equisetum arvense	Field Horsetail	VL	<1%	-	-	-	-
Filipendula ulmaria	Meadowsweet	-	-	-	-	VL	<1%
Galium aparine	Cleavers	F	1%	F*	1%	F*	1%

Table 7.1.25 (continued) Species Composition, Frequency and Percentage Cover for Hedgerows Hg, Hh and Hi

Scientific Name	Common Name	Hedgerow g		Hedgerow h		Hedgerow i	
		Freq.[1]	%[2]	Freq.[1]	%[2]	Freq.[1]	%[2]
Heracleum sphondylium	Hogweed	-	-	-	-	VLF	<1%
Holcus lanatus	Yorkshire-fog	-	-	-	-	LA	1%
Lolium perenne	Perennial Rye-grass	LF	3%	-	-	-	-
Poa trivialis	Rough Meadow-grass	A*	40%	A*	5%	F*	10%
Ranunculus repens	Creeping Buttercup	VL	<1%	VL	<1%	VL	<1%
Rubus fruticosus agg.	Bramble	-	-	R	<1%	LF	3%
Rumex obtusifolius	Broad-leaved Dock	VL	<1%	R	<1%	-	-
Solanum dulcamara	Woody Nightshade	-	-	-	-	R	<1%
Urtica dioica	Common Nettle	LA	10%	A*	20%	F*	5%
Total Qualifying Woody Species		5		2		5	
Total Qualifying Woodland Species		0		0		0	

[1]**Freq.**=Frequency. [2]**%**=Percentage Cover
Key to DAFOR: D=Dominant, A=Abundant, F=Frequent, O=Occasional, R=Rare, V=Very, L=Local and *denotes a constant species
Species shaded grey are those listed as either woody or woodland species in *The Hedgerows Regulations 1997*

Table 7.1.26 Description and Importance in Accordance with *The Hedgerows Regulations 1997* of:

		Hedgerow j			Hedgerow k			Hedgerow l		
Description	Height(m) x width(m) x length(m)	2-3x2-3x300			1.5-2x1.5x200			3x2xx135		
	Continuity	100%			100%			60%		
	Management	Trimmed			Trimmed			Trimmed		
Number of Qualifying Woody Species	Total number of qualifying woody species	10			10			8		
	Section number	S 1	S 2	S 3	S 1	S 2	S 3	S 1	S 2	S 3
	Qualifying woody species	4	4	4	6	4	6	4	6	-
	Average number	4			5			5		
Number of Features Present	(a) Bank or wall along at least ½ length	No			No			No		
	(b) Gaps which in aggregate do not exceed 10%	Yes			Yes			No		
	(c)-(e) 1 standard tree per 50m	Yes (7)			No (3)			Yes (9)		
	(f) At least 3 woodland species	Yes (4)			Yes (3)			No (0)		
	(g) Ditch along at least 1/2 its length	No			No			No		
	(h) Connections scoring 4 points or more	No			No			Yes		
	(i) Parallel hedge within 15m	Yes			Yes			No		
	Total Features	**4**			**3**			**2**		

Table 7.1.26 (continued) Description and Importance in Accordance with *The Hedgerows Regulations 1997 of:*

		Hedgerow j	Hedgerow k	Hedgerow l
Criteria 1*:	(1)Part 1 of Schedule 1, Schedule 5 or Schedule 8 of W&C Act 1981	Yes	No	No
	(2)Declining breeders in 'Red Data Birds of Britain'	No	No	No
	(3)Categorised as 'endangered', 'extinct' or 'vulnerable'	No	No	No
Criteria 2**:	(i)At least 7 Woody Species	No	No	No
	(ii)At least 6 woody species and at least 3 features	No	Yes	No
	(iii)At least 6 woody species, inc. one of: Black poplar, L-leaved Lime, S-leaved Lime or Wild Service Tree	No	No	No
	(iv)At least 5 woody species, and has 4 features	**Yes**	No	No
Criteria 3:***	Qualifies:	**Yes**	**Yes**	No
	Hedgerow qualifies as 'important'?	**Yes**	**Yes**	**No**

** Hedgerow contains species listed as (1), (2) and/or (3)*
***Hedgerow includes all woody species mentioned in (i)-(iv), with each number reduced by one in Lancashire (for this criterion only)*
****Hedgerow is adjacent to a bridleway, footpath or byway and includes at least 4 woody species on average and 2 features from (a) to (g).*

Table 7.1.27 Species Composition, Frequency and Percentage Cover for Hedgerows Hj, Hk and HL

Scientific Name	Common Name	Hedgerow j		Hedgerow k		Hedgerow L	
		Freq.[1]	% [2]	Freq [1]	% [2]	Freq.[1]	% [2]
Woody Species							
Acer campestre	Field Maple	VLA	1%	VLA	<1%	R	<1%
Acer pseudoplatanus	Sycamore	VL	<1%	-	-	VL	<1%
Alnus glutinosa	Alder	-	-	-	-	LA	1%
Corylus avellana	Hazel	VL	<1%	LF	<1%	-	-
Crataegus monogyna	Hawthorn	LA/LD*	60%	A/LD*	70%	VLA	20%
Fagus sylvatica	Beech	-	-	-	-	R	<1%
Fraxinus excelsior	Ash	LF	3%	LF	<1%	LA	2%
Ilex aquifolium	Holly	-	-	VL	<1%	-	-
Prunus spinosa	Blackthorn	LA/LD*	20%	LA/LD*	30%	VL	<1%
Rosa canina	Dog Rose	VL	<1%	VL	<1%	R	<1%
Salix cineraria	Grey Willow	VL	<1%	-	-	-	-
Sambucus nigra	Elder	R	<1%	VLA	<1%	VL	<1%
Ulmus sp.	Elm species	VL	<1%	R	<1%	-	-
Viburnum opulus	Guelder Rose	VL	<1%	VL	<1%	-	-

Table 7.1.27 (continued) Species Composition, Frequency and Percentage Cover for Hedgerows Hj, Hk and HL

Scientific Name	Common Name	Hedgerow j		Hedgerow k		Hedgerow L	
		Freq.[1]	%[2]	Freq.[1]	%[2]	Freq.[1]	%[2]
Understorey							
Alliaria petiolata	Garlic Mustard	VL	<1%	VL	<1%	-	-
Alopecurus pratensis	Meadow Foxtail	VLF	<1%	VLF	<1%	LF	<1%
Anthriscus sylvestris	Cow Parsley	F	<1%	LF	<1%	VLF	<1%
Arrhenatherum elatius	False Oat-grass	LF/VLA	<1%	LF	1%	LF	<1%
Arum maculatum	Lord's-and-Ladies	VL	<1%	VL	<1%	-	-
Dactylis glomerata	Cock's-foot	VL	<1%	LF	2%	LA	5%
Filipendula ulmaria	Meadowsweet	-	-	LA	3%	-	-
Galium aparine	Cleavers	F*	<1%	F/LA*	1%	A*	3%
Geranium robertianum	Herb-robert	LF	<1%	VLF	<1%	-	-
Geum urbanum	Wood Avens	VLF	<1%	-	-	-	-
Hedera helix	Ivy	-	-	LF	<1%	-	-
Heracleum sphondylium	Hogweed	LF	<1%	VL	<1%	-	-
Hyacinthoides non-scripta	Native Bluebell	R	<1%	-	-	-	-
Lolium perenne	Perennial Rye-grass	LF	<1%	-	-	-	-
Mercurialis perennis	Dog's Mercury	LA/F	10%	LF	3%	-	-
Poa annua	Annual Meadow-grass	LF	<1%	-	-	-	-
Poa trivialis	Rough Meadow-grass	LF	3%	F*	3%	F/LA	10%
Ranunculus repens	Creeping Buttercup	VLF	<1%	LF	<1%	VLA	<1%
Rubus fruticosus agg.	Bramble	LF	<1%	VL	<1%	VLA	5%
Rumex obtusifolius	Broad-leaved Dock	VLF	<1%	VL	<1%	VL	<1%
Scrophularia nodosa	Common Figwort	-	-	R	<1%	-	-
Stachys sylvatica	Hedge Wound-wort	-	-	R	<1%	-	-
Taraxacum officinale	Dandelion	R	<1%	-	-	VL	<1%
Urtica dioica	Common Nettle	F*	20%	F	3%	F/LA*	10%
Veronica chamaedrys	Germander Speedwell	R	<1%	-	-	VL	<1%
Total Qualifying Woody Species		10		10		8	
Total Qualifying Woodland Species		4		3		0	

[1]**Freq.**=Frequency, [2]**%**=Percentage Cover, **Key to DAFOR:** D=Dominant, A=Abundant, F=Frequent, O=Occasional, R=Rare, V=Very, L=Local and *denotes a constant species,
Species shaded grey are those listed as either woody or woodland species in *The Hedgerows Regulations 1997*

Table 7.1.28 Description and Importance in Accordance with *The Hedgerows Regulations 1997* of:

		Hedgerow m	Hedgerow n	Hedgerow o
Description	Height(m) x width(m) x length(m)	2-3x3x265	1 5-2x2x480	1.5x2x95
	Continuity	60%	99%	100%
	Management	Unmanaged	Trimmed	Trimmed
Number of Qualifying Woody Species	Total number of qualifying woody species	11	8	6
	Section number	S1 | S2 | S3	S1 | S2 | S3	S1 | S2 | S3
	Qualifying woody species	5 | 5 | 4	2 | 3 | 7	2 | - | -
	Average number	5	4	2
Number of Features Present	(a) Bank or wall along at least ½ length	No	No	No
	(b) Gaps which in aggregate do not exceed 10%	No	Yes	Yes
	(c)-(e) 1 standard tree per 50m	No (4)	No (8)	Yes (2)
	(f) At least 3 woodland species	Yes (5)	Yes (4)	No (0)
	(g) Ditch along at least 1/2 its length	Yes	No	No
	(h) Connections scoring 4 points or more	Yes	No	No
	(i) Parallel hedge within 15m	No	Yes	Yes
	Total Features	**3**	**3**	**3**
Criteria 1*:	(1)Part 1 of Schedule 1, Schedule 5 or Schedule 8 of W&C Act 1981	No	No	No
	(2)Declining breeders in 'Red Data Birds of Britain'	No	No	No
	(3)Categorised as 'endangered', 'extinct' or 'vulnerable'	No	No	No
Criteria 2**:	(i)At least 7 Woody Species	No	No	No
	(ii)At least 6 woody species and at least 3 features	**Yes**	No	No
	(iii)At least 6 woody species, inc. one of: Black poplar, L-leaved Lime, S-leaved Lime or Wild Service Tree	No	No	No
	(iv)At least 5 woody species, and has 4 features	No	No	No
Criteria 3:***	Qualifies:	No	**Yes**	No
	Hedgerow qualifies as 'important'?	**Yes**	**Yes**	**No**

** Hedgerow contains species listed as (1), (2) and/or (3)*
***Hedgerow includes all woody species mentioned in (i)-(iv), with each number reduced by one in Lancashire (for this criterion only)*
****Hedgerow is adjacent to a bridleway, footpath or byway and includes at least 4 woody species on average and 2 features from (a) to (g).*

Table 7.1.29 Species Composition, Frequency and Percentage Cover for Hedgerows Hm, Hn and Ho

Scientific Name	Common Name	Hedgerow m		Hedgerow n		Hedgerow o	
		Freq.[1]	%[2]	Freq[1]	%[2]	Freq.[1]	%[2]
Woody Species							
Acer pseudoplatanus	Sycamore	LF	<1%	R	<1%	-	-
Alnus glutinosa	Alder	LF	1%	-	-	-	-
Betula pendula	Silver Birch	R	<1%	-	-	-	-
Corylus avellana	Hazel	LF	<1%	VL	<1%	-	-
Crataegus monogyna	Hawthorn	LA	40%	LD*	90%	A/LD*	40%
Cupressocyparis x leylandii	Leylandii Cypress	-	-	-	-	R	<1%
Fagus sylvatica	Beech	VL	<1%	VL	<1%	-	-
Fraxinus excelsior	Ash	LA	10%	VL	1%	VL	<1%
Ilex aquifolium	Holly	VL	<1%	-	-	-	-
Prunus spinosa	Blackthorn	LA	10%	LD	10%	LD*	55%
Rosa canina	Dog Rose	VL	<1%	VL	<1%	VL	<1%
Sambucus nigra	Elder	VL	<1%	VL	<1%	R	<1%
Ulmus sp.	Elm species	R	<1%	R	<1%	-	-
Understorey							
Alopecurus pratensis	Meadow Foxtail	VLF	<1%	LF	<1%	F*	3%
Anthoxanthum oderatum	Sweet Vernal-grass	VL	<1%	-	-	-	-
Anthriscus sylvestris	Cow Parsley	VLF	<1%	LF	<1%	F	1%
Arrhenatherum elatius	False Oat-grass	-	-	LF	<1%	LF	<1%
Arum maculatum	Lord's-and-Ladies	VL	<1%	VLF	<1%	-	-
Bromus hordeaceus	Soft-brome	VL	<1%	VL	<1%	-	-
Calystegia sp.	Bindweed species	VLF	<1%	R	<1%	-	-
Cirsium arvense	Creeping Thistle	VL	<1%	-	-	VL	<1%
Cruciata laevipes	Crosswort	VLF	<1%	R	<1%	R	<1%
Dactylis glomerata	Cock's-foot	-	-	LF	<1%	-	-
Dryopteris filix-mas	Male-fern	R	<1%	-	-	-	-
Equisetum arvense	Field Horsetail	VL	<1%	VL	<1%	-	-
Epilobium hirsutum	Great Willowherb	VL	<1%	-	-	-	-
Filipendula ulmaria	Meadowsweet	VL	<1%	-	-	-	-
Galium aparine	Cleavers	F*	1%	F*	<1%	F*	1%
Geranium robertianum	Herb-robert	F	<1%	LF	<1%	-	-
Geum rivale	Water Avens	VLF	<1%	-	-	-	-
Geum urbanum	Wood Avens	VL	<1%	LF	<1%	-	-
Glyceria fluitans	Floating Sweet-grass	VLA	<1%	-	-	-	-
Hedera helix	Ivy	F*	3%	LF	<1%	-	-
Heracleum sphondylium	Hogweed	-	-	VL	<1%	VL	<1%
Holcus lanatus	Yorkshire-fog	LF	3%	-	-	-	-
Juncus effusus	Soft-rush	LF	<1%	-	-	-	-
Lolium perenne	Perennial Rye-grass			R	<1%	F	3%
Mercurialis perennis	Dog's Mercury	LA	5%	F/LA	5%	-	-
Poa trivialis	Rough Meadow-grass	F*	3%	F	1%	F*	10%
Ranunculus repens	Creeping Buttercup	VLA	<1%	VLF	<1%	VL	<1%
Rubus fruticosus agg.	Bramble	LA	15%	-	-	-	-

Table 7.1.29 (continued) Species Composition, Frequency and Percentage Cover for Hedgerows Hm, Hn and Ho

Scientific Name	Common Name	Hedgerow m		Hedgerow n		Hedgerow o	
		Freq.[1]	%[2]	Freq[1]	%[2]	Freq.[1]	%[2]
Rumex obtusifolius	Broad-leaved Dock	-	-	VL	<1%	VL	<1%
Silene dioica	Red Campion	-	-	VL	<1%	-	-
Solanum dulcamara	Woody Nightshade	-	-	R	<1%	-	-
Continued over page							
Continued.							
Stachys sylvatica	Hedge Wound-wort	-	-	-	-	R	<1%
Stellaria media	Common Chickweed	R	<1%	-	-	-	-
Urtica dioica	Common Nettle	LA	2%	LF/VLA	2%	F*	10%
Veronica chamaedrys	Germander Speedwell	VL	<1%	-	-	-	-
Total Qualifying Woody Species		11		8		6	
Total Qualifying Woodland Species		5		4		0	

[1]**Freq.**=Frequency. [2]**%**=Percentage Cover
Key to DAFOR: D=Dominant, A=Abundant, F=Frequent, O=Occasional, R=Rare, V=Very, L=Local and *denotes a constant species
Species shaded grey are those listed as either woody or woodland species in *The Hedgerows Regulations 1997*

Table 7.1.30 Description and Importance in Accordance with *The Hedgerows Regulations 1997* of

		Hedgerow p			Hedgerow q			
Description	Height(m) x width(m) x length(m)	0.5-2x0.5-2x120			3x2-3x415			
	Continuity	50%			100%			
	Management	Trimmed			Trimmed			
Number of Qualifying Woody Species	Total number of qualifying woody species	5						
	Section number	S1	S2	S3	S1	S2	S3	
	Qualifying woody species	3	-	-	2	2	1	
	Average number	3			2			
Number of Features Present	(a) Bank or wall along at least ½ length	No			No			
	(b) Gaps which in aggregate do not exceed 10%	No			Yes			
	(c)-(e) 1 standard tree per 50m	Yes (3)			No (8)			
	(f) At least 3 woodland species	Yes (3)			Yes (4)			
	(g) Ditch along at least 1/2 its length	No			No			
	(h) Connections scoring 4 points or more	No			No			
	(i) Parallel hedge within 15m	Yes			No			
	Total Features	**3**			**2**			

Table 7.1.30 (continued) Description and Importance in Accordance with *The Hedgerows Regulations 1997 of*

		Hedgerow p	Hedgerow q	
Criteria 1*:	(1)Part 1 of Schedule 1, Schedule 5 or Schedule 8 of W&C Act 1981	No	No	
	(2)Declining breeders in 'Red Data Birds of Britain'	No	No	
	(3)Categorised as 'endangered', 'extinct' or 'vulnerable'	No	No	
Criteria 2**:	(i)At least 7 Woody Species	No	No	
	(ii)At least 6 woody species and at least 3 features	No	No	
	(iii)At least 6 woody species, inc. one of: Black poplar, L-leaved Lime, S-leaved Lime or Wild Service Tree	No	No	
	(iv)At least 5 woody species, and has 4 features	No	No	
Criteria 3:***	Qualifies:	No	No	
Hedgerow qualifies as 'important'?		**No**	**No**	

** Hedgerow contains species listed as (1), (2) and/or (3)*
***Hedgerow includes all woody species mentioned in (i)-(iv), with each number reduced by one in Lancashire (for this criterion only)*
****Hedgerow is adjacent to a bridleway, footpath or byway and includes at least 4 woody species on average and 2 features from (a) to (g).*

Table 7.1.31 Species Composition, Frequency and Percentage Cover for Hedgerows Hp and Hq

Scientific Name	Common Name	Hedgerow p		Hedgerow q			
		Freq.[1]	%[2]	Freq[1]	%[2]		
Woody Species							
Acer campestre	Field Maple	LF	<1%	-	-		
Crataegus monogyna	Hawthorn	LD	40%	D	100%		
Fraxinus excelsior	Ash	LF	<1%	VL	<1%		
Prunus spinosa	Blackthorn	LF	<1%	VLA	<1%		
Salix caprea	Goat Willow	-	-	VL	<1%		
Sambucus nigra	Elder	LF	<1%	-	-		
Understorey							
Alliaria petiolata	Garlic Mustard	VL	<1%	-	-		
Alopecurus pratensis	Meadow Foxtail	VLF	1%	LF	<1%		
Anthriscus sylvestris	Cow Parsley	LF	<1%	LF	<1%		
Arrhenatherum elatius	False Oat-grass	LF	2%	-	-		
Arum maculatum	Lord's-and-Ladies	LF	<1%	VL	<1%		
Cirsium arvense	Creeping Thistle	-	-	R	<1%		
Cruciata laevipes	Crosswort	R	<1%	R	<1%		
Dactylis glomerata	Cock's-foot	LF	<1%	F*	3%		
Dryopteris filix-mas	Male-fern	-	-	VLF	<1%		
Galium aparine	Cleavers	LA	1%	LF	<1%		

Table 7.1.31 (continued) Species Composition, Frequency and Percentage Cover for Hedgerows Hp and Hq

Scientific Name	Common Name	Hedgerow p		Hedgerow q			
		Freq.[1]	%[2]	Freq.[1]	%[2]		
Geum urbanum	Wood Avens	R	<1%	VL	<1%		
Hedera helix	Ivy	-	-	F*	<1%		
Heracleum sphondylium	Hogweed	LF	<1%	LF	<1%		
Mercurialis perennis	Dog's Mercury	F/LA	1%	VLF	<1%		
Poa trivialis	Rough Meadow-grass	F*	1%	-	-		
Ranunculus repens	Creeping Buttercup	-	-	VL	<1%		
Rubus fruticosus agg	Bramble	LD	30%	VL	<1%		
Rumex obtusifolius	Broad-leaved Dock	-	-	VL	<1%		
Solanum dulcamara	Woody Nightshade	-	-	VL	<1%		
Urtica dioica	Common Nettle	LA	10%	LA	1%		
Veronica chamaedrys	Germander Speedwell	-	-	VL	<1%		
Total Qualifying Woody Species		5		4			
Total Qualifying Woodland Species		3		4			

[1]**Freq.**=Frequency. [2]**%**=Percentage Cover
Key to DAFOR: D=Dominant, A=Abundant, F=Frequent, O=Occasional, R=Rare, V=Very, L=Local and *denotes a constant species
Species shaded grey are those listed as either woody or woodland species in *The Hedgerows Regulations 1997*

All ditches within and on the site boundaries are described in **Tables 7.2.1 to 7.2.6,** below. The location of all ditches is annotated on **Figure 7.2.**

The results of the Water Vole survey and habitat assessment at each ditch section is also presented.

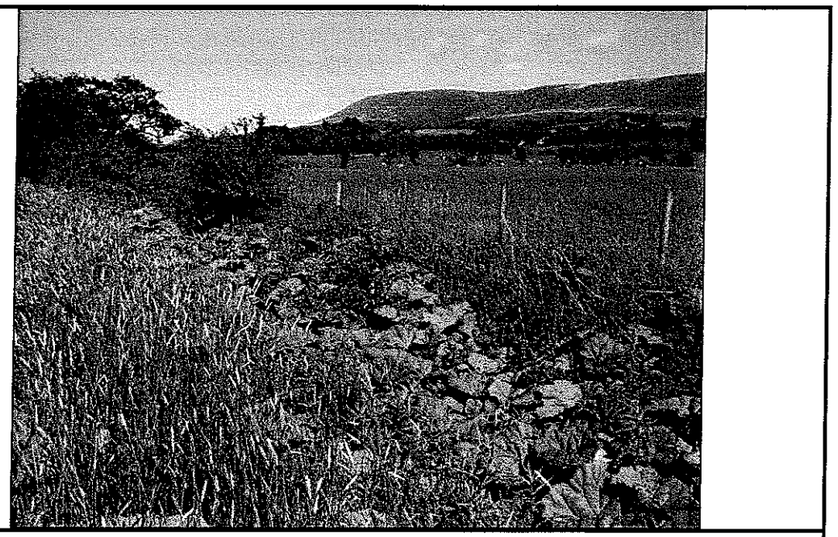
Table 7.2.1 Ditch 1 Description

Channel		
Length (m)	390 metre section surveyed	
Width (m)	Between 1-2 metres wide along the channel length.	
Water depth (m)	0.05m to dry along length with local 0.1 m deep pools	
Channel bed/silt depth	Channel bed composed from small and medium sized stones.	
Water quality indicators	Caddis fly larvae present.	
Permanence	Dries regularly.	
Shading	Locally abundant mature trees and abundant shrubs shade to 90%.	
Banks	**Northern and eastern**	**Southern and western**
Bank substrate	Stone and brown earth	Stone and brown earth
Bank height (m)	0.5	0.5
Angle of bank	$30\text{-}45^0$	$30\text{-}45^0$
Vegetation		
Aquatic vegetation	None.	
Emergent vegetation	None.	
Bankside vegetation	Locally abundant Ash trees and Hawthorn shrubs, Bramble scrub and tall herb vegetation including Common Nettle.	
Further information		
Disturbance	Little disturbance from public/ dogs.	
Water Vole activity	No evidence of Water Vole activity	
Water Vole Habitat Assessment	Ditch offers limited opportunities for use by Water Vole owing to the presence of stone banks, an absence of emergent vegetation, dense shading and regular desiccation.	
Presence of other mammals/ animals	None.	

Table 7.2.2 Ditch 2 (Pendleton Brook) Description

Channel		
Length (m)	530 metre long section surveyed	
Width (m)	Between 2 to 5 metres along the channel length.	
Water depth (m)	0.1-0.3 m along length with local 0.5 m deep pools	
Channel bed/silt depth	Channel bed composed from small and medium sized stones Local silt deposits of 0.1-0.2 m deep.	
Water quality indicators	Caddis fly larvae and Bullhead present.	
Permanence	Permanent.	
Shading	Locally abundant mature trees and shrubs shade to 30% cover.	
Banks	**Northern and eastern**	**Southern and western**
Bank substrate	Stone and brown earth	Stone and brown earth
Bank height (m)	0.5-1 m	0.5-1 m
Angle of bank	30-90^0	30-90^0
Vegetation		
Aquatic vegetation	None.	
Emergent vegetation	Very local Brooklime (*Veronica beccabunga*) and Floating Sweet-grass (*Glyceria fluitans*).	
Bankside vegetation	Locally abundant Ash trees and Hawthorn shrubs with constant coarse grasses and tall herb vegetation including locally abundant Great Willowherb, Butterbur and Common Nettle. A single stand of Japanese Knotweed is present (refer to **Figure 7.2**).	
Further information		
Disturbance	Little disturbance from public/ dogs.	
Water Vole activity	No evidence of Water Vole activity	
Water Vole Habitat Assessment	Pendleton Brook is assessed to be suitable for use by Water Vole owing to the presence of abundant bankside plants for feeding.	
Presence of mammals/ animals	Bank Vole burrows detected.	

Table 7.2.3 Ditch 3a Description



Channel		
Length (m)	235 metres	
Width (m)	Between 0.5-0.75 metres along the channel length.	
Water depth (m)	0.05 m	
Channel bed/silt depth	Channel bed composed from small and medium sized stones with local 0.05-0.1 m silt deposits.	
Water quality indicators	Caddis fly larvae present.	
Permanence	Likely permanent.	
Shading	Locally abundant mature trees and abundant shrubs shade to 40%.	
Banks	**Northern and eastern**	**Southern and western**
Bank substrate	Stone and brown earth	Stone and brown earth
Bank height (m)	0.5	0.5
Angle of bank	80-90^0	80-90^0
Vegetation		
Aquatic vegetation	None.	
Emergent vegetation	Locally frequent Water-mint, Floating Sweet-grass and Yellow Iris.	
Bankside vegetation	Locally abundant Hawthorn shrubs, Bramble scrub and tall herb vegetation including Common Figwort, Butterbur and Common Nettle.	
Further information		
Disturbance	None.	
Water Vole activity	No evidence of Water Vole activity	
Water Vole Habitat Assessment	Ditch offers limited opportunities for use by Water Vole owing to the presence of stone banks, an absence of emergent vegetation and occasional areas of dense shading.	
Presence of other mammals/ animals	None.	

Table 7.2.4 Ditch 3b Description, Habitat Assessment and Presence/Absence Information for Water Vole

Channel		
Length (m)	300 metre section surveyed	
Width (m)	Between 0.5 and 0.75 metres along the channels length.	
Water depth (m)	0.05 m	
Channel bed/silt depth	Channel bed composed from small and medium sized stones with local 0.05-0.1 m silt deposits.	
Water quality indicators	Caddis fly larvae present.	
Permanence	Likely permanent.	
Shading	Locally abundant mature trees and abundant shrubs shade to 20%.	
Banks	**Northern and eastern**	**Northern and eastern**
Bank substrate	Stone and brown earth	Stone and brown earth
Bank height (m)	0.5	0.5
Angle of bank	80-90^0	80-90^0
Vegetation		
Aquatic vegetation	None.	
Emergent vegetation	Locally frequent Water-mint, Floating Sweet-grass and Yellow-flag.	
Bankside vegetation	Locally abundant Hawthorn shrubs, Bramble scrub and tall herb vegetation including Butterbur and Common Nettle.	
Further information		
Disturbance	None.	
Water Vole activity	No evidence of Water Vole activity	
Water Vole Habitat Assessment	Assessed to be suitable for use by Water Vole owing to the presence of abundant bankside plants for feeding.	
Presence of other mammals/ animals	None	

Table 7.2.5 Ditch 3c Description, Habitat Assessment and Presence/Absence Information for Water Vole

Channel		
Length (m)	310 metre section surveyed	
Width (m)	Between 1 and 3 metres along the channels length.	
Water depth (m)	0.05 m- 0.15 m along channels length.	
Channel bed/silt depth	Channel bed composed from small and medium sized stones.	
Water quality indicators	Bullhead and Caddis fly larvae present.	
Permanence	Likely permanent.	
Shading	Locally abundant mature trees and abundant shrubs shade to 90%.	
Banks	**Northern and eastern**	**Southern and western**
Bank substrate	Stone and brown earth	Stone and brown earth
Bank height (m)	0.5	0.5
Angle of bank	70-90^{0}	70-90^{0}
Vegetation		
Aquatic vegetation	None.	
Emergent vegetation	None.	
Bankside vegetation	Locally abundant Ash trees and Hawthorn shrubs, Bramble scrub and coarse grasses.	
Further information		
Disturbance	Little disturbance from public/ dogs.	
Water Vole activity	No evidence of Water Vole activity	
Water Vole Habitat Assessment	Assessed to be suitable for use by Water Vole owing to the presence of abundant bankside plants for feeding.	
Presence of other mammals/ animals	None.	

Table 7.2.6 Ditch 4 Description, Habitat Assessment and Presence/Absence Information for Water Vole

Channel		
Length (m)	250 metre section surveyed	
Width (m)	Between 0.3 and 0.5 m wide along length	
Water depth (m)	0.1-0.15 m	
Channel bed/silt depth	Small stone and silt base (silt depth 0.05-0.1 m)	
Water quality indicators	Caddis fly larvae present	
Permanence	Likely permanent.	
Shading	Shaded along length by Hawthorn shrubs and mature trees to 10%	
Banks	**Northern**	**Southern**
Bank substrate	Stone and brown earth	Stone and brown earth
Bank height (m)	0.3m	0.3m
Angle of bank	80-90^0	80-90^0
Vegetation		
Aquatic vegetation	None.	
Emergent vegetation	Locally abundant Yellow-flag Iris, Floating sweet-grass, Brooklime.	
Bankside vegetation	5 m-wide strips of relatively species-rich mesotrophic and marshy grassland with abundant forage plants.	
Further information		
Disturbance	Little disturbance from public/ dogs.	
Water Vole activity	No evidence of Water Vole activity	
Water Vole Habitat Assessment	Assessed to be suitable for use by Water Vole owing to the presence of abundant bankside plants for feeding and dense cover for runs and above ground nests in the summer months.	
Presence of other mammals/ animals	None.	

Appendix 7.3
Great Crested Newt Survey

15 Pages

7.3.1 Introduction

7.3.1.1 Rationale and Scope of Survey

Great Crested Newts receive full protection under European and UK wildlife legislation.

The presence of a protected species is a material consideration in connection with a planning decision. It was therefore necessary to carry out an assessment to determine whether the proposed development at Standen would have any adverse effect on Great Crested Newt or their habitats.

There are no ponds within the redline boundary at the site at Standen.

In accordance with the current Natural England guidance all ponds within an unobstructed 500 metres of a site should be surveyed/ assessed for the likely presence of Great Crested Newts. The search of habitats in the wider area up to a distance of 500 metres from the site boundary revealed the likely presence of four ponds as detailed in **Table 7.3.1** below. There was no requirement to extend the search area beyond 500 metres owing to the presence of developed land and physical barriers to newt dispersal.

Table 7.3.1 Summary of HSI Information for Ponds 1, 2, 3 and 4 and Former Reservoir (refer to Tables 3 to 6 in Section 5)

Pond Ref.	Grid reference	Distance from Site (m)	HSI Score	Pond Suitability for Great Crested Newt
Pond 1	SD 7470 4032	50m	0.67	Average
Pond 2	SD 7429 4002	320m	0.57	Below average
Pond 3	SD 7428 4000	340m	0.56	Below average
Pond 4	SD 7414 4008	380m	0.56	Below average

The location of all ponds is annotated on **Figure 7.3.1**. The raw HSI data are presented at Section 5.

The study shows a presence/ absence survey was required at Pond 1 only. The need to survey Ponds 2 to 4 was discounted owing to the distance of the ponds from the site (>250 metres) and the presence of physical barriers to newt dispersal comprising Pendleton Brook and a road network.

7.3.2 Methodology

7.3.2.1 Habitat Suitability Index (HSI)

All ponds were assessed using the Habitat Suitability Index (HSI) (Oldham et al 2000) The ponds were examined with reference to the ten HSI scoring criteria, which are: SI1:Geographical location; SI2:Pond area; SI3:Pond drying; SI4:Water quality (as indicated by the diversity of aquatic plants and invertebrates); SI5:Shade, SI6:waterfowl, SI7:Fish; SI8:Abundance of other ponds within 1 km radius; SI9:Quality of terrestrial habitat; and SI10 Macrophyte cover (i.e. aquatic and emergent higher plants).

The survey and assessment of ponds was carried out in late March 2011 by Brian Robinson as an accredited agent under Victoria Burrows Natural England Great Crested Newt Survey licence (number 20111406).

An indication of the aquatic invertebrate diversity was obtained through the use of a fine-mesh, long-handled pond net, which was swept through the ponds at intervals around their margins.

The raw HSI data are presented at **Tables 7.3.3 to 7.3.6** in Section 5. The assessment followed guidance in relation to interpreting HSI scores, following the categorical scale shown below:-

Table 7.3.2 HSI Scoring

HSI score	Pond Suitability for Great Crested Newt
<0 5	Poor
0 5 – 0.59	Below average
0 6 – 0.69	Average
0.7 – 0.79	Good
>0 8	Excellent

7.3.2.2 Great Crested Newt Presence/Absence Survey and Population Size Class Assessment

A licensed Great Crested Newt presence/absence survey of the ponds commenced in late April 2011.

The surveys were carried out in accordance with the methodologies specified in the Great Crested Newt Mitigation Guidelines (English Nature 2001) and included the application of the following methods:

- Torchlight searches – This involved shining a powerful torch (Clulite CB2 - 1,000,000 candle power and Clulite CLU10) into the pond margins at night during

suitable weather conditions (above 5oC), identifying the amphibian species and counting the number of each species of amphibian;

- Egg Search – All submerged, emergent and water-margin vegetation, including the leaves of terrestrial plants that had fallen into the water, was checked in daylight for the presence of Great Crested Newt eggs. The egg searches were used to determine presence or absence only; eggs were not counted because opening the leaves enclosing the eggs can expose the eggs and developing newt larvae to predators and to other threats. Care was taken at all times to ensure that the eggs were not left exposed or damaged;
- Bottle Trap Surveys – Bottle traps constructed from 2-litre plastic bottles were set around the ponds at a spacing of one trap every 1 metre. An air bubble was always provided to ensure that newts and other amphibians did not drown. The traps were set and left overnight during suitable weather (above 5oC). The traps were emptied the following morning and all captured amphibians were recorded and returned to the pond;
- Terrestrial Searches – In addition to the surveys of the aquatic habitats suitable debris throughout the site and the surrounding area (particularly in close proximity to the pond) was lifted and searched for the presence of amphibians.

All Great Crested Newt surveys were conducted during suitable weather conditions (refer to results tables, below). All detected amphibians were identified to species level and sexed.

Great Crested Newt surveys were completed at Pond 1 by Mr. Richard Lowe and Mr. Sean Hough under Victoria Burrows' Great Crested Newt Licence (20111406). All surveyors have extensive experience of the appropriate survey methodology, the identification of all species of amphibian and the specifications in the Great Crested Newt Mitigation Guidelines (NE 2001).

7.3.2.3 Survey Limitations

No significant survey limitations were encountered and a thorough survey was possible

A single Water Shrew (dead) was captured in a bottle trap at Pond 1 on 6 May 2011. During subsequent surveys bottle traps were not placed in the location where the shrew was detected. No further shrews were captured

The presence of a 10 metre gap in the otherwise 2 metre spaced traps may have reduced the overall efficiency of this one survey technique. However, the same number of bottle traps was used on all occasions (75) and two other survey techniques (egg search and torchlight surveys) were not subject to any survey limitations. It is considered that the survey was not compromised by this single limitation, and a thorough and satisfactory survey was conducted at Pond 1.

7.3.3 Results

7.3.3.1 Habitat Suitability Index (HSI)

The Great Crested Newt assessment data are presented in **Tables 7.3.3 to 7.3.6** in Section 5 and summarised on **Table 7.3.1**, above.

7.3.3.2 Great Crested Newt Survey Results

The full results of the Great Crested Newt survey data are presented in **Tables 7.3.7 to 7.3.9** in Section 5

In summary:

- No Great Crested Newt adults or eggs were detected at Pond 1;
- Pond 1 supports a small (1-10) population size-class of Smooth Newt with the greatest number observed (2) during the torchlight survey on 5 May 2011;
- Smooth Newt eggs were observed on aquatic vegetation indicating breeding;
- Common Frog breeding was confirmed at Pond 1, as indicated by the presence of adults and tadpoles;
- Common Toad breeding was confirmed at Pond 1, as indicated by the presence of adults and tadpoles;
- Fish were detected at Pond 1.

7.3.4 Evaluation and Interpretation of Results

The comprehensive Great Crested Newt survey carried out in 2011 has confirmed the absence of Great Crested Newt at Pond 1.

The conditions at Pond 1 and the wider site have not changed significantly since 2011. It is concluded that the survey data remain valid.

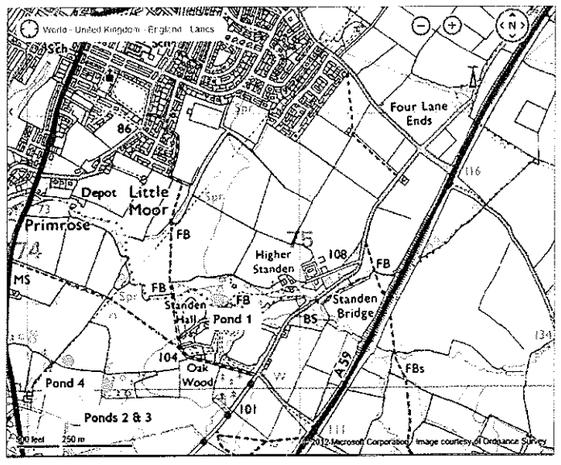
The absence of Great Crested Newt and the presence of only a small population of Smooth Newt can be attributed to the presence of a large number of small and coarse fish. Fish predate on newt larvae and eggs and can inhibit the proliferation of a newt population.

Common Toad is more tolerant of the effects of predation owing to the large abundance of spawn that is laid by the adult Toad. Common Toad is a Species of Principal Importance.

Pond 1 is located a distance of 50 metres outside the site boundary.

Owing to the buffer distance of undeveloped land to be retained along Pendleton Brook which lies to the south of Pond 1 no direct or indirect effects on the pond or the associated amphibian populations are likely as a result of the development proposals.

7.3.5 Figures and Tables



Project Name:
Land at Standen, near Clitheroe

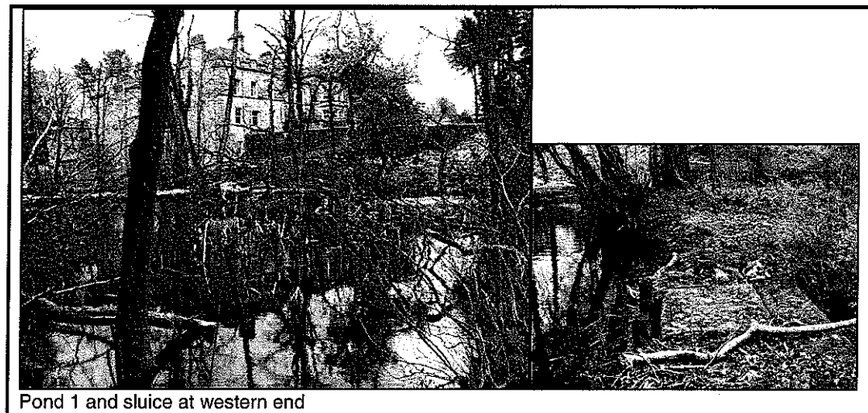
Title: Google Earth image to illustrate location of all ponds within 500 metres radius.

Scale:	Drawing No.	Date:
NTS	Figure 7.3.1	May 2012

Reference No. ERAP Ltd 2010_270

ERAP Ltd
Consultant Ecologists
49a Manor Lane, Penwortham, Preston, Lancashire, PR1 0TA.
Tel: 01772 750502 Fax: 01772 750503
E-mail: mail@erap.co.uk Website: www.erap.co.uk

Table 7.3.3 Description of Pond 1 & HSI Assessment



Pond 1 and sluice at western end

Central Grid Reference: SD 7470 4032 **Distance from Site:** 50 m **Distance from nearest pond:** 530 m

Description

Pond 1 is approximately 25 metres long by 50 metres wide and is broadly oval. It is estimated to be between 0.3 and 0.5 metres deep with a deep silt layer. The pond has 0.1 m deep 90^0 banks and deep silt and mud forming its base with constant leaf litter covering the base of the pond. The pond supports a 20% Bulrush cover in its middle section and a small 3x5 island at its eastern end.

A sluice lies at its western end and feeds into Pendleton Brook.

The pond is surrounded by broadleaf woodland associated with the landscape gardens of Standen Hall.

A small 0.2x0.2 m clump of frogspawn was present in the north-western corner of the pond on the 01/04/2011.

Indices	Description	Score	Further notes
SI1 - Location	Zone A	1.0	-
SI2 - Pond area	1,250m^2	0.92	-
SI3 - Pond drying	Never	0.9	Never dries.
SI4 - Water quality	Poor	0.33	Low invertebrate diversity. Few submerged plants.
SI4 - Shade	15%	1.0	
SI6 - Fowl	Minor	0.67	Wildfowl present, but little indication of impact on pond vegetation. Pond supports submerged plants and banks are not denuded of vegetation.
SI7 - Fish	Minor	0.33	Small numbers of fish present.
SI8 - Ponds	0.6 per km^2	0.65	Three ponds
SI9 – Terrestrial habitat	Good	1.0	Surrounding broadleaf woodland and Standen Hall gardens contain excellent opportunities for foraging and shelter.
SI10 - Macrophytes	20%	0.5	Bulrush & Soft-rush
HSI Score	**Average**	**0.67**	

Table 7.3.4 Description of Pond 2 & HSI Assessment

Central Grid Reference: SD 7429 4002 **Distance from Site:** 320 m **Distance from nearest pond:** 1 m

Description

Pond 2 is approximately 15 metres long by 10 metres wide and is broadly rectangular. It is almost dried out with only a small 1m x 3 m area of standing water present in the south-western corner. The pond has 90^0 banks and deep mud forming its base with constant leaf litter covering the base of the pond. The pond supports an 80% Bulrush cover and locally frequent willow scrub.

The pond is surrounded by broadleaf woodland associated with Brick Kiln Wood and is almost adjacent to Pond 3. It is likely during very wet periods the two ponds are joined.

Indices	Description	Score	Further notes
SI1 - Location	Zone A	1.0	-
SI2 - Pond area	$150m^2$	0.3	-
SI3 - Pond drying	Annually	0.1	Dries annually.
SI4 - Water quality	Poor	0.33	Low invertebrate diversity. Few submerged plants.
SI4 - Shade	80%	0.6	-
SI6 - Fowl	Absent	1 0	No evidence of wildfowl.
SI7 - Fish	Absent	1.0	No records of fish and no fish revealed by netting.
SI8 - Ponds	0.6 per km^2	0.65	Three ponds
SI9 – Terrestrial habitat	Good	1.0	Surrounding broadleaf woodland supports excellent opportunities for foraging and shelter.
SI10 - Macrophytes	80%	1.0	Bulrush
HSI Score	**Below average**	**0.57**	

Table 7.3.5 Description of Pond 3 & HSI Assessment

Central Grid Reference: SD 7428 4000 **Distance from Site:** 340 m **Distance from nearest pond:** 1 m

Description

Pond 3 is approximately 7 metres long by 6 metres wide and is broadly rectangular. It is approximately 0.4 m deep. The pond has shallow 30^0 banks and deep mud forming its base with constant leaf litter covering the base of the pond. The pond supports a 4 m by 3 m area of Bulrush and locally abundant Floating Sweet-grass.

The pond is surrounded by broadleaf woodland associated with Brick Kiln Wood and is almost adjacent to Pond 2. It is likely during very wet periods the two ponds are joined.

SI1 – Location	Zone A	1.0	-
SI2 - Pond area	$50m^2$	0.05	-
SI3 - Pond drying	Sometimes	0.5	Dries between 3 years in 10 to most years.
SI4 - Water quality	Poor	0.33	Low invertebrate diversity. Few submerged plants.
SI4 - Shade	60%	1.0	-
SI6 - Fowl	Absent	1.0	No evidence of wildfowl.
SI7 - Fish	Absent	1.0	No records of fish and no fish revealed by netting.
SI8 - Ponds	0.6 per km^2	0.65	Three ponds
SI9 – Terrestrial habitat	Good	1.0	Surrounding broadleaf woodland supports excellent opportunities for foraging and shelter.
SI10 - Macrophytes	30%	0.6	Bulrush
HSI Score	**Below average**	**0.56**	-

Table 7.3.6 Description of Pond 4/Cattle Scrape & HSI Assessment

Central Grid Reference: SD 7414 4008 **Distance from Site:** 380 m **Distance from nearest pond:** 160 m

Description

Pond 4/Cattle scrape is approximately 7 metres long by 10 metres wide and is broadly oval. It is approximately 0.4 m deep. It has shallow 15^0 banks and mud forming its base. The pond supports locally abundant Floating Sweet-grass. It appears to have been relatively recently made as a pile of spoil, presumably left from the pond/ cattle scrapes excavation has been left to the immediate west and is poorly vegetated. It is estimated the pond/ cattle scrape was made within the last 2 years.

The pond is situated along a fenceline boundary in improved pasture fields.

Indices	Description	Score	Further notes
SI1 – Location	Zone A	1.0	-
SI2 - Pond area	$70m^2$	0.15	-
SI3 - Pond drying	Sometimes	0.5	Dries between 3 years in 10 to most years.
SI4 - Water quality	Poor	0.33	Low invertebrate diversity.
SI4 - Shade	10%	1.0	-
SI6 - Fowl	Absent	1.0	No evidence of wildfowl.
SI7 - Fish	Absent	1.0	No records of fish and no fish revealed by netting.
SI8 - Ponds	0.6 per km^2	0.65	Three
SI9 – Terrestrial habitat	Poor	0.33	Immediate surrounds with some potential as large earth mound sits to the west, but overall poor as situated within extensive improved grassland.
SI10 - Macrophytes	70%	0.6	Floating Sweet-grass
HSI Score	**Below average**	**0.56**	-

Key to abbreviations:

GCN = Great Crested Newt, SN = Smooth Newt, PN = Palmate Newt, CF = Common Frog, CFT = Common Frog tadpole, CT = Common Toad, CTT = Common Toad tadpole.

Vegetation Cover and Turbidity: 0 = low, i.e. good visibility and 5 = high, i.e. very bad visibility.

m = Male, f = female, j = juvenile. Fish and tadpoles: * = 1 – 10, ** = 10 – 100 and *** = 100 – 1000's

Table 7.3.7 Great Crested Newt Bottle Trap Survey Results

Job Number & Site Name		2010_270 Standen, Clitheroe			**Pond Reference:**		Pond 1	**Surveyors Names**		Richard Lowe, Sean Hough		
Survey **1.1 Method**	**Date of result**	**Air Temp (°C)**	**Veg Cover (0 – 5)**	**Turbidity (0 – 5)**	**GCN**	**SN**	**PN**	**CF**	**CFT**	**1.2 CT**	**CTT**	**Fish**
Bottle trap **rep 1**	29/04/11	12	1	2	0	0	0	**	0	0	**	**
OTHER, including : No of bottles, weather, access constraints, inverts, eutrophicaton, pollution & invasive sp	No. of bottle traps	75	Weather conditions	Dry, no wind, cloud cover 1/8- 12 degrees on 28/04/2011								
	Deep mud and water approx. 5metres from bank in places restricting setting of traps in small areas (less than 5% of pond margin). Diving beetle, algal mat on southern margin of pond.											
Bottle trap **rep 2**	06/05/11	16.1	1	1	0	0	0	0	**	0	*	**
OTHER, including all of the above	No. of bottle traps	75	Weather conditions	05/05/11- 16.1, light drizzle, cloud cover 8/8, light breeze								
	Water level similar to 1st rep.- slow at inflow, slightly deeper water. Water shrew dead in trap (reported to B. Robinson on 06/05/11), Caddisfly adults, bloodworm, Great Diving Beetle											

Table 7.3.7 (continued) Great Crested Newt Bottle Trap Survey Results

Job Number & Site Name		2010_270 Standen, Clitheroe			Pond Reference:		Pond 1	Surveyors Names		Richard Lowe, Sean Hough		
Survey 1.3 Method	Date of result	Air Temp (°C)	Veg Cover (0 – 5)	Turbidity (0 – 5)	GCN	SN	PN	CF	CFT	1.4 CT	CTT	Fish
Bottle trap rep 3	20/05/11	11	1	1	0	0	0	0	**	0	*	*
OTHER, including all of the above	No. of bottle traps	75	Weather conditions	19/05/11- dry, cloud 8/8, light breeze								
	Water level dropped 1-2 inch from last survey. Ramshorn, Squiresnail, Caddisfly larvae											
Bottle trap rep 4	31/05/11	12	1	0	0	0	0	0	**	0	*	*
OTHER, including all of the above	No. of bottle traps	75	Weather conditions	30/05/11- dry, no wind, cloud 4/8								
	Water level remaining the same as last survey. Water beetles.											

Table 7.3.8 Great Crested Newt Torchlight Survey Results

Job Number & Site Name		2010_270 Standen Clitheroe			**Pond Reference:**		Pond 1	**Surveyors Names**		Richard Lowe, Sean Hough		
Survey 1.5 Method	**Date of result**	**Air Temp (°C)**	**Veg Cover (0 – 5)**	**Turbidity (0 – 5)**	**GCN**	**SN**	**PN**	**CF**	**CFT**	**1.6 CT**	**CTT**	**Fish**
Torchlight **rep 1**	28/04/11	12	1	2	0	1F	0	0	****	0	*	**
OTHER , including: torch power, weather, access constraints, inverts, eutrophicaton, pollution & invasive sp	Torch power	500,00 and 1million cp.	Weather conditions	Dry, no wind, cloud cover 1/8- 12 degrees on 28/04								
	Caddisfly larvae, pondskater, leech, waterboatman, fish, stickleback											
Torchlight **rep 2**	05/05/11	16.1	1	1	0	2F	0	0	**	0	**	**
OTHER, including all of the above	Torch power	500,00 and 1million cp.	Weather conditions	05/05/11- 16.1, light drizzle, cloud cover 8/8, light breeze								
	80 fish											
Torchlight **rep 3**	19/05/11	11	1	1	0	0	0	0	***	0	0	*
OTHER , including all of the above	Torch power	500,00 and 1million cp	Weather conditions	19/05/11- dry, cloud 8/8, light breeze								
	5 fish, water beetle.											

Table 7.3.8 (continued) Great Crested Newt Torchlight Survey Results

Job Number & Site Name		2010_270 Standen Clitheroe			**Pond Reference:**		Pond 1	**Surveyors Names**		Richard Lowe, Sean Hough		
Survey 1.7 Method	**Date of result**	**Air Temp (°C)**	**Veg Cover (0 – 5)**	**Turbidity (0 – 5)**	**GCN**	**SN**	**PN**	**CF**	**CFT**	**1.8 CT**	**CTT**	**Fish**
Torchlight **rep 4**	30/05/11	12	1	0	0	0	0	0	**	0	0	*
OTHER , including all of the above	Torch power	500,00 and 1million cp		Weather conditions	30/05/11- dry, no wind, cloud 4/8							
	Water beetles, water spiders											

Table 7.3.9 Great Crested Newt Egg Search Survey Results

Job Number & Site Name		2010_270 Standen Clitheroe			**Pond Reference:**	Pond 1	**Surveyors Names**		Richard Lowe, Sean Hough		
Survey 1.9 Method	**Date of result**	**Air Temp (°C)**	**Veg Cover (0 – 5)**	**Turbidity (0 – 5)**	**GCN**	**SN or PN**	**Frog spawn**	**CFT**	**1.10 Toad spawn**	**CTT**	**Fish**
Egg search **rep 1**	28/04/11 and 29/04/11	12 and 11.5	1	2	0	Yes	0	0	0	0	0
OTHER notes:											
Egg search **rep 2**	05/05/11	16.1	1	1	0	Yes	0	0	0	0	0
OTHER notes:											
Egg search **rep 3**	19/05/11	11	1	1	0	Yes	0	0	0	0	0
OTHER notes:											
Egg search **rep 4**	30/05/11	12	1	0	0	No	0	0	0	0	0
OTHER notes:	Aquatic veg. eggs found on previously had become uprooted from previous location.										

Appendix 7.4
Breeding Birds and Invertebrates

5 Pages

7.4.1 Breeding Birds

7.4.1.1 Results of Breeding Bird Surveys

The results of the two breeding bird surveys carried out on 28 March 2011 and 2 June 2011 are presented in **Tables 7.4.1** and **7.4.2,** below.

All birds were either within the site or detected at the habitats immediately adjacent to the site boundary.

For the purpose of this assessment it is assumed that a bird species 'in song' or the detection of a family is indicative of nesting at the site or the local area. A 'no activity' reference refers to the presence of the bird only.

Table 7.4.1 A Record of the Bird Species Detected Within the Site on 28 March 2011

Scientific Name	Common Name	Number and Recorded Activity	Conservation Status/ BAP Status	Locations/ Comments
Turdus merula	Blackbird	7, in song 1 male feeding	Green	Boundary hedgerows and trees
Sylvia atricapilla	Blackcap	5, in song	Green	Boundary hedgerows and trees
Parus caeruleus	Blue tit	2, calling, 6, in song 3, no activity	Green	Boundary hedgerows and trees
Corvus corone corone	Carrion Crow	1, no activity	Green	Boundary hedgerows and trees
Fringilla coelebs	Chaffinch	7, in song 1, no activity	Green	Boundary hedgerows and trees
Prunella modularis	Dunnock	8, in song	Amber Species of Principal Importance	Boundary hedgerows and trees
Columba livia	Feral pigeon	18, no activity	None	Near Building 1
Regulus regulus	Goldcrest	1, in song	Green	Boundary hedgerows and trees
Dendrocopos major	Great Spotted Woodpecker	2, calling	Green	Boundary hedgerows and trees
Parus major	Great Tit	3, in song	Green	Boundary hedgerows and trees

Table 7.4.1 (continued) A Record of the Bird Species Detected Within the Site on 28 March 2011

Scientific Name	Common Name	Number and Recorded Activity	Conservation Status/ BAP Status	Locations/ Comments
Carduelis chloris	Greenfinch	1, calling	Green	Boundary hedgerows and trees
Motacilla cinerea	Grey Wagtail	1, no activity	Amber	Near Pendleton Brook
Passer domesticus	House sparrow	6 males calling	Red Species of Principal Importance	Buildings west of field 14
Garrulus glandarius	Jay	2, no activity	Green	Boundary hedgerows and trees
Pica pica	Magpie	2, no activity	Green	Boundary hedgerows and trees
Anas platyrhynchos	Mallard	1, no activity	Amber	Near Pendleton Brook
Erithacus rubecula	Robin	11, in song	Green	Boundary hedgerows and trees
Corvus frugilegus	Rook	1, flying	Green	Boundary hedgerows and trees
Turdus philomelos	Song Thrush	1, in song	Red Species of Principal Importance	Boundary hedgerows and trees
Sturnus vulgaris	Starling	20, feeding 1, no activity	Red, Species of Principal Importance	Field 6 and Building 1
Certhia familiaris	Treecreeper	1, no activity	Green	Boundary hedgerows and trees
Phylloscopus trochilus	Willow warbler	1, calling	Amber	Boundary hedgerows and trees
Columba palumbus	Wood pigeon	8, in song 1, no activity	Green	Boundary hedgerows and trees
Troglodytes troglodytes	Wren	1, calling, 9, in song	Green	Boundary hedgerows and trees
Total number of Species of Principal Importance detected:		**4 species**		
Total number of breeding species detected:		**12 species**		

Table 7.4.2 A Record of the Bird Species Detected Within the Site on 2 June 2011

Scientific Name	Common Name	Number and Recorded Activity	Conservation Status/ BAP Status	Locations/ Comments
Turdus merula	Blackbird	15 in song	Green	Boundary hedgerows and trees
		2 females feeding		
		8 males feeding		
Sylvia atricapilla	Blackcap	8 in song	Green	Boundary hedgerows and trees
Parus caeruleus	Blue tit	1 no activity	Green	Boundary hedgerows and trees
		1 feeding		
		9 families		
Pyrrhuls pyrrhula	Bullfinch	1, male	Amber	Boundary hedgerows and trees
			Species of Principal Importance	
Corvus corone corone	Carrion crow	6, no activity	Green	Boundary hedgerows and trees
Fringilla coelebs	Chaffinch	2 no activity	Green	Boundary hedgerows and trees
		22 in song		
Numenius arquata	Curlew	1 in song	Green	Field 10
			Species of Principal Importance	
Prunella modularis	Dunnock	1 Family	Amber	Boundary hedgerows and trees
		13 In song	Species of Principal Importance	
Columba livia	Feral pigeon	44, no activity	Green	40 in Building 1, 4 over Standen Hall Farm
Regulus regulus	Goldcrest	1 territory defending	Green	Boundary hedgerows and trees
Carduelis Carduelis	Goldfinch	1 family	Green	Boundary hedgerows and trees
		10 no activity		
Dendrocopos major	Great spotted woodpecker	1, calling	Green	Boundary hedgerows and trees
		2, territory defending		

Table 7.4.2 (continued) A Record of the Bird Species Detected Within the Site on 2 June 2011

Scientific Name	Common Name	Number and Recorded Activity	Conservation Status/ BAP Status	Locations/ Comments
Parus major	Great tit	1, calling	Green	Boundary hedgerows and trees
		1, feeding		
		1, territory defending		
Carduelis chloris	Greenfinch	1 family	Green	Boundary hedgerows and trees
		6 males, territory defending		
Delichon urbica	House martin	3, flying	Amber	Field 14
Passer domesticus	House sparrow	7 males, territory defending	Red	Boundary hedgerows and trees
			Species of Principal Importance	
Corvus monedula	Jackdaw	2, no activity	Green	Boundary hedgerows and trees
Vanellus vanellus	Lapwing	2 In song	Red	Field 5
			Species of Principal Importance	
Athene noctua	Little Owl	1, no activity	None	Field 11
Aegithalos caudatus	Long-tailed tit	2 families	Green	Boundary hedgerows and trees
Pica pica	Magpie	6, no activity	Green	Boundary hedgerows and trees
Anas platyrhynchos	Mallard	1, male	Amber	Pendleton Brook
Phoenicurus phoenicurus	Redstart	1 feeding	Amber	Building 2
Erithacus rubecula	Robin	19, in song	Green	Boundary hedgerows and trees
Turdus philomelos	Song thrush	1 feeding	Red	Boundary hedgerows and trees
		2 In song	Species of Principal Importance	
Sturnus vulgaris	Starling	34 feeding	Red	Fields 4, 6 and 14
			Species of Principal Importance	
Hirundo rustica	Swallow	30 flying	Amber	10 over fields 5, 11 and 14 and 20 over farm
Apus apus	Swift	6 flying	Amber	Field 14
Certhia familiaris	Treecreeper	1 Family	Green	Boundary hedgerows and trees

Table 7.4.2 (continued) A Record of the Bird Species Detected Within the Site on 2 June 2011

Scientific Name	Common Name	Number and Recorded Activity	Conservation Status/ BAP Status	Locations/ Comments
Phylloscopus trochilus	Willow warbler	2 in song	Amber	Pendleton Brook
Columba palumbus	Wood pigeon	3 no activity	Green	Boundary hedgerows and trees
		9 In song		
Troglodytes troglodytes	Wren	20 in song	Green	Boundary hedgerows and trees
Total number of Species of Principal Importance detected:		**7 species**		
Total number of breeding species detected:		**18 species**		

7.4.2 Invertebrates

Table 7.4.3 Bee and Butterfly Species Recorded at the Site

Scientific name	Common Name	Status
Bees		
Bombus hortorum	Garden Bumblebee	Common
Bombus lapidarius	Red-tailed Bumblebee	Common
Bombus lucorum/ terrestris	White-tailed/ Buff-tailed Bumblebee	Common
Bombus pratorum	Early Bumblebee	Common
Bombus pascuorum	Common Carder-bee	Common
Bombus hypnorum	Tree Bumblebee	Recent coloniser
Butterflies		
Inachis io	Peacock	Common
Maniola jurtina	Meadow Brown	Common
Pararge aegeria	Speckled Wood	Common
Pieris brassicae	Large White	Common
Pieris rapae	Small White	Common

7.5.1 Introduction

7.5.1.1 Rationale and Scope of Survey

All British bat species and their roosts receive full protection under European and UK wildlife legislation.

The presence of a protected species is a material consideration in connection with a planning decision in accordance with ODPM circular 06/2005. It was therefore necessary to carry out an assessment to determine whether the proposed development at Standen would have any adverse effect on bat species or their habitats.

The scope of the comprehensive licensed bat survey comprised:

- A daylight inspection of the interior and exterior of Buildings 1 and 2;
- A daylight inspection of the interior and exterior of the buildings at Higher Standen Farm;
- Nocturnal emergence and dawn re-entry surveys at Building 2;
- Nocturnal emergence survey of the buildings at Higher Standen Farm;
- A bat activity transect survey;
- An inspection for hibernating bats at Buildings 1 and 2 in January 2012; and,
- A Stage 1 inspection and assessment of the bat roost opportunities at all trees.

The location of all buildings is annotated on Figure 7.2.

Descriptions of the buildings and trees are presented below.

7.5.1.2 Objectives

The objectives of the surveys at Standen were:

- Assess and identify the potential and suitability of the buildings to support roosting bat species;
- Inspect the fabric of the buildings and carry out surveys of both the exterior and interior for evidence of, or the presence of, roosting (including hibernating) bat species;
- Assess the abundance and species of bat, if present, based on the evidence available. Make predictions with regard to the extent of use of a roost and how recently it was occupied;

- Identify actual and potential bat roost accesses and egresses;
- Where possible determine the type of roost present;
- Use the information to inform the ecological impact assessment (EcIA) and identify of any potential development constraints and specify the scope of mitigation and enhancement required in accordance with wildlife legislation, planning policy guidance and other relevant guidance; and
- Identify any further surveys or precautionary surveys that may be required prior to the commencement of development activities

7.5.2 Method of Survey

7.5.2.1 Survey Dates and Conditions

Table 7.5.1 Details of all Survey Dates, Weather and Personnel

Survey	Dates	Personnel	Weather Conditions	Sunset/ Sunrise	Survey Start	Survey End
Daylight internal and external inspection of Buildings 1 and 2	01/09/2011	B Robinson V. Burrows	Dry, sunny 22°C at 16.00 Calm (Beaufort scale 1)	N/A	N/A	N/A
Nocturnal emergence at Building 2 followed by bat activity transect surveys	02/09/2011	B. Robinson V. Burrows + 4 assistants	Dry and calm 18°C at 19.30 falling to 16°C at 22.00	19 59	19 30	22.00
Dawn re-entry survey at Building 2	15/09/2011	V Burrows + 3 assistants	Dry 6°C at 04.30am Calm (Beaufort scale 0)	06.42	04.30	06.45
Hibernation inspection at Building 2	30/01/2012	B. Robinson V. Burrows	Dry, calm 5°C	N/A	N/A	N/A
Stage 1 assessment of trees	30/01/2012	B Robinson V. Burrows	Dry, calm 5°C	N/A	N/A	N/A

Table 7.5.1 (continued) Details of all Survey Dates, Weather and Personnel

Survey	Dates	Personnel	Weather Conditions	Sunset/ Sunrise	Survey Start	Survey End
Daylight internal and external inspection at Higher Standen Farm	14/05/2012	B Robinson V. Burrows	Dry, sunny intervals 16°C Light air (Beaufort scale 2)	N/A	N/A	N/A
Nocturnal emergence at Higher Standen Farm	11/06/2012	V. Burrows + 4 assistants	Dry, overcast 11°C Calm (Beaufort scale 1)	21.40	21.20	22.50

7.5.2.2 Surveyors

Surveys were carried out and co-coordinated by Victoria Burrows B Sc. (Hons), M.Sc. CEnv MIEEM (Natural England licence number 20120902 valid until 19 March 2013)

Several experienced surveyors assisted during the nocturnal and bat activity surveys.

Technical Guidance Series Competencies for Species Survey for bat, Barn Owl and Great Crested Newt prepared by the Institute of Ecology and Environmental Management (IEEM).

7.5.2.3 General Survey Method

The surveys were carried in accordance with standard methods as specified in the Bat Mitigation Guidelines (2004), the Bat Workers Manual (2004) and the Bat Surveys: Good practice guidelines (2nd Edition) (Hundt 2012)

Daylight External and Internal Survey Method

An examination was made of the external elevations of all buildings including stone elevation walls, ridge tiles, roof edge slates and timber soffits and eaves. Searches were carried out for droppings, urine stains, feeding signs and grease marks. Particular attention was paid to areas where bat droppings may accumulate such as the ground beneath the eaves, on window sills, the elevation walls and any other surfaces which may occur beneath the eaves around the perimeter of the building.

Searches were also made to find potential bat roosting habitat or accesses into internal areas where roosts may be present.

An internal examination was made of all accessible areas using appropriate equipment including torches and ladders (refer to equipment list) The internal survey for evidence of bat occupation (including recent and historic use) comprised a search for bats, bat droppings, remains of invertebrate prey, grease marks from repeated contact or passage through narrow roost accesses or against surfaces and other signs.

Hibernation Survey Method

The search for hibernating bats at Building 2 comprised the careful search of all crevices and cracks in the external and internal walls. Ladders, a powerful torch and a video borescope were used to facilitate the search.

Dusk Emergence and Dawn Re-entry Surveys

Emergence and dawn surveys were carried out by strategically positioned surveyors (refer to Table 7.5.1 and Figures 7.5.4, 7.5.5 and 7.5.8), maximising coverage of the external elevations and roofs at bat emergence/ re-entry time.

Heterodyne bat detectors were used to assist in determining the bat activity at the site. All surveyors were in radio contact throughout. Contemporaneous notes were recorded on dictaphones enabling uninterrupted observation.

A frequency division bat detector (Batbox Duet) coupled to a digital recorder was used throughout the times of observation

All bat activity was recorded including species (where possible), activity and direction of flight

Remote Automated Bat Detector

An automated bat detector (Anabat SD2) was also used to identify bat species flying inside Building 2 on 01/09/2011 and Building G at Higher Standen Farm (as annotated on Figures 7.5.4, 7.5.5 and 7.5.8).

Stage 1 Assessment of Trees

All trees were assessed for their bat roost suitability (i.e. presence of crevices and splits in the trunks and branches that could be accessed by bats). The criteria detailed at Table 7.5.2 were used to assess the trees.

The inspection was carried out in winter (January 2012). This an appropriate time of year as the foliage is absent from deciduous trees which facilities observations of the branches and trunks for suitable features for use by roosting bats.

Table 7.5.2 Criteria for Assessment of Trees in Accord with Category 1* to 3 as Defined in Table 8.4 of the Bat Conservation Trust Bat Surveys Good Practice Guidelines 2nd Edition (Hundt 2012)

Category	Description	Criteria
Known or Confirmed	Confirmed roost	Confirmed roost Evidence found that indicates tree/tree features are being used by bats. Droppings found at the base of the tree, below a cavity Bats heard 'chattering' inside a feature on a warm day or at dusk Bat(s) observed flying from or to a feature.
1*	Very high potential	Trees with multiple, highly suitable features capable or supporting larger roosts. Features of particular significance, suitable for high priority roosts such as maternity roosts, used by large numbers of bats, offering conditions that are uncommon or rare in the local area. Features such as large cavities, extensive branch or trunk splits, also including multiple features in the same tree that offer a diversity of opportunities Features may also include dense ivy
1	Definite bat potential	Trees with definite bat potential supporting fewer suitable features than category 1* trees or with potential for use by single bats. Features which provide a more secure form of roost for small groups of bats and individuals, but may still be quite common types of feature, such as small cavities, minor splits or sparse ivy cover.
2	Moderate potential	Trees with no obvious potential, although the tree is of a size and age that elevated surveys may result in cracks or crevices being found; or the tree supports some features which may have limited potential to support bats. A tree which on close inspection the potential roost positions are in some way not ideal. They could be upward facing or holes very low down or cluttered by adjacent branches.
3	Low/ Negligible value	Trees that have no features which could be used by bats for roosting (usually young trees).

General Bat Activity

After the dusk emergence survey at Building 2 on 02/09/2011 transects were walked around the whole site to record the general bat activity at the site. The aim of the survey was:

- To record bat species using the site; and,
- To identify any commuting routes and/ or active foraging areas

Six surveyors covered the site. This density is in accordance with the specifications made in the Bat Surveys – good practice guidelines 2nd Edition (Hundt 2012).

7.5.2.4 Equipment List

Equipment used during the survey is listed in Table 7.5.3, below

Table 7.5.3 Equipment Used

Batbox Duet frequency division/ heterodyne bat detector	Batbox Baton frequency division bat detector
Anabat SD2 CF bat detector	Clulite CB1 and CB2 hand lamps
Personal Protective Equipment	LED Lenser P7 torch
Canon Ixus digital camera	Two-way radios
Extension ladders	Sentient Video Borescope N58HH
8x20 binoculars	

7.5.2.5 Survey Limitations

No significant survey limitations were encountered and a thorough survey was possible.

The surveys were carried out at optimal times of year and during suitable weather conditions for bat activity. No access restrictions were encountered.

7.5.3 Results

7.5.3.1 Building 1

Building 1 comprises the shell of a former building. Only the stone elevation walls remain. No roof is present (refer to photographs at Figure 7.5.1).

The daylight inspections of the remaining elevation walls in September 2011 and January 2012 did not detect any bats.

It is concluded that the dilapidated building is too draughty and exposed for use by roosting and hibernating bats.

No further survey of this structure was considered necessary.

7.5.3.2 Building 2

Description

Building 2 comprises a single storey stone built barn which is approximately a maximum of 20 metres wide and 20 metres long. The barn is attains a maximum height of 7 metres from floor to ridge

The pitched roofs comprise traditional timber king-post trusses with purlins and rafters. The roofs are covered with slates. No sarking or underfelt is present and the slates and slate battens are visible from inside the barn.

Inside the barn are internal stone walls to create four separate areas. The internal walls have been white-washed in the past.

All sections of the barn are accessible to cattle via large openings.

Daylight Inspections

As annotated on Figures 7.5.2 and 7.5.3 cracks and crevices assessed to be suitable for bat access were detected at the external and internal elevations and roof of the barn. Favourable crevices where bats have been known to roost at other buildings comprised gaps at the underarch of the window and doorway lintels and gaps around between the stonework and the timber where the purlins sit on the elevation walls were detected.

The timber roof trusses are tightly fitted; no gaps at mortise joints were detected.

No bats were detected during the comprehensive daylight inspection in September 2011 or prior to the bat activity survey.

No hibernating bats were detected in January 2012.

A single old bat dropping (likely a Pipistrelle based on the size and shape) was detected adhering to an internal elevation wall. A single dropping is not indicative of a roost and it is likely that the dropping was left by a bat flying inside the building (as detected in September 2011).

All sections of the building are infested with Feral Pigeon. No other nesting or roosting birds were detected.

Activity Surveys

No bat emergence activity was detected at Building 2, refer to Figure 7.5.4.

No dawn re-entry was detected at Building 2, refer to Figure 7.5.5.

A Common Pipistrelle entered the building to forage and remained throughout the whole of the dusk emergence survey. The species was confirmed by analysis of the calls recorded on the Anabat using the Analook software. This bat was detected entering the barn from the wider area and did not emerge from the barn.

Bat foraging and commuting activity was detected in the wider field during the surveys, as described below.

All results and recorded bat activity around Building 2 is annotated on Figures 7.5.2 to 7.5.5.

7.5.3.3 Trees

As annotated on Figure 7.5.7, 38 trees meet the category 1 criteria and support features that have 'definite bat potential.'

No known or confirmed roosts were detected. No Category 1* trees were identified.

7.5.3.4 General Bat Activity

After the dusk emergence survey on 02/09/2011 transects were walked around the whole site to detect the bat species foraging and commuting over the site and to identify any areas of abundant foraging activity.

As annotated on Figure 7 5 6 Common Pipistrelle was the most frequently detected species. Bats were typically associated with the boundary hedgerows and tree lines although it is recognised that the route of transects did target the field boundaries for safety reasons.

Survey along the Pendleton Brook corridor confirmed use by a single foraging Daubenton's Bat. This species typically feeds by flying close to the surface of still and slow moving water. The area of concentrated feeding was associated with a slower flowing pool along the brook where the tree cover is less dense

No areas of abundance, e g. more than three bats at one time, of bat foraging activity were detected.

7.5.3.5 Higher Standen Farm (Buildings A to J)

Description

Buildings at Higher Standen Farm comprise brick built cattle sheds with pitched slate covered roofs centred round a farmyard (Buildings C, E, G, H and I). These buildings are in various states of repair. Some sections appear to have been re-roofed and bitumen underfelt is present In other areas the underside of the slates and the slate battens are visible owing to degraded and missing underfelt.

Other buildings (Buildings A, B, D, F and J) comprise steel framed cattle sheds with open sides and timber sheds.

A brief description of all buildings is presented on Figure 7.5.8.

Daylight Inspections

As annotated on Figures 7.5.8 gaps are present beneath the ridge copings and roof slates at Buildings C, E, G, H and I which will permit bat access into a crevice. However, at most buildings the bitumen underfelt is in a poor condition with frequent holes which create draughty and unfavourable conditions for use by roosting bats.

The timber roof trusses are tightly fitted; no gaps at mortise joints were detected.

No bats or evidence of a bat roost were detected during the comprehensive daylight inspection in May 2012 or prior to the bat activity survey

Activity Surveys

A single Common Pipistrelle was detected flying inside Buildings H and G at sunset (21.40) during the nocturnal emergence survey in June 2012. The buildings are connected via open doorways as the cattle can enter the buildings for gain shelter.

The single bat was observed entering a roost beneath the ridge coping at the apex of the roof. The bat entered the roost from the underside (from inside Building G).

The species was confirmed by analysis of the calls recorded on the Anabat using the Analook software.

No other bat emergence was detected. All other bats were observed entering the site from the wider area.

Common Pipistrelle was the only bat species detected foraging around and within the buildings at Higher Standen Farm from sunset to 1 hour after sunset. At the end of the survey a single Soprano Pipistrelle call was detected over the yard between Buildings A and C.

Bat foraging and commuting activity was detected in the wider field during the surveys, as described below.

All results and recorded bat activity around Higher Standen Farm is annotated on Figure 7 5 8.

7.5.4 Evaluation and Interpretation of Results

7.5.4.1 Summary of Results

In summary:

- Building 1 is unsuitable for use by roosting bats owing to its exposed and dilapidated condition;
- Despite suitable cracks and crevices in the stone elevation walls and slate roof at Building 2 no evidence of roosting or hibernating bats was detected;
- The bat activity transect survey detected low levels of Common Pipistrelle activity associated with the field boundary hedgerows and mature trees;
- Occasional contacts with Soprano Pipistrelle bat calls were detected;
- A single Daubenton's Bat was detected foraging over Pendleton Brook (outside the Site boundary);
- The brick built cattle sheds (Buildings C, E, G, H and I) at Higher Standen Farm have pitched slate-covered roofs. Gaps are present beneath the ridge copings and roof slates which will permit bat access into a crevice but at most buildings the bitumen underfelt is in a poor condition with frequent holes which create draughty and unfavourable conditions for use by roosting bats. No bats or bat droppings were detected during the daylight inspection in May 2012;
- Buildings A, B, D, F and J at Higher Standen Farm are unsuitable for use by roosting bats. No further surveys or consideration in relation to roosting bats is necessary;

- A single Common Pipistrelle bat summer roost (likely a single male) was detected beneath the ridge coping at Building G in June 2012;
- The buildings associated with Higher Standen Farm such as the main farmhouse and cottages (all outside the Site boundary) offer more favourable opportunities for use by roosting bats;
- 38 trees have been assessed to have definite bat roost suitability (although no evidence of a roost was detected).

7.5.4.2 Interpretation of Results and Implications

An interpretation of the licensed bat survey results and implications in connection with the development proposals is presented in Table 7.5.4.

No significant bat roosts (i.e. a maternity roost, hibernation roost, a roost used by a rare species or a large number of bats) have been detected at the site.

An assessment of the impact of the proposals on bats and their habitats is presented in the main chapter.

The specification of precautionary and mandatory actions for the protection of bats and their habitats is presented in Section 5 below.

Table 7.5.4 Interpretation of Results and Implications

Building/ Feature	Constraints/ Implications	Mitigation and Compensation Measures in Relation to Bats (refer to Section 5)
Building 1	None; no roosts detected and buildings unsuitable for use by roosting bats.	N/A
Building 2	None; no roosts detected	If this building is scheduled for removal/restoration it is mandatory that the works are scheduled for September to October to avoid the bird breeding season and the bat hibernation season (no evidence of use by hibernating bats has been recorded but stone buildings with crevices are assessed to be suitable and a precautionary approach is recommended)
Buildings A, B, D, F and J	None; no roosts detected and buildings unsuitable for use by roosting bats.	N/A

Table 7.5.4 (continued) Interpretation of Results and Implications

Building/ Feature	Constraints/ Implications	Mitigation and Compensation Measures in Relation to Bats (refer to Section 5)
Buildings C, E and H	None; no roosts detected	Buildings have a similar structure to Building G (used by a single Common Pipistrelle). Pre-construction surveys necessary. Appropriate timing of works to avoid nesting bird season. Hand removal of roof copings and slates and adherence to a protocol if bats are detected during work. Design and installation of roost provisions suitable for use by crevice roosting bat species at the converted buildings.
Building G	Confirmed single common Pipistrelle summer roost present.	A Natural England licence will be required if the roost will be destroyed in accordance with the proposals. This type of roost may be covered under the Class Licence which is currently in preparation by Natural England. Pre-construction surveys necessary. Appropriate timing of works to avoid nesting bird season Hand removal of roof copings and slates and adherence to a protocol if bats are detected during work. Design and installation of roost provisions suitable for use by crevice roosting bat species at the converted buildings.
Category 1 Trees	None	Retain, protect and avoid disturbance where possible. Further inspection to established presence of bats and, if present, number of bats and type of roost to inform the requirements for mitigation if felling is proposed. Trees with a roost will be upgraded to Category 1*. Trees with no roost will be downgraded to Category 2
Category 2 Trees	None	Avoid disturbance to tree. No further surveys. Tree may be felled taking reasonable avoidance measures.
Category 3 Trees	None	No specific actions necessary.
Pendleton Brook, hedgerows and tree lines.	Used by foraging and commuting Common Pipistrelle, Daubenton's and Soprano Pipistrelle bats	Retain hedgerows and tree lines to conserve habitat connectivity Protect brook corridor and associated buffer. Plant additional hedgerow and tree lines composed of native species Avoid insensitive and inappropriate lighting.

7.5.5 Mitigation and Recommendations

7.5.5.1 Buildings 1, A, B, D, F and J

No further actions required.

There are no constraints in relation to bats on the commencement of demolition or other works at these buildings.

7.5.5.2 Buildings 2, C, E, G, H and I

Buildings 2, C, E, G, H and I either contain a bat roost (Building G) or have features suitable for use by roosting bats. The development proposals at these building is not known at the time of preparation this assessment however the specifications described below are in accordance with the presence of a single Common Pipistrelle roost, best practice and current Natural England guidance.

Survey Effort and Validity of Results

Sufficient survey effort has been carried out to inform the EcIA and recommendations and scope of mitigation and best practice described below

Owing to the number of opportunities for single/ small numbers of roosting bats at Higher Standen Farm an updated survey at the buildings listed above will be necessary to inform the Natural England licence application and if works are not commenced before summer 2013.

Licensing

Demolition or re-roofing of Building G will destroy a roost used by a single Common Pipistrelle bat. In accordance with current guidance a Natural England European Protection Species mitigation (EPSM) licence will necessary to carry out these works legally. However, based on the small size of the roost used by a common species of bat it is concluded that the works may be covered under a Natural England Class Licence (this licence is currently (summer 2012) being trialled by Natural England).

Three Tests

During the preparation of the Natural England EPSM licence application the three tests of Regulation 53 will need to be addressed and satisfied. The tests are addressed below.

Test 1 - That the action authorised will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range [Regulation 53 (9)(b)]

It is concluded that mitigation and compensation for the Common Pipistrelle summer roost is entirely feasible within the scope of the development proposals. The Mitigation Strategy outlined below will be applicable in connection with works at Higher Standen Farm.

Actions to be applied during demolition/ conversion works

During re-roofing/demolition of the slate roofed farm buildings it is recommended that roof slates and ridge tiles are removed carefully, by hand, as a precautionary measure for the protection of bats.

Timing of Works

The most appropriate time of year to carry out the demolition of the buildings is September and October. This timing will avoid the nesting bird season and sensitive periods in the bat seasonal calendar.

Works at Building 2 must be avoided between November and mid-March to avoid the bat hibernation season

Based on the type of roost detected there is no requirement for compensatory roosting provisions to be in place prior to the removal of the known roosts but this is encouraged in accordance with best practice.

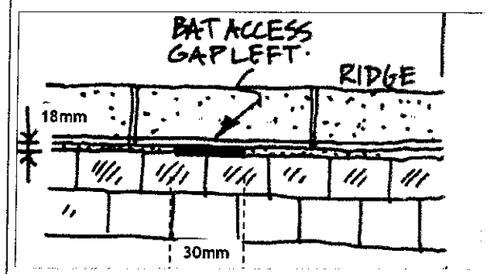
Provision of Replacement Roosting Provisions

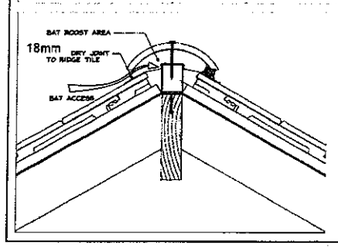
Assuming some buildings at Higher Standen Farm will be retained and/or converted the most appropriate way of accommodating roosting opportunities for bats to replicate the roost to be lost will comprise the creation of gaps beneath the ridge copings and gaps beneath the slates (between the slates and the underfelt)

Two examples are provided at Inserts 1 and 2, below

INSERT 1: Access to small void beneath ridge tiles

The access to formed by leaving a 18mm high by 30mm wide gap in the bedding mortar beneath the ridge tiles The gap must permit access to tubular void beneath the ridge tiles.





INSERT 2: Lead Bat Slate Access

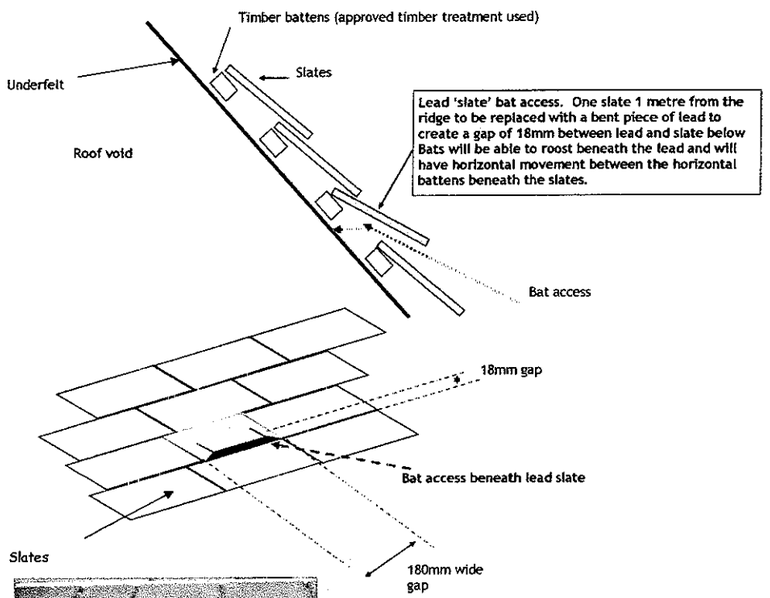


Photo to illustrate the Bat Slate.
The slate accesses will be 180mm wide with a height of 18mm)

Once the proposals are finalised ERAP Ltd can provide further guidance in relation to the number and positions of provisions for use by roosting bats.

The proposal specified above will permit bats to a roosting position on the outer shell of the buildings. Bats will not be able to gain access into the internal areas of the building.

In addition to the measures described above provisions for roosting bats will be accommodated at the new properties, as described in the EcIA chapter.

Post-Development Site Safeguard and Monitoring
The owners of the property will be informed of the protection afforded to bats.

The bat access panels and lead slates illustrated on Inserts 1 and 2 require no maintenance.

As stated on Figure 4 in the Bat Mitigation Guidelines (2004) there is no future monitoring requirement for a summer roost of common species[1]

1 'Common species'

Both Pipistrelle species are described as 'widely distributed throughout the UK.' A population of 2,430,000 is reported in the National Bat Monitoring Programme (NBMP) 2010 Data (Bat Conservation Trust website).

Test 2: Demonstration that the proposals for which a licence is sought are for the purposes of 'preserving public health or public safety or other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment' [Regulation 53(2)]

The Higher Standen Farm site has been identified by the Local Planning Authority (LPA) as the Strategic Site for a residential-led development in the borough, in the Publication Version of the Core Strategy, including 1040 dwellings, employment and other uses. The farm yard site is identified in the outline application as the location for a business centre and it is envisaged that Building G will be retained and converted into a small business unit

The Strategic Site represents a significant part of the LPAs chosen option for development in the borough and there are therefore overriding public interest issues and beneficial consequences to the borough by the provision of employment opportunities

Test 3: Consideration of 'There is no satisfactory alternative' including the implications of the 'do-nothing' option [Regulation 53)9)(a)].

As the Core Strategy forms a significant part of the LPAs development plan for the next 15 years, there is effectively no alternative to the redevelopment/conversion of the building concerned

The conversion of the building and the installation of provisions bat roosting provisions is the most appropriate option to conserve the site for the long-term use by roosting bats. The conversion of the building would have to ensure that the building met the necessary thermal criteria and this may involve re-roofing and therefore temporary loss of the roost

The 'do-nothing' option would eventually lead to the dilapidation and loss of the building and the bat roost.

7.5.5.3 Trees

Retention and protection of the tree lines and mature trees is recommended throughout the EcIA and it is feasible to design the Site Masterplan to avoid the removal of a significant number of trees.

In accordance with Table 8.4 in Hundt (2012) if any of these trees are scheduled for felling or pruning either in connection with health and safety, arboricultural management or to facilitate the development operations, the following actions must be applied.

Category 1 Trees (none detected)*
Avoid disturbance to tree, if possible. Further dusk and dawn surveys to established presence of bats and, if present, number of bats and type of roost to inform the requirements for mitigation if felling is proposed. Felling would be undertaken using soft felling methods to minimise risk of harm to individual bats

Category 1 Trees
Avoid disturbance to tree, if possible. Re-inspection of the tree by a licensed bat worker. The survey will be facilitated with the use of ladders, inspection mirrors and a borescope. Further dusk and dawn surveys to established presence of bats may be required, and, if present, number of bats and type of roost to inform the requirements for mitigation if felling is proposed. Trees with a roost will be upgraded to Category 1*. Trees with no roost will be downgraded to Category 2.

Category 2 Trees
Avoid disturbance to tree. No further surveys. Tree may be felled taking reasonable avoidance measures.

Category 3 Trees
No specific actions necessary.

Timing of Tree Removal
Tree removal will be carried out in accordance with the following time periods:

- From late August to early October when young bats are mobile and on the wing, female bats are unlikely to be pregnant and the hibernation season has not started, or;
- March to April inclusive provided consideration is given to the possible presence of nesting birds (see above).

This guidance is in accord with the *Bat Mitigation Guidelines* (2004) and the *Bat Workers' Manual* (2004).

Working Procedure
For trees which do not support a roost but have cracks and crevices with some potential it is recommended that precautionary measures are applied. At the time of works it is recommended that the following procedure is followed:

- Carefully section-fell the trees avoiding cutting through or close to any cavities;
- Cut sections will be lowered to the ground with the use of ropes; and,
- Allow all felled sections to lie on the ground for 24 hours before removing Ivy and snedding (removing side branches).

7.5.5.4 Discovery of a Bat

Although all actions described aim to minimise the risk of disturbing a bat, if a bat is found or the presence of bats is suspected all works must stop immediately and a licensed bat worker must be contacted for advice.

7.5.6 References

Department for Communities and Local Government (March 2012). National Planning Policy Framework. London

Hundt, L. (2012) Bat surveys: Good Practice Guidelines 2nd Edition. Bat Conservation Trust

Office of the Deputy Prime Minister (2005) *Circular 06/2005 Biodiversity and Geological Conservation – Statutory Obligations and their impact within the Planning System*

Mitchell-Jones A.J. and McLeish A.P. (Eds). (2004). Bat Workers' Manual. 3rd Edition. Joint Nature Conservancy Committee. Peterborough.

Mitchell-Jones, A.J. (2004). Bat Mitigation Guidelines. English Nature, Peterborough

Wildlife and Countryside Act (1981). H.M.S.O., London.

7.5.7 Figures

List of Figures

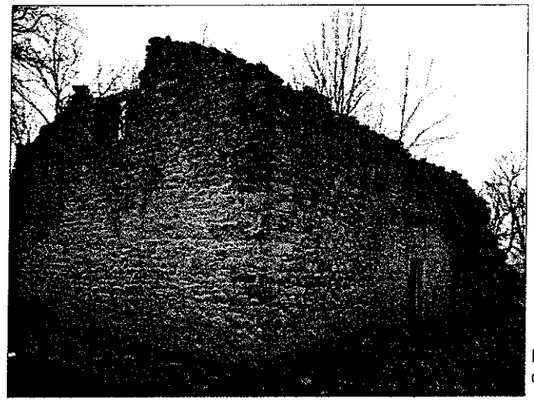


Photo 7.5 1a: Dilapidated and exposed condition of Building 1

Photo 7.5 1b: Dilapidated and exposed condition of Building 1

Photo 7.5 1c: Dilapidated and exposed condition of Building 1

Project Name:

Land at Standen, near Clitheroe

Title:

Figure 7.5.1: Photographs of Building 1

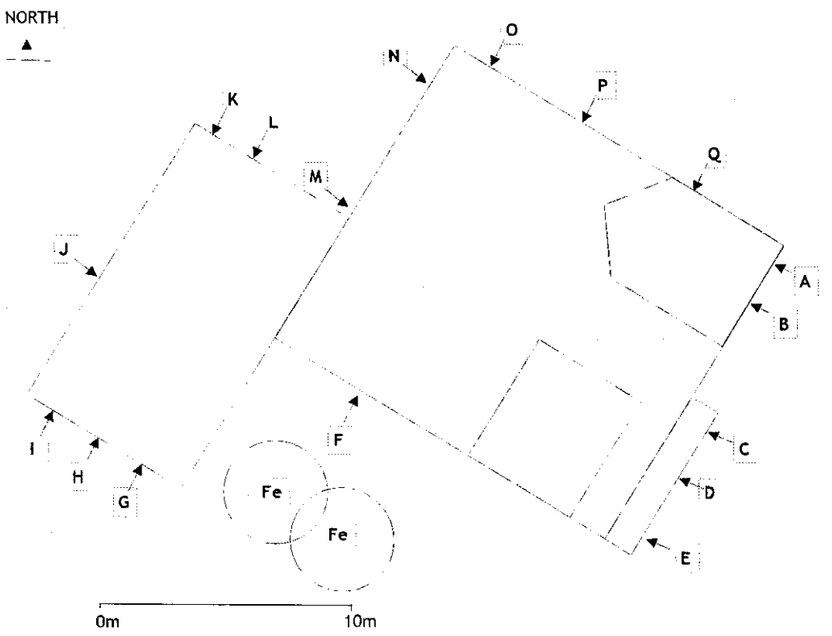
Scale:	Drawing No.	Date:
NTS	Figure 7.5.1	June 2012

Reference No.: ERAP Ltd 2010_270

ERAP Ltd
Consultant Ecologists
49a Manor Lane, Penwortham, Preston, Lancashire. PR1 0TA.
Tel: 01772 750902
E-mail: mail@erap.co.uk Website: www.erap.co.uk

Ref.	Notes
Exterior	
A	Large vertical crack in wall 0.06m wide and 1.25m long
B	Brick airbricks beneath gable apex
C	Gap at eaves leading to stone wall top beneath slates.
D	Ivy covering and hole leading into stone filled wall 0.07m diameter
E	Gap leading into stone filled wall at eaves height (3m above ground) 0.12 by 0.10m diameter
F	Concrete rendered stone wall; no gaps Mortared well beneath slates; no gaps
G	Damage to east of window exposed gaps at the stone filled wall
H	Damage at gable apex which has exposed crevices into stone filled wall
I	Damage at east side of lower window which has exposed crevices into stone filled wall
J	Lower half of wall stone but well mortared Upper half concrete rendered; no gaps
K	Cracks both sides of doorway leading to stone filled wall.
L	Gap beneath/between window lintel leading to stone filled wall
M	Stone underarch over barn door; no gaps
N	Gaps beneath the lintel over the doorway
O	Gap at roof edge between wall top and slates
P	Crack in stone wall at the side of the window
Q	Crack in stone wall at the side of the window

INSERT 7.5.2A: Plan to illustrate features identified to be suitable for use by roosting bats.



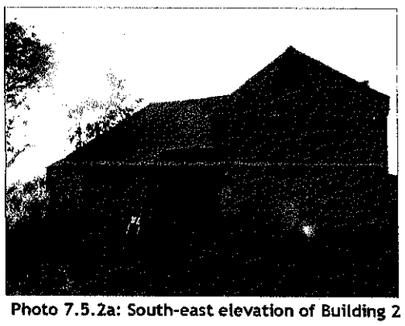


Photo 7.5.2a: South-east elevation of Building 2

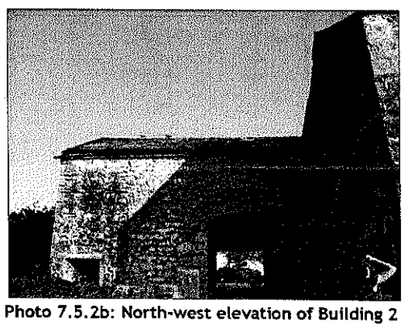


Photo 7.5.2b: North-west elevation of Building 2

Photo 7.5.2c: North-east elevation of Building 2

Photo 7.5.2d: South west elevation of Building 2

Photo 7.5.2e: North-west elevation of Building 2

Photo 7.5.2f: Gap in stone work at north-east elevation

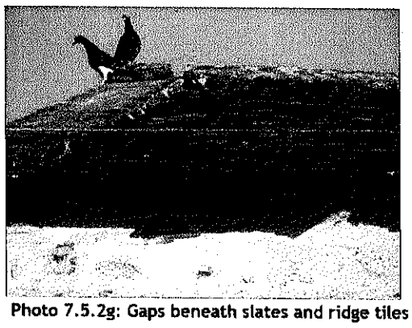


Photo 7.5.2g: Gaps beneath slates and ridge tiles

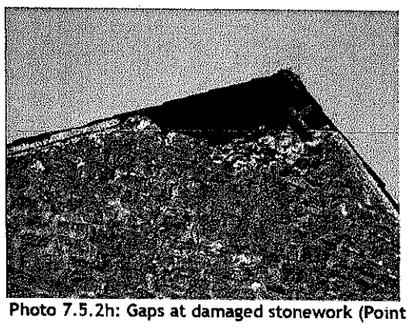


Photo 7.5.2h: Gaps at damaged stonework (Point H)

NO BATS OR EVIDENCE OF A BAT ROOST WAS DETECTED DURING SURVEYS IN 2011 AND 2012.

Project Name:
Land at Standen, Clitheroe

Title: Figure 7.5.2: Plan and Photographs to illustrate Results of External Inspection at Building 2

Scale:	Drawing No.	Date:
NTS	Figure 7.5.2	June 2012

Reference No.: ERAP Ltd 2010_270

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E-mail: mail@erap.co.uk Website: www.erap.co.uk

Ref.	Notes
Interior	
1	Gaps leading into stone filled wall at a height of 2 m from ground. Possibly where timber joists used to key into wall
2	Vertical crack in wall 0.03wide and 0.3m long
3	Hole in wall 0.10m by 0.06m wide
4	Hole 0.02m wide by 0.05m long approx. 3 metres up wall. No cobwebs
5	Holes leading to wall tops from interior.
6	Former blocked up windows. Gaps present behind window lintels
7	0.25m by 0.25m wide hole in wall leading to stone filled wall
8	Small Tortoiseshell butterfly wing remains (x1)
9	Small hole leading to stone filled wall approx. 1.25 m from floor. Single mouse dropping present.
10	Gaps around timber purlins where they key into stone wall.

INSERT 7.5.3A: Plan to illustrate features identified to be suitable for use by roosting bats.

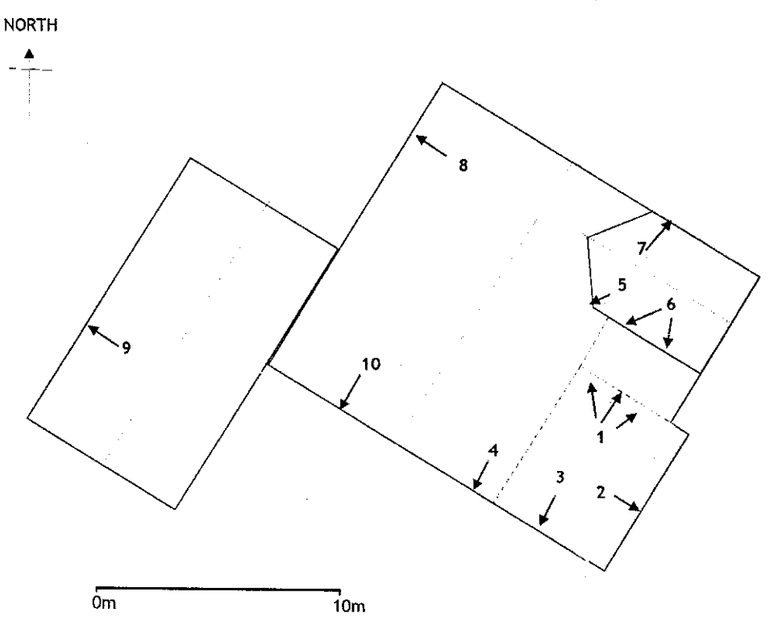

Photo 7.5.3a: Timber roof trusses and underside of slates

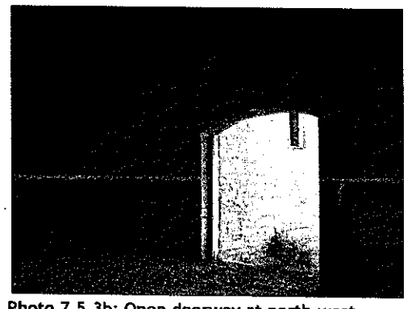

Photo 7.5.3b: Open doorway at north-west elevation

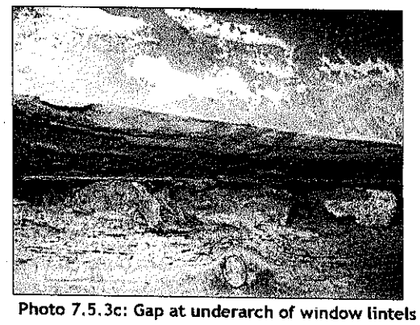

Photo 7.5.3c: Gap at underarch of window lintels

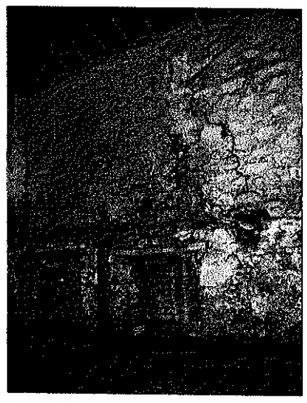

Photo 7.5.3d: White washed internal walls

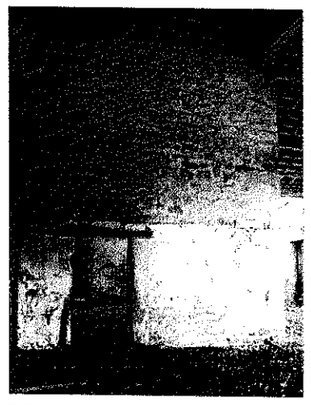

Photo 7.5.3e: White washed internal walls

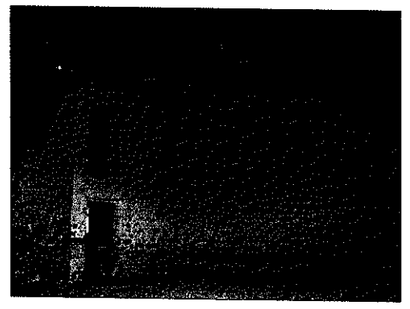

Photo 7.5.3f: White washed internal walls

Project Name:
Land at Standen, Clitheroe

Title: Figure 7.5.3: Plan and Photographs to Illustrate Results of Internal Inspection at Building 2

Scale:	Drawing No.	Date:
NTS	Figure 7.5.3	June 2012

Reference No.: ERAP Ltd 2010_270

ERAP Ltd
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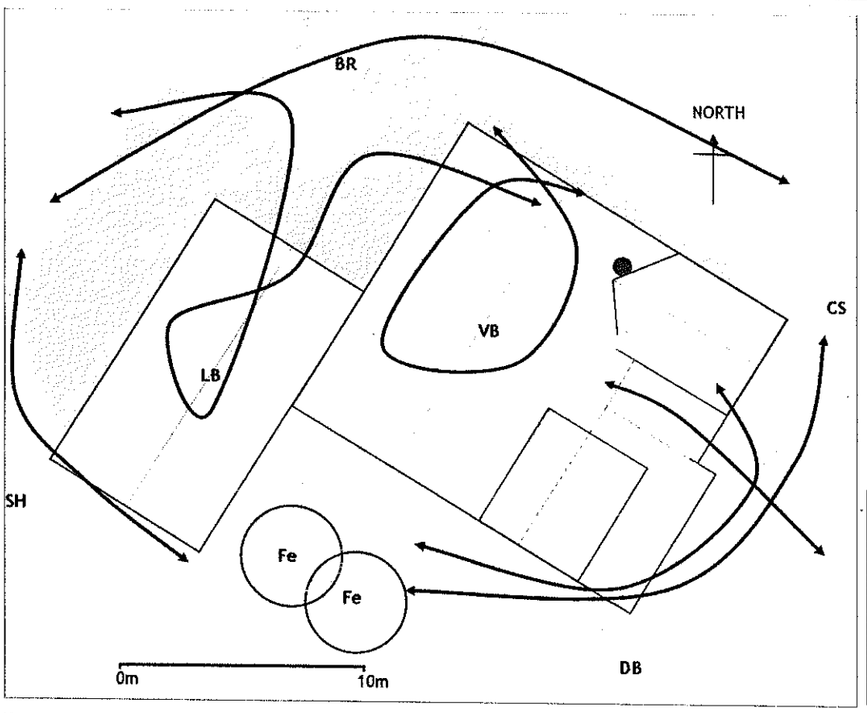
NO BATS OR EVIDENCE OF A BAT ROOST WAS DETECTED DURING SURVEYS IN 2011 AND 2012.



VB = Surveyor Position (6 in total)

● = Position of Anabat (inside)

= General trend of bat activity (Common Pipistrelle)

NO EMERGENCE WAS DETECTED

SURVEY DETAILS

DATE: 02/09/2011
WEATHER: Dry, calm
TEMPERATURE: 22oC at 19.30 failing to 16oC at 22.00
SUNSET: 19.59
SURVEY START: 19.30
SURVEY END: 22.00

SUMMARY OF RESULTS

Purple lines indicate visible flight paths of Common Pipistrelle. Common Pipistrelle activity was recorded throughout the survey.
Low numbers of *Myotis* sp. commuting passes were detected towards the end of the survey at 20:40 to 20:49.
Commuting and foraging activity was detected outside and within the building.
No bat emergence or interaction with the identified features was recorded.

RAW SURVEY DATA

Surveyor: BR (northern corner of barn)

Time	Notes
20:04-20:14	1x P45 foraging inside barn
20:05	1x P45 commute through open doorway
20:09	1x P45 commute into barn
20:10	1xP45 commute into barn
20:10	1xP45 foraging outside building
20:15	1xP45 foraging outside building
20:17	1xP45 foraging outside building
20:18-20:41	1-2 P45 foraging outside building
20:46	1xP45 commute, heard not seen
20:46	1xP55 commute, heard not seen
20:50	1xMyotis sp. commute, heard not seen

Surveyor: DB (southern corner of barn)

Time	Notes
20:10	1xP45 commute from barn
20:14	1xP45 foraging around trees
20:14	1xP45 foraging around trees
20:20	1xP45 foraging around trees
20:21	1xP45 foraging around trees
20:22	1xP45 foraging in front of barn
20:27	1xP45 foraging around trees
20:28	2-3xP45 in front of barn
20:33	1xP45 foraging in front of barn
20:30	1xP55 foraging in front of barn
20:39	1xP55 foraging in front of barn
20:42	1xP45 commute over barn
20:49	1xMyoitis sp. commute

Surveyor: LB (inside north-western compartment of barn)

Time	Notes
20:09	1xP45 flew into compartment via window
20:11	1xP45 flew into compartment and circled
20:20	1xP45 flew into compartment before exiting
20:26-20:28	1xP45 foraging within compartment

Surveyor: CS (eastern corner of barn)

Time	Notes
20:15	1xP45 commute into barn
20:20	1xP45 heard not seen
20:22	1xP45 commute from houses towards barn
20:23	3xP45 commute around barn
20:25	1xP45 commute around barn
20:27	1xP45 commute around barn
20:28	1xP45 heard not seen
20:30	2xP45 commute from houses to barn
20:35	1xPip sp. heard not seen
20:36	1x Pip sp. heard not seen
20:39	1x Pip sp. heard not seen
20:40	1xP45 commute over roof south
20:44	1xMyotis sp. commute past barn (plus social call)
20:45	1xP45 commute
20:50	1xMyotis sp. heard not seen
20:50	1xP45 commute
20:52	1xP45 commute

Surveyor: SH (western corner of barn)

Time	Notes
20:10	1xP45 heard not seen
20:16	1xP45 foraging around building
20:19	1xP45 foraging around building
20:22-22:50	2xP45 foraging around barn, constant

Surveyor: VB (inside main compartment of barn)

Time	Notes
20:08-20:11	1xP45 entered barn via doorway to west
20:14-20:21	1xP45 foraging within barn
20:17	2xP45 foraging within barn, social calls heard
20:19	1xP45 foraging within barn
20:21	1xP45 left barn via door to west and immediately returned.
20:27	Activity ceased.
20:28-20:38	1xP45 foraging within barn
20:39	Activity ceased.

Key to Species Codes: P45 = Common Pipistrelle P55 = Soprano Pipistrelle, Myotis Sp. = Myotis species.

NO BATS OR EVIDENCE OF A BAT ROOST WAS DETECTED DURING SURVEYS IN 2011.

Project Name:
Land at Standen, Clitheroe

Title: Figure 7.5.4: Results of Dusk Emergence Survey at Building 2

Scale:	Drawing No.	Date:
NTS	Figure 7.5.4	June 2012

Reference No. ERAP Ltd 2010_270

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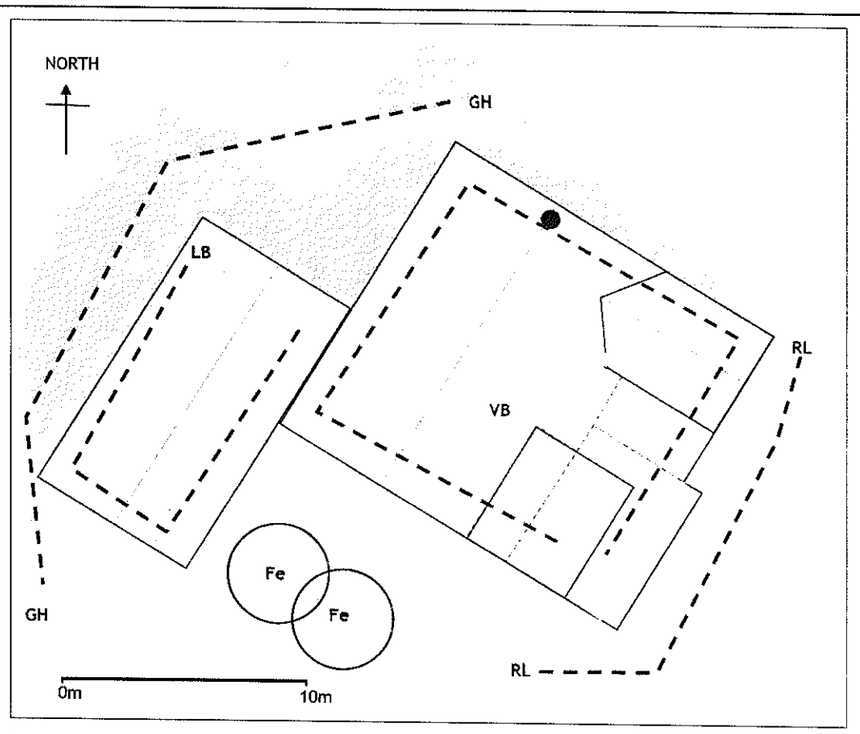

VB = Surveyor Position (4 in total)

● = Position of Anabat (inside)

= Area observed by each surveyor

NO EMERGENCE OR RE-ENTRY WAS DETECTED

SURVEY DETAILS

DATE: 15/09/2011
WEATHER: Dry, calm
TEMPERATURE: 6oC at 04.30am
SUNRISE: 06.42
SURVEY START: 04.30
SURVEY END: 06.45

SUMMARY OF RESULTS

Purple dotted lines show area covered by each surveyor.

No emergence or re-entry activity was detected outside or within the building.

RAW SURVEY DATA

Surveyor: GH (northern side of barn)

Time	Notes
N/A	No emergence or re-entry activity recorded

Surveyor: LB (inside north-western compartment of barn)

Time	Notes
N/A	No emergence or re-entry activity recorded

Surveyor: RL (Southern side of barn)

Time	Notes
N/A	No emergence or re-entry activity recorded

Surveyor: VB (inside main compartment of barn)

Time	Notes
N/A	No emergence or re-entry activity recorded

Key to Species Codes: P45 = Common Pipistrelle P55 = Soprano Pipistrelle, Myotis Sp. = Myotis species.

NO BATS OR EVIDENCE OF A BAT ROOST WAS DETECTED DURING SURVEYS IN 2011.

Project Name:
Land at Standen, Clitheroe

Title: Figure 7.5.5: Results of Dawn Re-entry Survey at Building 2

Scale:	Drawing No.	Date:
NTS	Figure 7.5.5	June 2012

Reference No. ERAP Ltd 2010_270

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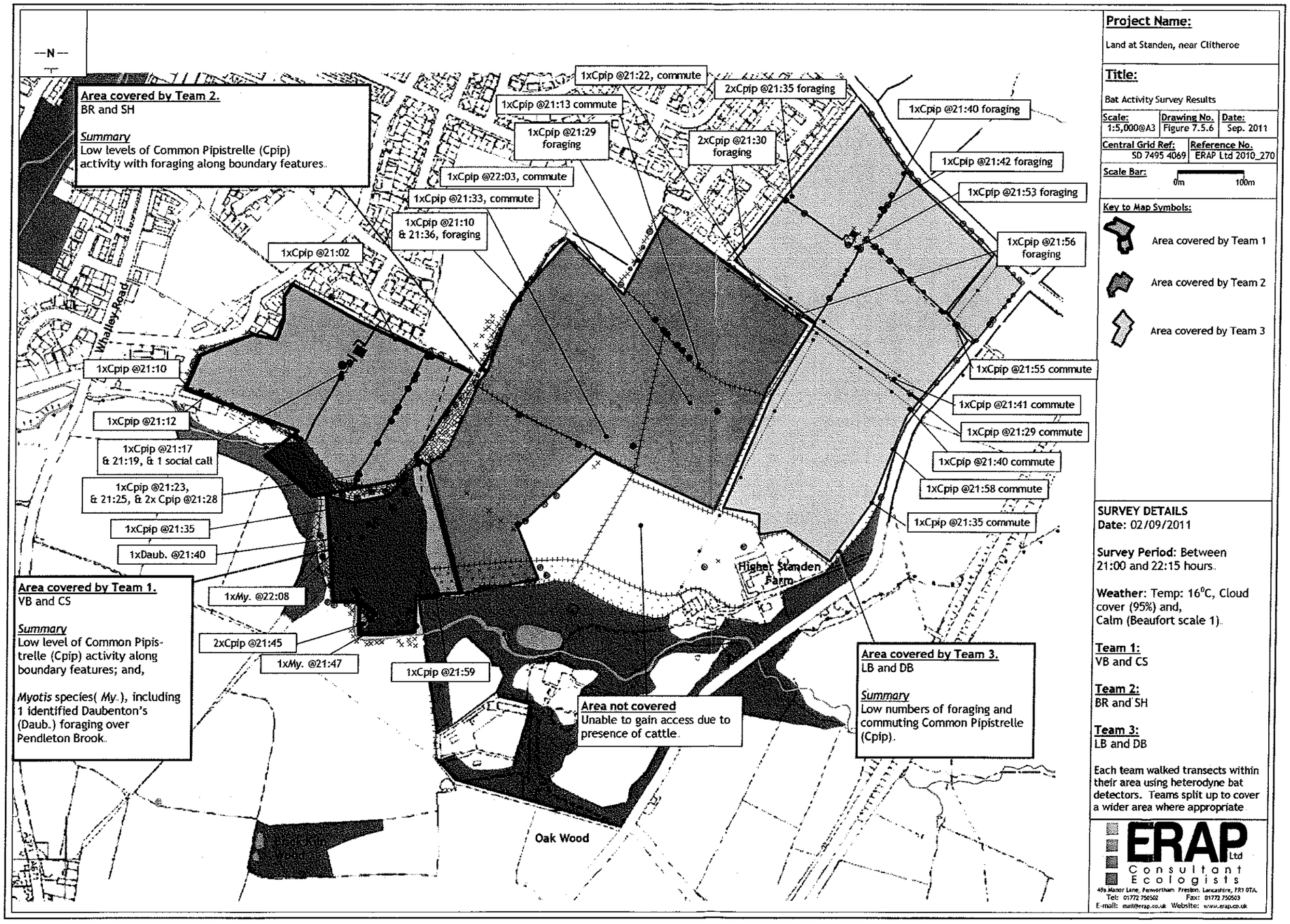

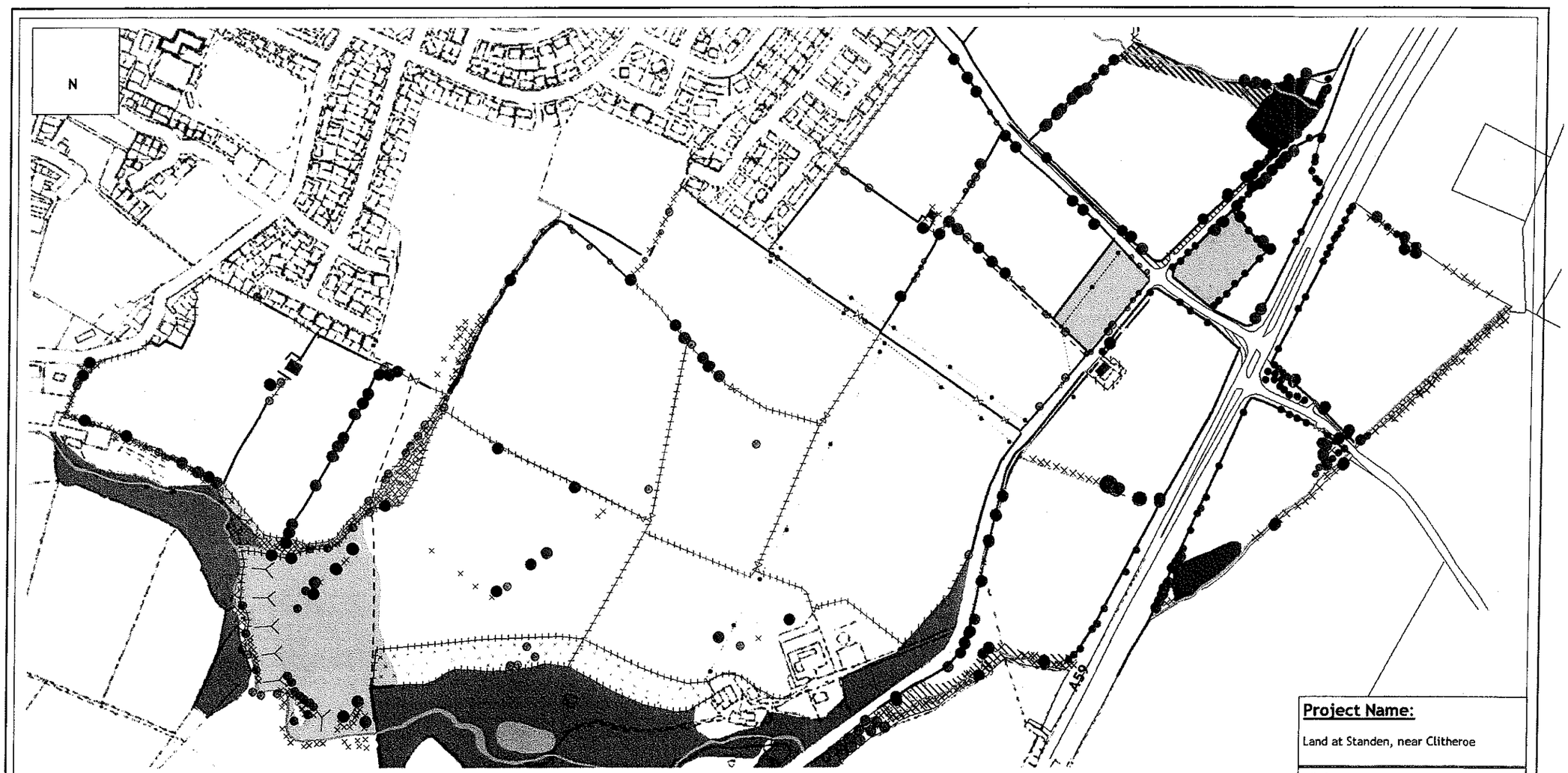

KEY TO TREE CLASSIFICATION CATEGORIES (Criteria for Assessment of Trees in accordance with Categories 1* to 3 as defined in Table 8.4 of the *Bat Conservation Trust Bat Surveys - good practice guidelines 2nd* Edition (Hundt 2012)).

Symbol on Map	Category	Description	Number of Trees
○	1*	Trees with multiple highly suitable features capable of supporting larger roosts	0
●	1	Trees with definite bat potential, supporting fewer suitable features than category 1* trees or with potential for use by single bats	38
●	2	Trees with no obvious potential although the tree is of a size and age that elevated tree surveys may result in cracks or crevices being found; or the tree supports some features which may have limited potential to support bats.	84
●	3	Trees with no potential to support bats.	210

Note: No known or confirmed tree roosts were detected.

Project Name:
Land at Standen, near Clitheroe

Title:
Plan to illustrate the results of the assessment of all trees for bat features

Scale:	Drawing No.	Date:
1:5,000@A3	Figure 7.5.7	April 2012

Central Grid Ref:	Reference No.
SD 7495 4069	ERAP Ltd 2010_270

Scale Bar: 0m 100m

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KEY

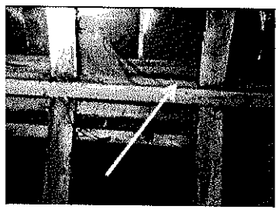
Bat activity (foraging and commuting only)

VB Surveyor Position (Dusk Emergence Survey 11th June 2012)

A Building Number

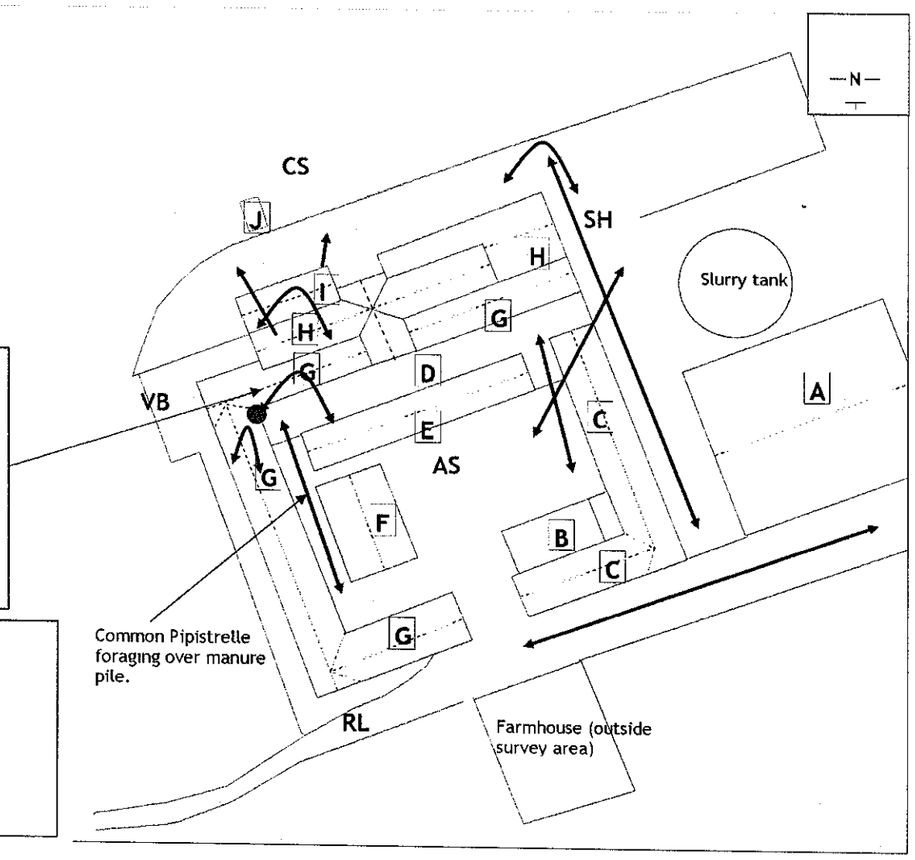
Position of Anabat

21:45: Single Common Pipistrelle bat entered summer roost between ridge copings and ridge board.

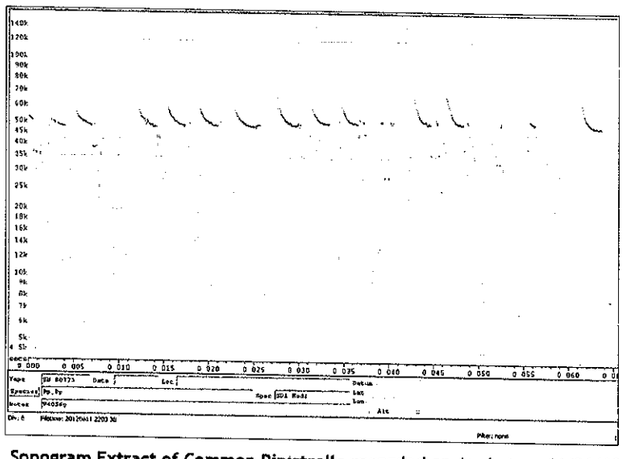


DUSK EMERGENCE SURVEY DETAILS

DATE: 11/06/2012
WEATHER: Dry, overcast, calm
TEMPERATURE: 11oC at 21.00
SUNSET: 21.40
SURVEY START: 21.20
SURVEY END: 22.50



Building Number	Brief Description and Photo Reference	Evidence of Bats? Assessment	Status
A	Single storey timber and steel framed barn with a pitched corrugated tin roof and slatted timber plank elevations. Skylights present.	No evidence of a roost; building assessed to be unsuitable.	Unsuitable. No further actions necessary
B	Steel framed store with a pitched corrugated metal roof and skylights.	No evidence of a roost; building assessed to be unsuitable.	Unsuitable. No further actions necessary
C	Single storey brick barn with a pitched slate covered roof with ridge coping tiles. Open to ridge inside. Underfelt present in some sections. Gaps suitable for bat access beneath ridge copings and between slates and underfelt.	No evidence of a bat roost. No bat emergence detected.	No roost detected. Opportunities for bat access present e.g. beneath ridge copings and slates.
D	Timber framed covered walkway between brick buildings E and G/C. Flat corrugated metal roof.	No evidence of a roost; building assessed to be unsuitable.	Unsuitable. No further actions necessary
E	Single storey brick barn with a pitched slate covered roof and ridge coping tiles. Open fronted to face farmyard.	No evidence of a bat roost. No bat emergence detected.	No roost detected. Opportunities for bat access present e.g. beneath ridge copings and slates.
F	Steel framed store with a pitched corrugated metal roof and skylights.	No evidence of a roost; building assessed to be unsuitable.	Unsuitable. No further actions necessary
G	Single storey brick barn with a pitched slate covered roof and ridge coping tiles. Bitumen felt lined but most in a poor condition with frequent damage and cobwebs. Short section of building at western side with more recently installed and intact underfelt. Roof timbers cobweb covered.	No evidence of a bat roost. No bat emergence detected.	**Confirmed single bat summer roost between ridge copings and ridge board.** Opportunities for bat access present e.g. beneath ridge copings and slates.
H	Single storey brick barn with a pitched slate covered roof and ridge coping tiles. Timber soffits at gable elevations. Gaps at eastern gable where the timber purlins meet the wall. Bitumen felt lined but in a poor condition with frequent damage and cobwebs. Roof timbers cobweb covered.	No evidence of bats detected during internal and external inspections. Single Common Pipistrelle entered gap between the ridge coping and the ridge board at the gap apex at western end at 21.45 on 11th June 2012.	No roost detected. Opportunities for bat access present e.g. beneath ridge copings and slates.
I	Single storey brick barn with a pitched slate covered roof and ridge coping tiles.	No evidence of a bat roost. No bat emergence detected.	No roost detected. Opportunities for bat access present e.g. beneath ridge copings and slates.
J	Timber shed	No evidence of a roost; building assessed to be unsuitable.	Unsuitable. No further actions necessary



Sonogram Extract of Common Pipistrelle recorded on Anabat on 11/06/12 (Analook Software)

Project Name:
Land at Standen, near Clitheroe

Title:
Description of Buildings at Higher Standen Farm and results of bat survey

Scale:	Drawing No.	Date:
NTS	Figure 7.5.8	June 2012

Central Grid Ref:	Reference No.
SD 7506 4039	ERAP Ltd 2010_270

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