

Land at Alston Lane Roman Catholic Church, Preston Road, Grimsargh PR3 3BL

## ECOLOGICAL SURVEY AND ASSESSMENT

February 2017

[ERAP Ltd ref: 2015-247]

ERAP Ltd (Consultant Ecologists)  
49a Manor Lane  
Penwortham  
Preston  
Lancashire  
PR1 0TA

Tel: 01772 750502


mail@erap.co.uk  
www.erap.co.uk



## CONTENTS

<b>A. SUMMARY .....</b>	<b>2</b>
<b>1.0 INTRODUCTION .....</b>	<b>3</b>
<b>2.0 METHOD OF SURVEY .....</b>	<b>3</b>
2.1 Desktop Study.....	3
2.2 Vegetation and Habitats.....	3
2.3 Animal Life .....	4
2.4 Survey Limitations.....	8
2.5 Evaluation Methodology .....	8
<b>3.0 SURVEY RESULTS .....</b>	<b>9</b>
3.1 Desktop Study.....	9
3.2 Vegetation and Habitats.....	11
3.3 Animal Life .....	13
<b>4.0 EVALUATION AND ASSESSMENT .....</b>	<b>15</b>
4.1 Designated Sites.....	15
4.2 Vegetation and Habitats.....	15
4.3 Protected Species and Other Wildlife.....	16
4.4 Assessment of Impacts.....	16
<b>5.0 RECOMMENDATIONS AND ECOLOGICAL ENHANCEMENT .....</b>	<b>17</b>
5.1 Protection of Habitats and Wildlife .....	17
5.2 Invasive Species .....	17
5.3 Bats .....	17
5.4 Birds.....	18
5.5 Other Wildlife .....	19
5.6 Enhancement for Biodiversity.....	19
<b>6.0 CONCLUSION.....</b>	<b>20</b>
<b>7.0 REFERENCES .....</b>	<b>21</b>
<b>8.0 APPENDIX 1: TABLES AND FIGURES.....</b>	<b>22</b>

## Document Control

<b>Report Author</b>	Brian Robinson B.Sc. (Hons) MCIEEM Ecologist
<b>Signed</b>	
<b>Date</b>	13 <sup>th</sup> October 2015
<b>Checked by</b>	Chris Schofield B.Sc. (Hons) M.Sc. GradCIEEM
<b>Date</b>	15 <sup>th</sup> October 2015
<b>Revised and Issued by</b>	Brian Robinson B.Sc. (Hons) MCIEEM Ecologist
<b>Date</b>	16 <sup>th</sup> October 2015
<b>Report Issued to</b>	JYM Partnership LLP
<b>Report revision:</b> Version 2	
Report revised 20 <sup>th</sup> February 2017 by Brian Robinson to refer to the most recent proposed site layout, and to update the habitat plan to reflect current conditions; three trees noted in the original 2015 have been removed in the intervening period.	

## A. SUMMARY

- i. This Ecological Appraisal presents the ecological, biodiversity and nature conservation status of Land at Alston Lane Roman Catholic Church, Preston Road, Grimsargh. The appraisal was requested in connection with proposals to develop a portion of the site to housing.
- ii. The appraisal presents the results of a desktop study, extended Phase 1 Habitat Survey and a licensed bat survey carried out in October 2015. The scope of survey undertaken is appropriate to enable the identification of any potential ecological constraints, the remit of mitigation required and opportunities for biodiversity associated with the development proposals.
- iii. The site comprises a residential dwelling with adjoining barn (which will be unaffected by the proposed development), hedgerows, an unmanaged grassland field unit and gardens.
- iv. The site contains only common and widespread plant species. None of the habitats within the site are of significant interest in terms of their plant species composition. None of the habitats present are representative of semi-natural habitat.
- v. Hedgerow 1 is UK BAP Priority Habitat and is 'important' in accordance with *The Hedgerows Regulations 1997* Wildlife and Landscape Criteria. The hedgerow will be protected and retained throughout the proposed development.
- vi. The hedgerows, mature trees and shrubs within the site are all of local value as they add structural diversity and support breeding birds. The two garden ponds are of site value only, as they increase the diversity of the habitats within the site but are too small to support significant assemblages of breeding amphibians or aquatic invertebrates. Neither Garden Pond 1 or 2 is considered UK BAP Priority Habitat.
- vii. Recommendations for the retention and protection of habitats within the site are presented at **Section 5.1**. Measures for the protection of wildlife during site clearance are also presented at **Section 5.1**.
- viii. Montbretia, an invasive species listed under Section 9 of the *Wildlife and Countryside Act 1981* (as amended), is present within the site; measures for the eradication of this species during the course of site clearance are presented at **Section 5.2**.
- ix. No protected species were detected within the site during the survey. Tree 1 supports features suitable for use by roosting bats; the tree will be retained by the proposed development. Recommendations to enhance habitats within the site for roosting bats as part of the proposals are presented at **Section 5.3**.
- x. The trees, shrubs and buildings provide favourable foraging and nesting habitat for the species of birds detected within the site and the wider area via the records search (including House Sparrow, a UK BAP Priority Species). Consideration of birds (including protection of breeding birds and recommended enhancements for UK BAP Priority Species) are presented at **Section 5.4** of this Report.
- xi. Measures to ensure habitat connectivity within the site is maintained following the completion of the proposed development are presented at **Section 5.5**.
- xii. The recommendations in **Section 5.0** address all the mandatory measures and ecological recommendations to be applied to ensure compliance with wildlife legislation, the National Planning Policy Framework (NPPF) and best practice.
- xiii. The proposals will secure an opportunity to implement beneficial measures such as habitat management and habitat creation that will safeguard habitats for wildlife such as birds and bats, with the aim of providing a net gain in biodiversity in accordance with the principles of the NPPF.
- xiv. It is considered that the proposals are feasible and acceptable in accordance with ecological considerations and relevant planning policy. Development at the site will provide an opportunity to secure ecological enhancement for wildlife associated with residential development.

## 1.0 INTRODUCTION

### Background and Rationale

- 1.1 ERAP Ltd (Consultant Ecologists) was commissioned by JYM Partnership LLP to carry out an ecological appraisal of Land at Alston Lane Roman Catholic Church, Preston Road, Grimsargh, PR3 3BL (hereafter referred to as the 'site'). The grid reference at the centre of the site is SD 59702 34708.
- 1.2 The appraisal was requested in connection with a planning application to develop the site to housing.

### Scope of Survey

- 1.3 The scope of ecological surveys undertaken in October 2015 comprised:
  - a. A desktop study for known ecological information at the site and the local area;
  - b. An Extended Phase 1 Habitat Survey and assessment;
  - c. Survey and assessment of all habitats for statutorily protected species and other wildlife including Badger, Barn Owl, Great Crested Newt, Water Vole, bird species and invertebrates;
  - d. Licensed bat survey of the trees within the site;
  - e. An assessment of the ecological value of the habitats within the site with the use of the National Vegetation Classification (NVC) and the Ratcliffe criteria, as presented in *A Nature Conservation Review* (Ratcliffe, 1977);
  - f. The identification of any potential ecological constraints on the proposals and the specification of the scope of mitigation and ecological enhancement required in accordance with wildlife legislation, planning policy guidance and other relevant guidance; and,
  - g. The identification of any further surveys or precautionary actions that may be required prior to the commencement of any development activities.

## 2.0 METHOD OF SURVEY

### 2.1 Desktop Study

- 2.1.1 The following sources of information and ecological records were consulted for information: -
  - a. MAgiC: A web-based interactive map which brings together geographic information on key environmental schemes and designations, including details of statutory nature conservation sites;
  - b. Lancashire Environment Record Network (LERN); and
  - c. Lancashire Biodiversity Action Plan (BAP)

### 2.2 Vegetation and Habitats

- 2.2.1 An Extended Phase 1 Habitat Survey of the site was carried out by Brian Robinson B. Sc. (Hons) MCIEEM on the 12<sup>th</sup> October 2015. The weather was dry and sunny, calm (Beaufort Scale 1) and 14°C at midday. The conditions and time of year were favourable for the ecological survey.
- 2.2.2 A vegetation and habitat map was produced for the site and the immediate surrounding area at a scale of 1:1,000 (refer to **Figure 1**). The mapping is based on the Joint Nature Conservation Committee Phase 1 Habitat Survey methodology (JNCC, 2010) with minor adjustments to illustrate and examine the habitats with greater precision.
- 2.2.3 The plant species within the site boundary were determined with estimates of the distribution, ground cover, abundance and constancy of individual species. The estimation of abundance was based on the DAFOR

system where D = Dominant, A = Abundant, F = Frequent, O = Occasional, R = Rare, this being a widely used and accepted system employed by ecological surveyors. The terms L = Locally and V = Very were additionally used to describe the plant species distributions with greater precision.

- 2.2.4 All stands of vegetation and habitats were described and evaluated using the National Vegetation Classification (NVC). The NVC provides a systematic and comprehensive analysis of British vegetation and provides a reliable framework for nature conservation and land-use planning.
- 2.2.5 Hedgerows were assessed in accordance with *The Hedgerows Regulations 1997* Wildlife and Landscape Criteria.
- 2.2.6 Searches were made for uncommon, rare and statutorily protected plant species, those species listed as protected in the *Wildlife and Countryside Act 1981* (as amended) and species which are indicators of important and uncommon plant communities. Plant nomenclature follows *New Flora of the British Isles 3<sup>rd</sup> Edition* (Stace, 2010).
- 2.2.7 Searches were carried out for the presence of invasive species, including those listed on Schedule 9 of the *Wildlife and Countryside Act 1981* (as amended), including Japanese Knotweed (*Fallopia japonica*), Himalayan Balsam (*Impatiens glandulifera*) and Giant Hogweed (*Heracleum mantegazzianum*).

## 2.3 Animal Life

### Badger

- 2.3.1 A thorough search for Badger activity was carried out. The survey area covered the site (as annotated on **Figure 1**) and extended to the accessible land within a radius of 50 metres from the site boundary. Private gardens were excluded from the survey.
- 2.3.2 The following signs of Badger activity were searched for:
  - a. 'D' shaped sett entrances and tunnels at least 0.25 metre wide and wider than they are high with large spoil mounds;
  - b. Discarded bedding at sett entrances (this includes grass and leaves);
  - c. Scratching posts on shrubs and trees close to a sett entrance;
  - d. The presence of Badger hairs which are coarse, up to 0.1 metre long with a long black section and a white tip;
  - e. Dung pit latrines and footprints; and
  - f. Trampled pathways through vegetation and beneath fences.
- 2.3.3 All habitats within and surrounding the site were assessed in terms of their suitability for use by foraging and sheltering Badger.

### Bat species

#### *Survey personnel*

- 2.3.4 The buildings and trees were assessed for their suitability to support roosting bats by Brian Robinson. Mr. Robinson holds a Natural England Class Survey Licence WML CL18 (Bat Survey Level 2), Registration Number 2015-13161-CLS-CLS.
- 2.3.5 The surveyor's qualifications and experience meet the criteria as defined in the *Technical Guidance Series Competencies for Species Survey: Bats* (CIEEM, 2013).

2.3.6 The surveys were carried in accordance with standard methodology including the *Bat Mitigation Guidelines* (Mitchell-Jones, 2004), the *Bat Workers' Manual 3<sup>rd</sup> Edition* (Mitchell-Jones & McLeish, 2004) and the *Bat Surveys: Good Practice Guidelines, 2<sup>nd</sup> Edition* (Hundt, 2012).

### **Daylight Survey**

#### *Buildings*

2.3.7 An inspection of the sheds and outhouses to determine whether any supported features suitable for use by roosting bats were present was conducted during the walkover survey. The residential dwelling and adjoining barn within the site will not be affected by the proposed development.

#### *Trees*

2.3.8 A Stage 1 Initial Survey of trees within the site was conducted to inform whether further surveys or precautionary measures were required at the site in respect of bats roosting at trees. Trees were assessed for their suitability for use by roosting bats (i.e. presence of crevices, cracks, woodpecker holes, dense ivy cover and splits in the trunks and branches that could be accessed by bats). The criteria detailed at **Table 2.1** were referred to during the assessment.

**Table 2.1: Tree Category Definition**

<b>Tree Category</b>	<b>Description<sup>1</sup></b>
<b>Known or confirmed roost</b>	Tree has a known roost or a roost is determined by further survey.
<b>Category 1*</b>	Trees with multiple, highly suitable features capable of supporting larger roosts, such as: <i>woodpecker holes, knot holes, tear-outs, double leaders, wounds and cankers and butt rots, longitudinal splits and crevices, transverse cracks, hazard beams, lightning strikes, desiccation fissures in dead wood, and transverse snaps.</i>
<b>Category 1</b>	Trees with low numbers of features suitable for supporting larger roosts (see above list); or, with multiple features suitable for low numbers of bats, such as: <i>narrow splits, flush cuts, frost cracks, impact shatters, and lifted bark.</i>
<b>Category 2</b>	Trees with no obvious features suitable for roosting bats, although the tree is of a size and age that elevated surveys may result in cracks or crevices being found; or, Tree supports a low number of features suitable for low numbers of roosting bats. <i>Dense Ivy cover may be used as a night roost, and may also obscure the view of other, more favourable features such as those described above.</i>
<b>Category 3</b>	Trees with no features suitable for roosting bats
<sup>1</sup> Terms used to describe any features present follow (where possible) those outlined and described in <i>Bat Tree Habitat Key, 2<sup>nd</sup> Edition</i> (Andrews, 2013).	

### **Habitat Assessment**

2.3.9 Habitats within and adjacent to the site were assessed for their value and suitability for foraging and commuting bats.

2.3.10 Features typically considered to be favourable to foraging and commuting bat species include hedgerows, tree lines, broadleaf woodland, unimproved pasture which may support an abundance of invertebrate prey species, waterways and waterbodies.

2.3.11 Hedgerows, tree lines and waterways may be used as commuting pathways between foraging areas and roosts, as they provide a combination of foraging habitat, cover from potential predators and landmarks for navigation.

### **Bird species**

2.3.12 Bird species observed and heard during the walkover survey were recorded.

2.3.13 Habitats throughout the site and immediate surrounding area were assessed for their value for roosting, feeding and nesting birds, as indicated by the amount of shelter, feeding value, woody vegetation structure and species diversity of tree and shrub species in the site.

### Great Crested Newt

2.3.14 In accordance with the current Natural England guidance all ponds within an unobstructed 500 metres of a site should be considered for their suitability to support breeding Great Crested Newts. The potential of the proposed development to impact upon any Great Crested Newt population(s) whose breeding ponds are within 500 metres must be considered.

2.3.15 The search of habitats in the wider area up to a distance of 500 metres from the site boundary revealed the presence of two small garden ponds within the site, and a further ten ponds within the wider area (refer to **Figure 2**, appended).

2.3.16 Of these ten ponds, three lie across Preston Road; Preston Road is an eight metre wide main thoroughfare with dropped kerbstones, and is considered a significant dispersal barrier to Great Crested Newt. As such, it is considered that the proposed development will not impact upon any Great Crested Newt breeding population associated with ponds to the west of Preston Road, and there is no requirement to conduct further studies at these ponds.

2.3.17 The locations of the ponds within the site and ponds which do not lie the far side of a major dispersal barrier are presented at **Table 2.2**, below.

**Table 2.2: Ponds within 500 metres of the site**

Pond Ref	Grid Reference	Distance from site boundary	Location (refer to Figure 2)
1	SD 596 347	Within site	Small garden pond at south-eastern end of the site
2	SD 597 326	Within site	Small garden pond at south-eastern end of the site
3	SD 599 347	210 metres	Field east of Chapel House Farm
4	SD 600 346	350 metres	Field to the east of Chapel House Farm
5	SD 600 344	430 metres	Field to south-east of Chapel house Farm
6	SD 601 344	490 metres	Field to south-east of Chapel house Farm
7	SD 599 343	430 metres	Field to south-east of Chapel house Farm

2.3.18 The requirement for further survey at each pond was then assessed using the following criteria:

- a. The distance of ponds from the site comparative to the relative size of the site;
- b. The potential influence of the proposed development on any populations of Great Crested Newt (if present at ponds), using the Natural England rapid risk assessment tool; and
- c. The presence of other ponds which may form metapopulations and/or alter the influence of the site on ponds at greater distances.

2.3.19 Garden Ponds 1 and 2 lie within the site. One pond, Pond 3, is within 250 metres of the site, and the remaining ponds (Ponds 4 to 7) lie between 250 and 500 metres from the site. **Table 2.3**, below provides the results of the Natural England Rapid Risk Assessment tool from *Template for Method Statement to Support Application for Licence Under Regulation 53(2)(e) In Respect of Great Crested Newts Triturus Cristatus: Form WML-A14-2*. (Natural England, 2013).

2.3.20 This initial assessment is based on the distances of the ponds from the site, and the size of the development site (0.4 hectare). The rapid risk assessment tool assumes that Great Crested Newt are present at all ponds. The table has been amended to demonstrate more clearly the scale of the various impacts in relation to ponds at different distances from the site.

**Table 2.3: Rapid Risk Assessment Result**

Component	Likely effect	Relevant ponds	Notional offence probability score	Rapid risk assessment result:
Great crested newt breeding pond(s)	Damaged or destroyed	Garden Ponds 1 & 2	1	Red: offence highly likely
Land within 100m of any breeding pond(s)	0.1 to 0.5 hectares lost or damaged	Garden Ponds 1 & 2	0.5	Amber: offence likely
Land 100-250m from any breeding pond(s)	0.1 to 0.5 hectares lost or damaged	Pond 3	0.1	Green offence highly unlikely
Land >250m from any breeding pond(s)	0.01 - 0.1 ha lost or damaged	Ponds 4 to 7	0.005	Green offence highly unlikely
Individual great crested newts	Killing or injuring newts	N/A	0.8	Red: offence highly likely

- 2.3.21 The table shows that if there is a risk of killing or injuring Great Crested Newt (i.e. if Great Crested Newt are reasonably likely to be within the site during site clearance) then an offence is highly likely.
- 2.3.22 The table also shows that, assuming the ponds are suitable for use by breeding Great Crested Newt, and Great Crested Newt are present, the removal of Garden Ponds 1 and 2 would be highly likely to cause an offence.
- 2.3.23 The proposed development would be reasonably unlikely to have any impacts on a breeding population of Great Crested Newt centred on Ponds 3 to 7 due to the size of the site and the distance of the site from these ponds.
- 2.3.24 Garden Ponds 1 and 2 were assessed in terms of their suitability for use by Great Crested Newt using the Habitat Suitability Index (HSI) (Oldham *et al* 2000). Pond 3 was additionally assessed to determine whether this pond (which lies between Ponds 1 and 2, and Ponds 4 to 7) could act as a 'stepping stone' between the garden ponds and the ponds in the wider area.
- 2.3.25 Garden Ponds 1 and 2 and Pond 3 were examined with reference to the ten HSI scoring criteria, which are: **SI<sub>1</sub>**: Geographical location; **SI<sub>2</sub>**: Pond area; **SI<sub>3</sub>**: Pond drying; **SI<sub>4</sub>**: Water quality (as indicated by the diversity of aquatic plants and invertebrates); **SI<sub>5</sub>**: Shade; **SI<sub>6</sub>**: Waterfowl; **SI<sub>7</sub>**: Fish; **SI<sub>8</sub>**: Abundance of other ponds within a one kilometre radius; **SI<sub>9</sub>**: Quality of terrestrial habitat; and **SI<sub>10</sub>**: Macrophyte cover (i.e. aquatic and emergent plants).
- 2.3.26 The survey and assessment of ponds was carried out by Brian Robinson.
- 2.3.27 An indication of the water quality was determined from an assessment of the habitats surrounding the ponds, as the survey was conducted when aquatic invertebrate diversity would not be reliably determined via netting.
- 2.3.28 The assessment followed guidance in relation to interpreting HSI scores, following the categorical scale shown at **Table 2.4**, below.

**Table 2.4: Pond Habitat Suitability Index Categories**

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

- 2.3.29 An assessment of the terrestrial habitat within the site for Great Crested Newts was also conducted, as informed by the *Great Crested Newt Mitigation Guidelines* (English Nature, 2001) and the *Great Crested Newt Conservation Handbook* (Langton, Beckett, and Foster, 2001).
- 2.3.30 Habitats present within the site were assessed for their value to support foraging, sheltering and hibernating Great Crested Newt. Favourable habitats can comprise rough grassland, scrubland, woodland and sites with underground crevices or cracks, such as mammal holes, voids in tree stumps or banks, and refugia such as rock piles or dead wood.

### Reptile species

- 2.3.31 The site was assessed in terms of its suitability for use by reptile species using the important characteristics for reptiles outlined in the draft document '*Reptile Mitigation Guidelines*' (Natural England, September 2011), and reproduced in **Table 2.5**, below.

**Table 2.5: Important Habitat Characteristics for Reptiles**

1. Location (in relation to species range)	7. Connectivity to nearby good quality habitat
2. Vegetation Structure	8. Prey abundance
3. Insolation	9. Refuge opportunity
4. Aspect	10. Hibernation habitat potential
5. Topography	11. Disturbance regime
6. Surface geology	12. Egg-laying site potential

### Other Wildlife

- 2.3.32 No habitats within the site are suitable for use by Water Vole and any other riparian fauna. The survey has assessed the habitats within and surrounding the site for notable and UK BAP Priority Species.

## 2.4 Survey Limitations

- 2.4.1 As stated above, the timing of the survey was such that aquatic invertebrate diversity could not be reliably determined via netting. It is considered that an assessment of the water quality of the ponds has been possible from the assessment of the surrounding habitats.
- 2.4.2 Otherwise the whole site was accessible and the survey was conducted at a suitable time of year. No survey limitations were experienced.

## 2.5 Evaluation Methodology

- 2.5.1 The habitats, vegetation and animal life were evaluated with reference to standard nature conservation criteria as described in *A Nature Conservation Review* (Ratcliffe, 1977) and *Guidelines for the Selection of Biological SSSIs* (Bainbridge *et al*, 2013). These are size (extent), diversity, naturalness, rarity, fragility, typicality, recorded history, position in an ecological or geographical unit, potential value and intrinsic appeal.
- 2.5.2 Government advice on wildlife, as set out in the *National Planning Policy Framework* (2012) and associated government circulars has been taken into consideration. The UK and Lancashire Biodiversity Action Plans (BAPs) have been taken into account in the evaluation of the site.

### 3.0 SURVEY RESULTS

#### 3.1 Desktop Study

##### Site Designations

##### *Statutory Designated Sites for Conservation*

- 3.1.1 The site does not form part of any statutory designated site. The site lies within a Site of Special Scientific Interest (SSSI) Impact Zone for Red Scar and Tun Brook Woods SSSI, which lies 810 metres to the south-west of the proposed development (refer to **Figure 3**). The SSSI is designated for its extensive western valley Ash – Wych Elm wood and valley Alderwoods. It constitutes one of the largest areas of deciduous woodland in Lancashire.
- 3.1.2 The categories of development for which further assessment is required for proposals within the Impact Zone comprise the following:
- Infrastructure (pipelines, pylons and overhead cables, airports, helipads and other aviation proposals);
  - Wind and solar energy schemes (all wind turbines, solar schemes with a footprint greater than 0.5 hectares);
  - Quarries;
  - Residential developments of 100 or more houses, and any residential development of 50 or more houses outside existing settlements/urban areas;
  - Any development which could cause air pollution (pig and poultry units);
  - Composting proposals with more than 500 tonnes annual operational throughput;
  - Discharges of water or liquid waste to surface water greater than 2m<sup>3</sup> per day; and,
  - Large infrastructures such as warehousing.
- 3.1.3 The development does not meet any of the criteria for which further assessment would be required in terms of impacts to any SSSI.

##### *Non-statutory Designated Sites for Nature Conservation*

- 3.1.4 The site lies within two kilometres of 12 Biological Heritage Sites (BHSs). The distance of each BHS from the site, and the reason for the designation of each BHS, is summarised at **Table 3.1**, below.

**Table 3.1: BHS Name, Distance from Site and Reason for Designation**

BHS Name and Grid Reference	Distance and Direction from Site	Reason for Designation
Wood Top Wood SD 591 343	300 metres south	Semi-natural, broad-leaved woodland. Part of the woodland is included in the <i>Lancashire Inventory of Ancient Woodland (Provisional)</i> (English Nature, 1994).
Grimsargh Reservoirs SD 590 346	230 metres west	Three adjacent reservoirs (one of which has been partially drained). The reservoir banks support species-rich grassland and the reservoirs support large numbers of breeding and wintering bird species.
Whittingham Mires and Pools SD 583 353	1.2 kilometres north-west	Wetland developed on the site of marl pits. Supports Great Crested Newt and Common Frog.
Alston Reservoirs SD 606 362	1.25 kilometres north-east	Two neighbouring reservoirs. The grass embankments support species-rich grassland, and the reservoirs support a high diversity and good numbers of wintering wildfowl.
		<b>Continued overleaf</b>

BHS Name and Grid Reference	Distance and Direction from Site	Reason for Designation
		<b>Table 3.1 continued</b>
Norcross Wood SD 613 348	1.54 kilometres east	Designated for its woodland and scrub habitats
King Wood SD 616 346	1.7 kilometres east	Designated for its woodland and scrub habitats
Alston Wood SD 609 336	1.2 kilometres south	Semi-natural woodland, listed in the inventory of Ancient Woodland. The wood is important for nesting birds.
River Ribble from London Bridge Road SD 553 287 to SD 856 836	1.63 kilometres south	The river and its associated habitats support a rich assemblage of plants and animals. The river is important for Salmon, Sea Trout, Otter and Water Vole. Sandy cliffs provide nesting habitat for Sand Martin and Kingfisher.
Gib Holme Wood SD 605 332	1.45 kilometres south	Ancient, semi-natural woodland on the north-western bank of the River Ribble. The woodland is included in the <i>Lancashire Inventory of Ancient Woodland (Provisional)</i> (English Nature, 1994) and is important for nesting birds.
Big Wood SD 598 330	1.2 kilometres south	Ancient, semi-natural woodland of Wych Elm, Sycamore, Ash and Oak. Birch, Beech and Larch are present locally, with an understorey of Hazel and Hawthorn.
Elston Lane SD 597 326	1.9 kilometres south	Roadside verges and hedges along Elston Lane. Designated for its botanical interest.

3.1.5 The presence of twelve BHSs within two kilometres of the site is considered further at **Section 4.1**, below.

#### Protected and Notable species

3.1.6 No records of protected or notable species are reported by LERN for the site. Protected and notable species are present within the wider area, and these records are summarised at **Table 3.2**, below.

**Table 3.2: Records of Protected and Notable Species within Two Kilometres of the Site**

Group	Species	Notes
<b>Amphibians</b>	Common Frog WCA 1981 s9(5) <sup>1</sup> & LBAP <sup>2</sup> .	149 records from between 1997 and 2011, the closest being 600 metres west, across Preston Road.
	Common Toad WCA 1981 s9(5), UK BAP <sup>3</sup> & LBAP	100 records from between 2006 and 2013, the closest being 170 metres north-west, across Preston Road.
	Great Crested Newt EPS <sup>4</sup> , WCA 1981 s9 <sup>5</sup> , UK BAP, LBAP	167 records from between 1997 and 2013, the closest being 170 metres north-west, across Preston Road. There are no records within 1 kilometre of the site to the south (site side) of Preston Road.
	Palmate Newt WCA 1981 s9(5) & LBAP	45 records, all from 2006, the closest being 900 metres south.
	Smooth Newt WCA 1981 s9(5) & LBAP	102 records from between 2006 and 2011, the closest being 170 metres north-west, across Preston Road
<b>Birds</b>	UK BAP & LBAP	Cuckoo, Curlew, Dunnock. Bullfinch, House Sparrow, Lapwing, Linnet, Reed Bunting, Scaup, Skylark, Spotted Flycatcher, Song Thrush, Starling, Tree Sparrow, Marsh Tit, Yellow Wagtail.
	LBAP	Black-headed Gull, Common Sandpiper, Gadwall, Great Black-backed Gull, Grey Heron, Hobby, House Martin, Kestrel, Knot, Little Ringed Plover, Meadow Pipit, Oystercatcher, Pintail, Pochard, Redshank, Ringed Plover, Shelduck, Shoveler, Swallow, Whimbrel, Wigeon and Willow Warbler.
	WCA 1981 p1s1 <sup>6</sup>	Barn Owl.
<b>Invertebrates</b>	Beetles: LBAP	<i>Agabus (Gauodytes) unguicularis</i> .
	Butterflies: UK BAP	Wall.
		<b>Continued overleaf</b>

Group	Species	Notes
		<b>Continued</b>
	Moths: UK BAP	Autumnal Rustic, Brindled Beauty, Broom Moth, Buff Ermine, Centre-barred Sallow, Cinnabar, Dark Brocade, Dark-barred Twin-spot Carpet, Dot Moth, Dusky Brocade, Dusky Thorn, Ear Moth, Feathered Gothic, Figure of Eight, Garden Tiger, Ghost Moth, Green-brindled Crescent, Grey Dagger, Haworth's Minor, Heath Rustic, Knot Grass, Large Wainscot, Latticed Heath, Mottled Rustic, Oak Hook-tip, Powdered Quaker, Rosy Rustic, Sallow, Shaded Broad-bar, Shoulder-striped Wainscot, Small Phoenix, Small Square-spot, Spinach & White Ermine.
<b>Reptiles</b>	Grass Snake WCA 1981 s9(1)s9(5) <sup>7</sup> , UK BAP LBAP	One record from 1995, 600 metres to the north-west of the site, across Preston Road.
<b>Terrestrial Mammals</b>	Bats: unknown species EPS, WCA 1981 s9, LBAP	One record, 1.5 kilometres to the north of the site from 1991.
	Bats: Common Pipistrelle EPS, WCA 1981 s9, LBAP	Report of one bat roosting 450 metres to the north of the site. Three more records from between 1990 and 1991, the closest being 1.4 kilometres to the west
	Bats: Daubenton's bat EPS, WCA 1981 s9, LBAP	One record from 2009, 540 metres west of the site
	Bats: Noctule EPS, WCA 1981 s9, UK BAP, LBAP	One record from 2009, 540 metres west of the site
	Brown Hare UK BAP, LBAP	Four records between 1970 and 2011, the closest being 750 metres south.
	Hedgehog: UK BAP, LBAP	Two records from 2011 and 2014, the closest being 750 metres south
<p><sup>1</sup> WCA 1981 s9(5): Protected under by Section 9(5) of the <i>Wildlife and Countryside Act 1981</i> (as amended) against sale, barter, exchange, transporting for sale and advertising to sell or to buy.</p> <p><sup>2</sup>LBAP: Lancashire Biodiversity Action Plan Provisional Long-list Species.</p> <p><sup>3</sup>UK BAP: UK Biodiversity Action Plan Priority Species.</p> <p><sup>4</sup>EPS: European Protected Species under the <i>Conservation of Habitats and Species Regulations 2010</i> (as amended).</p> <p><sup>5</sup>WCA 1981 s9: Full protection under Schedule 9 of the <i>Wildlife and Countryside Act 1981</i> (as amended).</p> <p><sup>6</sup>WCA 1981 p1s1: Wildlife and Countryside Act 1981 (as amended) part 1, Section 1: Protected against killing, injury, to take or destroy its eggs, and to disturb while it is in, on or near a nest containing eggs or young, or to disturb dependent young of such a bird.</p> <p><sup>7</sup>WCA s9(1)s9(5): Partial protection under Schedule 9(1) of the <i>Wildlife and Countryside Act 1981</i> (as amended) against killing and injury only, and against sale, barter, exchange, transporting for sale and advertising to sell or to buy.</p>		

3.1.7 The presence of the protected and notable species listed above within the wider area is considered throughout this Report.

## 3.2 Vegetation and Habitats

### General Description

3.2.1 The approximately 0.4 hectare site is located within a rural area 1.2 kilometres to the north-east of Grimsargh village centre.

3.2.2 The site comprises a track, hedgerow, field of unmanaged grassland, gardens and buildings. The northern site boundary is defined by fencing, beyond which lies a field of amenity grassland. The eastern site boundary is defined by an unnamed track, beyond which lies fields of pasture grassland. The southern site boundary is defined by a hedgerow, beyond which lies a track and a field of improved grassland. The western site boundary lies adjacent to Preston Road, beyond which lies pasture grassland and housing.

3.2.3 Refer to **Figure 1** for all habitat descriptions. Photographs are appended at **Table 8.7**.

## Hedgerows

### Hedgerow 1

- 3.2.4 Refer to **Photo 1**. Hedgerow 1 is 170 metres long and lies adjacent to a track. The hedgerow is managed via flailing at each side, is approximately one metre tall by 1.5 metres wide, and supports six mature trees along its length. The hedgerow does not support any ditch or bank along its length.
- 3.2.5 The hedgerow is characterised by constant, frequent and locally abundant Hawthorn (*Crataegus monogyna*), constant, occasional and locally frequent Blackthorn (*Prunus spinosa*), occasional and locally abundant Elder (*Sambucus nigra*), locally frequent Pedunculate Oak (*Quercus robur*) and very locally frequent Ash (*Fraxinus excelsior*) and Alder (*Alnus glutinosa*).
- 3.2.6 The ground flora is characterised by constant and abundant Ivy (*Hedera helix*) frequent and locally abundant Dog's-mercury (*Mercurialis perennis*), Cock's-foot (*Dactylis glomerata*), and locally frequent Common Nettle (*Urtica dioica*) and Yorkshire-fog (*Holcus lanatus*).
- 3.2.7 The hedgerow is characteristic of the *W21 Hawthorn – Ivy* scrub community of the NVC. A plant species list is appended at **Table 8.1**.
- 3.2.8 The hedgerow is 'important' in accordance with *The Hedgerows Regulations 1997* Landscape and Wildlife Criteria (refer to **Table 8.2**, appended). The hedgerow is important due to the diversity of woody species present (on average), the presence and number of mature trees along its length, the absence of large gaps (no gaps totalling more than 10% of its length), and the presence of an adjacent track. The hedgerow is UK BAP Priority Habitat.

### Hedgerow 2

- 3.2.9 Refer to **Photo 2**. The short (11 metres long) garden hedgerow located at the eastern site boundary, is approximately 1.3 metres tall and one metre wide. The hedgerow is trimmed on each side.
- 3.2.10 The hedgerow is characterised by constant and abundant Holly (*Ilex aquifolium*) and Hawthorn, with a ground flora of Common Nettle and Cleavers (*Galium aparine*). The garden hedgerow is not indicative of any NVC community, nor is it 'important' in accordance with *The Hedgerows Regulations 1997* Wildlife and Landscape Criteria, as it does not support a sufficient number of qualifying woody species along its length.
- 3.2.11 The hedgerow is too short to be considered UK BAP Priority Habitat.

### Unmanaged Grassland Field

- 3.2.12 Refer to **Photo 3**. The unmanaged grassland field is characterised by constant, frequent and locally abundant Yorkshire-fog, constant and frequent Cock's-foot, frequent and locally abundant False Oat-grass (*Arrhenatherum elatius*) and Common Couch (*Elytrigia repens*) and locally abundant Dandelion (*Taraxacum officinale*) and Common Nettle.
- 3.2.13 A plant species list is appended at **Table 8.3**. The grassland is characteristic of a semi-improved neutral grassland which is in a state of succession toward an *MG1 False Oat-grass* grassland community of the NVC due to lack of management.

### Gardens and Amenity Grassland

- 3.2.14 Refer to **Photos 4 to 6**. The south-eastern corner of the site supports gardens with locally frequent trees, shrubs and ornamental planting and areas of amenity grassland.
- 3.2.15 The trees, shrubs and ornamental planting comprise frequent and locally abundant exotic species, frequent Ash, occasional and locally frequent Sycamore (*Acer pseudoplatanus*), Goat Willow (*Salix caprea*), Wych Elm (*Ulmus glabra*), Silver Fir (*Abies alba*), Japanese Maple (*Acer palmatum*) and Bamboo species.

- 3.2.16 The amenity grassland is characterised by constant, frequent and locally abundant Perennial Rye-grass (*Lolium perenne*), White Clover (*Trifolium repens*) and Springy Turf-moss (*Rhytidiadelphus squarrosus*), occasional and locally frequent Creeping Buttercup (*Ranunculus repens*), Greater Plantain (*Plantago major*), Daisy (*Bellis perennis*) and Dandelion.
- 3.2.17 A plant species list for the amenity grassland is appended at **Table 8.4**. The trees, shrubs and ornamental planting are not characteristic of any NVC community. The amenity grassland is characteristic of an *MG7 Perennial Rye-grass* ley of the NVC.

### Trackside Vegetation

- 3.2.18 Refer to **Photo 7**. A two metre wide track of asphalt and compacted gravel is located along the northern site boundary. The vegetation at the track verges and the vegetation which has colonised the central strip of the track is characterised by constant, frequent and locally abundant Cock's-foot, frequent and locally abundant Cow Parsley (*Anthriscus sylvestris*), locally frequent Creeping Cinquefoil (*Potentilla reptans*) and Yorkshire-fog and very locally abundant Great Willowherb (*Epilobium hirsutum*) and Bramble (*Rubus fruticosus* agg.).
- 3.2.19 A plant species list is appended at **Table 8.5**. The vegetation comprises the *MG1 False Oat-grass* grassland, *W24 Bramble – Yorkshire-fog* underscrub and *OV26 Great Willowherb* tall herb communities of the NVC.

### Garden Ponds 1 and 2

- 3.2.20 Refer to **Photos 8 and 9**. Garden Ponds 1 and 2 lie to the south-eastern end of the site. Both are small (approximately 2m<sup>2</sup>) and support shallow (0.1 to 0.2 metres deep) water. The base of both is composed of a plastic liner.
- 3.2.21 Pond 1 supports locally frequent Yellow Water-lily (*Nuphar lutea*), Common Water-starwort (*Callitriche stagnalis*), Creeping Bent (*Agrostis stolonifera*), and Spiked Water-milfoil (*Myriophyllum spicatum*), with locally abundant Hard Rush (*Juncus inflexus*) at its northern bank, and Yellow Iris (*Iris pseudacorus*) at its western bank. The vegetation is not indicative of an NVC community.
- 3.2.22 Pond 2 supports constant and abundant Common Duckweed (*Lemna minor*). The vegetation is the *A2 Common Duckweed* community of the NVC.

### Invasive Species

- 3.2.23 As illustrated on **Figure 1** very local stands of Montbretia (*Crocsmia x crocosmiiflora*) are present within the gardens of the site. This species is listed on Schedule 9 of the *Wildlife and Countryside Act 1981* (as amended) and, as such, it is an offence to spread or cause its spread in the wild. Further guidance is described in **Section 5.2**.

## 3.3 Animal Life

### Badger

- 3.3.1 No Badger or signs of Badger were detected within the site or within 50 metres of the site. The presence of Badger is reasonably discounted.

### Bat species

#### Buildings

- 3.3.2 The six buildings within the garden area (refer to **Photos 10 to 13**) all comprise sheds and greenhouses composed of single-ply walls of timber planks, glass and corrugated metal. None support any features suitable for use by roosting bats. The presence of roosting bats at the sheds and greenhouses within the site is reasonably discounted.

- 3.3.3 The residential dwelling within the site, and adjoining barn (refer to **Photos 14 to 16**), is composed of mortared stone walls which supports a pitched roof (north / south ridge alignment) of slate. The occupied building, which will not be affected by the proposed development, is favourable for use by roosting bats; if any works are proposed at the building at a future date, further surveys in respect of roosting bats will be required.
- 3.3.4 The open-sided barn at the northern end of the site (**Photo 17**) is constructed on a metal frame with a roof of corrugated asbestos sheeting. This building is unsuitable for use by roosting bats.

#### **Trees**

- 3.3.5 One tree within the site was assessed as supporting features suitable for use by roosting bats. All other trees are considered 'Category 3') in accordance with **Table 2.1**, above.
- 3.3.6 Refer to **Photos 18 and 19**. Tree 1, a mature Pedunculate Oak, is also located at the southern site boundary adjacent to Hedgerow 1 (refer to **Figure 1**). A single tear-out is located at approximately six metres at the tree's north-western face, which could lead into a cavity suitable for use by roosting bats. Tree 1 is considered 'Category 1' in accordance with **Table 2.1**.
- 3.3.7 The presence of Tree 1 is considered further at **Section 4.3**, below.

#### **Foraging and Commuting Bats**

- 3.3.8 The trees and shrubs along the site margins are suitable for use by foraging bats, particularly Pipistrelle species. The habitats within the site, including the gardens and unmanaged grassland, will also be suitable for use by foraging bats, although the site is too small to provide core or important foraging habitat for bat species.

#### **Bird species**

- 3.3.9 Birds detected in the site in October 2015 comprise Wren, Robin, Carrion Crow, Great Tit, Blue Tit, Wood Pigeon and House Sparrow (this last species being a UK BAP Priority Species).
- 3.3.10 The trees and shrubs provide suitable habitat for use by foraging and nesting passerine (perching) birds. The suitability of the habitats for nesting birds is considered further at **Section 4.3**, below.
- 3.3.11 A large open-front nest box (suitable for use by a variety of species, including Woodpeckers, owls, Starling, Jackdaws, thrushes and Kestrels) is present at Tree 1 (see **Photo 19**).

#### **Great Crested Newt and other Amphibians**

- 3.3.12 Habitat Suitability Index (HSI) assessments of Garden Ponds 1 and 2 and Pond 3 was conducted and is appended at **Table 8.6**. The results are summarised at **Table 3.3**, below.

**Table 3.3: Habitat Suitability Index Assessment for Ponds 1 to 3**

<b>Pond reference &amp; Photo Reference</b>	<b>HSI Score</b>	<b>HSI Result</b>
Garden Pond 1 ( <b>Photo 8</b> )	0.65	Average
Garden Pond 2 ( <b>Photo 9</b> )	0.65	Average
Pond 3 ( <b>Photo 20</b> )	0.5	Below average

- 3.3.13 It is considered in this instance the HSI has over-estimated Garden Ponds 1 and 2 in terms of their suitability for use by Great Crested Newt. Both ponds are small, shallow, and therefore unlikely to provide suitable habitat for breeding Great Crested Newt.
- 3.3.14 Pond 3, which lies 210 metres east of Garden Ponds 1 and 2, is considered 'below average' chiefly due to the large fish population present within the pond. Pond 3 is of poor suitability for use by breeding Great

Crested Newt, and is therefore unlikely to act as a 'stepping stone' towards the site for any breeding population of Great Crested Newt present in the wider area (including from Ponds 4 to 7, see **Figure 2**).

3.3.15 Further, there are no records of Great Crested Newt in the wider area to the south of Preston Road.

3.3.16 As such, the presence of Great Crested Newt is reasonably discounted at the site. Measures for the protection of wildlife during the removal of the ponds are considered further at **Section 4.2**, below.

### Reptiles

3.3.17 The site is located within a wider landscape of pasture grassland and intensively managed improved grassland.

3.3.18 One record for Grass Snake is reported for the wider area, from 1995 and across Preston Road. The site is not connected by any wildlife link to the habitats the other site of Preston Road.

3.3.19 The habitats within and surrounding the site are of poor suitability for foraging, sheltering and hibernating reptiles; the presence of reptiles is reasonably discounted.

### Other Wildlife

3.3.20 Common nectaring invertebrates were detected during the walkover survey, including Speckled Wood (*Pararge aegeria*) and Red Admiral (*Vanessa atalanta*). The habitats within the site are suitable for use by other common species of nectaring invertebrates such as bumblebee species.

3.3.21 This is considered further at **Section 4.3**, below.

3.3.22 The habitats within the site are suitable for use by foraging Hedgehog, a UK BAP Priority Species. Measures for the protection of Hedgehog during the proposed development and to ensure habitats within the site remain suitable for Hedgehog are presented at **Section 4.3** below.

## 4.0 EVALUATION AND ASSESSMENT

### 4.1 Designated Sites

4.1.1 The proposals will have no impact on any statutory designated sites for nature conservation.

4.1.2 It is considered that the site is sufficiently small and distant from the BHSs in the wider area that the proposed development will have no impact on the locally designated sites within the wider area. The site does not support any habitats which compliment or would contribute to the ecological value of the locally designated sites.

### 4.2 Vegetation and Habitats

4.2.1 The site contains only common and widespread plant species. None of the habitats within the site are of significant interest in terms of their plant species composition. None of the habitats present are representative of semi-natural habitat. The NVC communities present are typical of the geographical area and conditions present.

4.2.2 Hedgerow 1 is UK BAP Priority Habitat, and the hedgerows, mature trees and shrubs within the site are all of local value as they add structural diversity and support breeding birds. Hedgerow 1 is additionally considered 'important' in accordance with *The Hedgerows Regulations 1997* Wildlife and Landscape Criteria.

- 4.2.3 The two garden ponds are of site value only, as they increase the diversity of the habitats within the site but are too small to support significant assemblages of breeding amphibians or aquatic invertebrates. Neither Garden Pond 1 or 2 is considered UK BAP Priority Habitat.
- 4.2.4 Recommendations for the retention and protection of habitats within the site are presented at **Section 5.1**, below. Measures for the protection of wildlife during site clearance are also presented at **Section 5.1**.
- 4.2.5 Montbretia, an invasive species listed under Section 9 of the *Wildlife and Countryside Act 1981* (as amended) is present within the site; measures for the eradication of this species during the course of site clearance are presented at **Section 5.2**, below.

### 4.3 Protected Species and Other Wildlife

- 4.3.1 No protected species were detected within the site during the survey. The residential dwelling within the site supports suitable habitat for use by roosting bats, but will not be affected by the proposed development. The other buildings within the site are unsuitable for use by roosting bats.
- 4.3.2 Tree 1 supports features suitable for use by roosting bats. Recommendations for further surveys if the tree is to be affected by the proposed development are presented at **Section 5.3**, along with recommendations to enhance habitats within the site for roosting bats as part of the proposals. Habitats within and adjacent to the site are suitable for foraging and commuting bats.
- 4.3.3 The trees, shrubs and buildings provide favourable foraging and nesting habitat for the species of birds detected within the site and the wider area via the records search (including House Sparrow, a UK BAP Priority Species). Consideration of birds (including protection of breeding birds and recommended enhancements for UK BAP Priority Species) are presented at **Section 5.4** of this Report.
- 4.3.4 Best-practice recommendations to ensure the protection of wildlife during the proposed site clearance are presented at **Section 5.1**. Measures to ensure habitat connectivity within the site is maintained following the completion of the proposed development are presented at **Section 5.5**.

### 4.4 Assessment of Impacts

- 4.4.1 The assessment of the potential impacts of the proposed development has been conducted in accordance with JYM Partnership *Proposed Blue Edge Site Plan* (January 2017), hereafter the 'Proposals Plan'.
- 4.4.2 The proposals involve the construction of four residential dwellings with associated gardens and car parking at the garden habitats and unmanaged grassland field unit.
- 4.4.3 Garden Ponds 1 and 2, and the garden trees, shrubs and amenity grassland will be removed to develop the site. Trees 1 and 2 and Hedgerow 1 will be retained and protected by the proposed development.
- 4.4.4 Recommendations for the compensation for the loss of trees and shrubs within the site are presented at **Section 5.6** of this Report.
- 4.4.5 The proposals present an opportunity to enhance the wildlife potential of the site for foraging and commuting bats, UK BAP Priority Species of bird associated with the habitats present within the site and for Hedgehog by the planting of native species of trees and shrubs and by incorporating bat boxes and bird boxes into the design of the site.
- 4.4.6 The recommendations in **Section 5.0** aim to ensure that the development is implemented in accordance with all wildlife legislation, Natural England guidance, the principles of the National Planning Policy Framework (NPPF), local planning policy and best practice.
- 4.4.7 Where possible, opportunities to enhance the ecological interest and habitat connectivity and seek biodiversity gain through appropriate landscape planting and habitat creation have been identified and recommended in **Section 5.0** (in accordance with the principles of the NPPF and associated documents).

## 5.0 RECOMMENDATIONS AND ECOLOGICAL ENHANCEMENT

### 5.1 Protection of Habitats and Wildlife

#### Retention and Protection of Habitats

- 5.1.1 The Proposals Plan will retain Hedgerow 1 and its associated mature trees (including Tree 1).
- 5.1.2 During the construction phase, temporary protective demarcation fencing will be used to protect the trees and shrubs that are to be retained. The fencing must extend outside the canopy of the retained trees and must remain in position until all plots have been developed to ensure protection is provided throughout the construction phase.
- 5.1.3 The fencing will be in accordance with BS5837:2012 *Trees in Relation to Design, Demolition and Construction: Recommendations*.

#### Protection of Wildlife

##### *Protection of Wildlife During Site Clearance (grasslands)*

- 5.1.4 It is recommended that, prior to site clearance, the unmanaged grassland is progressively flailed to a height of no less than 0.1 metre to encourage wildlife to move into the surrounding habitats.
- 5.1.5 All arisings from the flailing operations should be removed to prevent the creation of suitable shelter for wildlife.
- 5.1.6 The grasslands should be maintained at this low height until the commencement of groundworks at the site.

##### *Protection of Wildlife During Removal of Garden Ponds 1 and 2*

- 5.1.7 It is recommended that Garden Ponds 1 and 2 are drained down at a sensitive time of year (i.e. during winter, between November and February inclusive) prior to infilling to avoid unnecessary impacts to wildlife. Screens with a fine (less than 1.5mm) mesh should be fitted to pumps used for draining down, to prevent any wildlife from being drawn through the pump.

### 5.2 Invasive Species

- 5.2.1 It is considered that the creation of an Invasive Species Management Plan is not necessary in this instance, however it is recommended that the stands of Montbretia within the site are grubbed out by the roots during site clearance, and either buried on-site or otherwise disposed of responsibly off-site.

### 5.3 Bats

#### Lighting

- 5.3.1 Paragraph 125 in Chapter 11 (conserving and enhancing the natural environment) of the National Planning Policy Framework (NPPF) states:

*“By encouraging good design, planning policies and decisions should limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation”.*

#### **Construction Phase**

- 5.3.2 Any lighting to be used at the site during construction should be directional and screened where possible, this specification should be included within a Construction Environment Management Plan (CEMP), or similar.

### **Development Lighting Design**

- 5.3.3 The lighting scheme to be implemented at the developed site must involve the use of appropriate products and screening, where necessary, to ensure no excessive artificial lighting shines over the retained habitats and landscape planting, as lighting overspill may deter use by wildlife such as foraging bats.
- 5.3.4 The lighting scheme will be designed with reference to current guidance, namely:
- Bat Conservation Trust. (undated). *Artificial lighting and wildlife. Interim Guidance: Recommendations to help minimise the impact of artificial lighting*; and
  - Stone, E.L. (2013) *Bats and lighting: Overview of current evidence and mitigation guidance*.

### **Enhancing Habitats for Roosting Bats**

- 5.3.5 It is recommended that the development incorporates the installation of two commercially available bat access panels at the new buildings.
- 5.3.6 The bat access panels should be sited four metres from ground level, ideally facing or close to areas of landscape planting or existing linear features. The access panels should not be positioned over windows or doorways where bat droppings may become a nuisance. Once the development layout has been finalised, an Ecologist should advise on appropriate positions for the bat bricks/tube. Suitable access panels are available from NHBS Ecology ([www.nhbs.com](http://www.nhbs.com)) or Wild Care Shop ([www.wildcareshop.com](http://www.wildcareshop.com)) and are presented at **Insert 1**:



**Insert 1:** Example of commercially available bat access panels.

## **5.4 Birds**

### **Protection of Breeding Birds**

- 5.4.1 All wild birds are protected under the *Wildlife and Countryside Act 1981* (as amended) while they are breeding. It is mandatory that the buildings, trees, shrubs, Bramble scrub or other suitable breeding bird habitat which are to be removed as part of the proposals are only removed outside the bird breeding season. The bird breeding season typically extends between March to August inclusive.
- 5.4.2 If any vegetation is scheduled for removal in the bird breeding season it is advised that advice from an Ecologist is sought. It may be necessary to carry out a walkover survey to demonstrate satisfactorily that no breeding birds, active nests, eggs or fledglings are present in the area to be cleared.
- 5.4.3 If breeding birds are detected the Ecologist will issue guidance in relation to the protection of the nesting birds in conjunction with the scheduled works. This may involve cordoning off an area of the site until the young birds have fledged.

## Enhancing Habitats for Nesting Birds

### House Sparrow

- 5.4.4 House Sparrows are associated with suburban areas. Monitoring suggests a severe decline in the UK house sparrow population, recently estimated as dropping by 71 per cent between 1977 and 2008 with substantial declines in both rural and urban populations (RSPB).
- 5.4.5 The installation of two House Sparrow terrace nest boxes is recommended at the proposed new detached garages, avoiding areas such as directly above any windows or doors, will create further suitable habitat for nesting birds at the site. RSPB advice states that boxes should ideally be sited facing north to east, to avoid exposure to direct sunlight, which may cause overheating of chicks in the nest. An example of a suitable House Sparrow bird box is given below, in **Insert 2**:



**Insert 2:** House Sparrow Nesting Terrace

- 5.4.6 Such bird boxes are available from the NHBS ([www.nhbs.com](http://www.nhbs.com)) or Wild Care Shop ([www.wildcareshop.com](http://www.wildcareshop.com)). ERAP Ltd will advise on the siting of bird boxes.

### 5.5 Other Wildlife

- 5.5.1 It is recommended that the proposed garden fencing is lifted by some or all of its length by at least 0.1 metres to maintain habitat connectivity across the site and allow Hedgehogs (and other wildlife) to access the proposed garden habitats.

### 5.6 Enhancement for Biodiversity

- 5.6.1 As required by the NPPF and other relevant planning documents, opportunities for the enhancement of biodiversity at the site have been explored with the overall objective of increasing the biodiversity value (i.e. the nature conservation interests at the site).
- 5.6.2 The implementation of the specifications/recommendations described below is of relevance at this site.
- 5.6.3 All recommendations are appropriate to the geographical area, the habitats in the wider area, the wildlife present in the local area (and likely to use the site post-construction) and take into consideration the end use of the site as a residential development.

#### Landscape Planting

- 5.6.4 It is recommended that the landscape planting within the residential site is composed from native species and species known to be of value for the attraction of wildlife
- 5.6.5 It is recommended that trees which support blossom and fruit which will attract insects are incorporated into the landscape planting. Suitable species are presented at **Table 5.1**.

**Table 5.1: Suitable Native Species for Tree and Shrub Planting**

Scientific Name	Common Name	Scientific Name	Common Name
<i>Acer campestre</i>	Field Maple	<i>Prunus spinosa</i>	Blackthorn
<i>Corylus avellana</i>	Hazel	<i>Rosa arvensis</i>	Field Rose
<i>Crataegus monogyna</i>	Hawthorn	<i>Rosa canina</i>	Dog-rose
<i>Ilex aquifolium</i>	Holly	<i>Sambucus nigra</i>	Elder
<i>Malus sylvestris</i>	Crab Apple	<i>Sorbus aucuparia</i>	Rowan
<i>Prunus avium</i>	Wild Cherry	<i>Ulmus glabra</i>	Wych Elm
<i>Prunus padus</i>	Bird Cherry	<i>Viburnum opulus</i>	Guelder Rose

- 5.6.6 The understorey and ground cover planting design should be prepared to optimise the attraction of invertebrates such as feeding bumblebees and butterflies. Where possible the use of native species should be maximised but where necessary non-native species known to be attractive to invertebrates should be used.
- 5.6.7 Planting schemes that include flowering species such as Lavender, Rosemary, Hebe, *Potentilla*, *Calluna*, *Ceanothus* and *Vinca* can maximise opportunities for feeding invertebrates.

## 6.0 CONCLUSION

- 6.1.1 This ecological appraisal has demonstrated that a residential development at the site is feasible and acceptable in accordance with ecological considerations and the National Planning Policy Framework.
- 6.1.2 It is possible to implement reasonable actions for the protection and long-term conservation of fauna such as nesting birds and commuting/foraging bats associated with the site.
- 6.1.3 Measures to conserve the habitat connectivity through the site are entirely feasible.
- 6.1.4 Provided the recommendations presented in **Section 5.0** are adhered to, the proposals will have no impact on protected species or UK BAP Priority habitats.
- 6.1.5 Development at the site will provide an opportunity to secure ecological enhancement for fauna typically associated with residential areas such as breeding birds and roosting bats.

## 7.0 REFERENCES

- Amphibian and Reptile Groups of the United Kingdom. (2010) *ARG UK Advice Note 5: Great Crested Newt Habitat Suitability Index*.
- Andrews, H. *et al.* (2013) *Bat Tree Habitat Key 3<sup>rd</sup> Edition*. AEcol Ltd, Bridgwater.
- Anon. (2007) *The Population Status of Birds in the UK: Birds of conservation concern: 2002-2007*.
- Bainbridge, I., Brown, A., Burnett, N., Corbett, P. and Cork, C. (2013) *Guidelines for the Selection of Biological SSSIs*. Joint Nature Conservancy Council.
- Bat Conservation Trust. (undated). *Artificial lighting and wildlife. Interim Guidance: Recommendations to help minimise the impact of artificial lighting*
- CIEEM. (2013) *Technical Guidance Series Competencies for Species Survey: Bats*.
- Department for Communities and Local Government. (March 2012). *National Planning Policy Framework*. London.
- English Nature. (2001) *Great Crested Newt Mitigation Guidelines* English Nature.
- English Nature. (2002) *Badgers and development*. English Nature, Peterborough.
- Hundt, L. (2012) *Bat Surveys: Good Practice Guidelines, 2<sup>nd</sup> Edition*. Bat Conservation Trust.
- JNCC (1981) *Wildlife and Countryside Act*. H.M.S.O. London.
- JNCC. (1995) *The UK Biodiversity Steering Group Report. Volume 2. Action Plans*. H.M.S.O. London.
- Joint Nature Conservancy Council. (2010) *Handbook for Phase 1 Habitat Survey: A Technique for Environmental Audit*. NCC, Peterborough.
- Land, K. (2004) *What features should be included in new urban residential developments to maximise the opportunity for a diversity of breeding birds?*. Ecology and Environmental Management – In Practice No. 43.
- Langton, T.E.S., Beckett, C.L., and Foster, J.P. (2001) *Great Crested Newt Conservation Handbook*. Froglife, Halesworth.
- Maddock, A. (ed.) (2008) *UK Biodiversity Action Plan; Priority Habitat Descriptions*. BRIG.
- Mitchell-Jones, A.J. & McLeish, A.P. (ed.) (2004) *Bat Workers' Manual 3<sup>rd</sup> Edition*. Joint Nature Conservation Committee.
- Mitchell-Jones, A.J. (2004) *Bat Mitigation Guidelines*. English Nature.
- Natural England. (2011) *Technical Guidance Information Note TIN102 Reptile Mitigation Guidelines*. Natural England
- Natural England. (2013) *Template for Method Statement to Support Application for Licence Under Regulation 53(2)(e) In Respect of Great Crested Newts Triturus cristatus: Form WML-A14-2*.
- Oldham R.S., Keeble J., Swan M.J.S. & Jeffcote, M. (2000) *Evaluating the Suitability of Habitat for the Great Crested Newt (Triturus cristatus)*. Herpetological Journal 10(4), 143-155.
- Ratcliffe, D.A. (ed.) (1977) *A Nature Conservation Review*. Cambridge University Press, Cambridge.
- Rodwell, J.S. (ed.) (1991) *British Plant Communities. Volume 1. Woodlands and Scrub*. Cambridge University Press.
- Rodwell, J.S. (ed.) (1992) *British Plant Communities. Volume 3. Grasslands and Montane Communities*. Cambridge University Press.
- Rodwell, J.S. (ed.) (1995) *British Plant Communities. Volume 4. Aquatic Communities, Swamps and Tall-herb Fens*. Cambridge University Press.
- Rodwell, J.S. (ed.) (2000) *British plant communities. Volume 5: Maritime Communities and Vegetation of Open Habitats*. Cambridge University Press.
- Stace, C.A. (2010) *New Flora of the British Isles. Third Edition*. Cambridge University Press, Cambridge.
- Stone, E.L. (2013) *Bats and lighting: Overview of current evidence and mitigation guidance*.

## 8.0 APPENDIX 1: TABLES AND FIGURES

**Table 8.1: Plant Species Composition, Frequency and Abundance for Hedgerow 1**

Scientific Name	Common Name	DAFOR <sup>1</sup>	Cover
<b>Woody species</b>			
<i>Acer pseudoplatanus</i>	Sycamore	R	<1%
<i>Alnus glutinosa</i>	Alder	VLF	<1%
<i>Crataegus monogyna</i>	Hawthorn	F/LA*	80%
<i>Fagus sylvatica</i>	Beech	R	<1%
<i>Fraxinus excelsior</i>	Ash	VLF	<1%
<i>Ilex aquifolium</i>	Holly	VLA	1%
<i>Prunus spinosa</i>	Blackthorn	O/LF*	1%
<i>Quercus robur</i>	Pedunculate Oak	LF	1%
<i>Rosa canina</i>	Dog-rose	VO	<1%
<i>Sambucus nigra</i>	Elder	O/LA	1%
<b>Herb Species</b>			
	Bamboo	VLA	1%
<i>Anthriscus sylvestris</i>	Cow Parsley	VO	<1%
<i>Cirsium arvense</i>	Creeping Thistle	R	<1%
<i>Dactylis glomerata</i>	Cock's-foot	F/LA	1%
<i>Equisetum arvense</i>	Field Horsetail	R	<1%
<i>Hedera helix</i>	Ivy	F/LA*	10%
<i>Heracleum sphondylium</i>	Hogweed	VO	<1%
<i>Holcus lanatus</i>	Yorkshire-fog	LF	<1%
<i>Mercurialis perennis</i>	Dog's Mercury	F/LA*	3%
<i>Poa trivialis</i>	Rough Meadow-grass	VO	<1%
<i>Urtica dioica</i>	Common Nettle	LF	<1%
<sup>1</sup> <b>Key to DAFOR:</b> D=Dominant, A=Abundant, F=Frequent, O=Occasional, R=Rare, V=Very, L=Local and *denotes a constant species			

**Table 8.2: Assessment of Hedgerow 1 in Accordance with The Hedgerows Regulations 1997 Wildlife and Landscape Criteria**

<b>General Description</b>	Height x width x length (metres)	1 x 1.5 x 170		
	Continuity	90% continuous		
	Management	Failed at each side		
<b>Number of Qualifying Woody Species</b>	Section number	1	2	3
	Qualifying woody species	6	4	N/A
	Average number	5		
<b>Number of Features Present</b>	(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 50 metres	Yes		
	(f) At least 3 woodland species	No		
	(g) Ditch along at least 1/2 its length	No		
	(h) Connections scoring 4 points or more	No		
	(i) Parallel hedge within 15 metres	No		
	<i>Total Features</i>	3		
<b>Criteria for Hedgerow Importance 1:</b> Hedgerow contains species listed as:	(1)Part 1 of Schedule 1, Schedule 5 or Schedule 8 of Wildlife & Countryside Act 1981 (as amended)	No		
	(2)Declining breeders in 'Red Data Birds of Britain'	No		
	(3)Categorised as 'endangered', 'extinct' or 'vulnerable'	No		
<b>Criteria for Hedgerow Importance 2:</b> Hedgerow includes all woody species mentioned in (i)-(iv). <i>Each number reduced by one in Lancashire (for this criteria only)</i>	(i) At least 7 Woody Species	No		
	(ii) At least 6 woody species and at least 3 features	No		
	(iii) At least 6 woody species, including one of: Black poplar, Large-leaved Lime, Small-leaved Lime or Wild Service Tree	No		
	(iv)At least 5 woody species, and has 4 features	No		
<b>Criteria for Hedgerow Importance 3</b>	Hedgerow is adjacent to is adjacent to a bridleway, footpath or byway <i>and</i> includes at least 4 woody species on average and 2 features from (a) to (g):	Yes		
<b>Hedgerow Classed as Important?</b>		Yes		

**Table 8.3: Plant Species Composition, Frequency and Abundance for Unmanaged Grassland**

Scientific Name	Common Name	DAFOR <sup>1</sup>	Cover
<b>Woody species</b>			
<i>Prunus insititia</i>	Damson	R	<1%
<b>Herb Species</b>			
<i>Agrostis stolonifera</i>	Creeping Bent	VLF	<1%
<i>Anthriscus sylvestris</i>	Cow Parsley	VLF	<1%
<i>Arrhenatherum elatius</i>	False Oat-grass	F/LA	3%
<i>Cirsium arvense</i>	Creeping Thistle	LF	5%
<i>Dactylis glomerata</i>	Cock's-foot	F*	<1%
<i>Elytrigia repens</i>	Common Couch	F/LA	5%
<i>Holcus lanatus</i>	Yorkshire-fog	F/LA*	10%
<i>Lolium perenne</i>	Perennial Rye-grass	VLF	<1%
<i>Poa trivialis</i>	Rough Meadow-grass	VLF	<1%
<i>Ranunculus acris</i>	Meadow Buttercup	VLF	<1%
<i>Ranunculus repens</i>	Creeping Buttercup	O/LF	<1%
<i>Rubus fruticosus</i> agg.	Bramble	VLA	<1%
<i>Rumex obtusifolius</i>	Broad-leaved Dock	O/LF	1%
<i>Taraxacum officinale</i> agg.	Dandelion	LA	<1%
<i>Urtica dioica</i>	Common Nettle	LA	1%
<i>Vicia cracca</i>	Tufted Vetch	LF	70%

<sup>1</sup>**Key to DAFOR:** D=Dominant, A=Abundant, F=Frequent, O=Occasional, R=Rare, V=Very, L=Local and \*denotes a constant species

**Table 8.4: Plant Species Composition, Frequency and Abundance for Gardens and Amenity Grassland**

Scientific Name	Common Name	DAFOR <sup>1</sup>	Cover
<b>Woody species</b>			
	Exotics	F/LA	30%
<i>Abies alba</i>	Silver Fir	O/LF	1%
<i>Acer palmatum</i>	Japanese Maple	O/LF	<1%
<i>Acer pseudoplatanus</i>	Sycamore	O/LF	1%
<i>Crataegus monogyna</i>	Hawthorn	VLF	1%
<i>Rosa</i> sp.	Rose species	R	<1%
<i>Salix caprea</i>	Goat Willow	O/LF	<1%
<i>Sambucus nigra</i>	Elder	VLF	<1%
<b>Herb Species</b>			
	Bamboo	LA	1%
<i>Bellis perennis</i>	Daisy	LF	<1%
<i>Crococsmia x crocosmiiflora</i>	Montbretia	VLF	<1%
<i>Holcus lanatus</i>	Yorkshire-fog	O/LF	<1%
<i>Lolium perenne</i>	Perennial Rye-grass	F/LA*	40%
<i>Plantago major</i>	Greater Plantain	LF	<1%
<i>Ranunculus repens</i>	Creeping Buttercup	LF	<1%
<i>Rhytidiadelphus squarrosus</i>	Springy Turf-moss	F/LA*	20%
<i>Rumex acetosa</i>	Common Sorrel	O	<1%
<i>Taraxacum officinale</i> agg.	Dandelion	LF	<1%
<i>Trifolium repens</i>	White Clover	F/LA*	5%
<i>Urtica dioica</i>	Common Nettle	VLA	<1%

<sup>1</sup>**Key to DAFOR:** D=Dominant, A=Abundant, F=Frequent, O=Occasional, R=Rare, V=Very, L=Local and \*denotes a constant species

**Table 8.5: Plant Species Composition, Frequency and Abundance for Trackside Vegetation**

Scientific Name	Common Name	DAFOR <sup>1</sup>	Cover
<b>Woody species</b>			
<i>Crataegus monogyna</i>	Hawthorn	LF	<1%
<i>Fraxinus excelsior</i>	Ash	R	<1%
<i>Prunus spinosa</i>	Blackthorn	VLA	<1%
<i>Quercus robur</i>	Pedunculate Oak	R	<1%
<b>Herb Species</b>			
<i>Agrostis stolonifera</i>	Creeping Bent	LF	<1%
<i>Anthriscus sylvestris</i>	Cow Parsley	F/LA	3%
<i>Chamerion angustifolium</i>	Rosebay Willowherb	VLA	<1%
<i>Cirsium arvense</i>	Creeping Thistle	R	<1%
<i>Dactylis glomerata</i>	Cock's-foot	F/LA*	5%
<i>Epilobium hirsutum</i>	Great Willowherb	VLA	<1%
<i>Equisetum arvense</i>	Field Horsetail	VO	<1%
<i>Filipendula ulmaria</i>	Meadowsweet	VLF	<1%
<i>Galium aparine</i>	Cleavers	R	<1%
<i>Heracleum sphondylium</i>	Hogweed	VO	<1%
<i>Holcus lanatus</i>	Yorkshire-fog	LF	5%
<i>Lolium perenne</i>	Perennial Rye-grass	LF	<1%
<i>Plantago lanceolata</i>	Ribwort Plantain	R	<1%
<i>Plantago major</i>	Greater Plantain	VO	<1%
<i>Poa annua</i>	Annual Meadow-grass	LF	<1%
<i>Potentilla reptans</i>	Creeping Cinquefoil	LF	<1%
<i>Ranunculus repens</i>	Creeping Buttercup	VLF	<1%
<i>Rubus fruticosus</i> agg.	Bramble	VLA	1%
<i>Taraxacum officinale</i> agg.	Dandelion	LF	<1%
<i>Trifolium repens</i>	White Clover	LA	1%

<sup>1</sup>**Key to DAFOR:** D=Dominant, A=Abundant, F=Frequent, O=Occasional, R=Rare, V=Very, L=Local and \*denotes a constant species

**Table 8.6: Habitat Suitability Index Assessments for Ponds 1, 2 and 3**

Criteria	Description	Pond 1	Score <sup>1</sup>	Pond 2	Score <sup>1</sup>	Pond 3	Score <sup>1</sup>
SI <sub>1</sub>	Location	Optimal	1.0	Optimal	1.0	Optimal	1.0
SI <sub>2</sub>	Pond Area	5m <sup>2</sup>	0.01	5m <sup>2</sup>	0.01	650m <sup>2</sup>	1.0
SI <sub>3</sub>	Permanence	Never dries	0.9	Never dries	0.9	Never dries	0.9
SI <sub>4</sub>	Water Quality	Good	1.0	Good	1.0	Moderate	0.67
SI <sub>5</sub>	Shade	0%	1.0	0%	1.0	0%	1.0
SI <sub>6</sub>	Waterfowl	Absent	0.67	Absent	1.0	Moderate	0.67
SI <sub>7</sub>	Fish	Absent	0.01	Absent	1.0	Major	0.01
SI <sub>8</sub>	Pond count <sup>2</sup>	29	1.0	29	1.0	29	1.0
SI <sub>9</sub>	Terrestrial habitat	Good	1.0	Good	1.0	Moderate	0.67
SI <sub>10</sub>	Macrophyte cover	5%	0.3	5%	0.3	5%	0.3
<b>Assessment Result:</b>		<b>Average</b>	<b>0.65</b>	<b>Average</b>	<b>0.65</b>	<b>Below average</b>	<b>0.5</b>

<sup>1</sup>Calculated by  $(SI_1 \times SI_2 \times SI_3 \times SI_4 \times SI_5 \times SI_6 \times SI_7 \times SI_8 \times SI_9 \times SI_{10})^{1/10}$   
<sup>2</sup>Ponds within an unobstructed one kilometre radius

**Table 8.7: Table of Photographs**



**Photo 1: Hedgerow 1**



**Photo 2: Hedgerow 2**



**Photo 3: Unmanaged grassland**



**Photo 4: Amenity grassland and gardens**



**Photo 5: Amenity grassland and gardens**



**Photo 6: Amenity grassland and gardens**



**Photo 7:** Track and associated vegetation



**Photo 8:** Garden Pond 1



**Photo 9:** Garden Pond 2



**Photo 10:** Garden sheds and outbuildings



**Photo 11:** Garden sheds and outbuildings



**Photo 12:** Garden sheds and outbuildings



**Photo 13:** Garden sheds and outbuildings



**Photo 14:** Occupied dwelling and adjoining barn; northern and eastern elevations



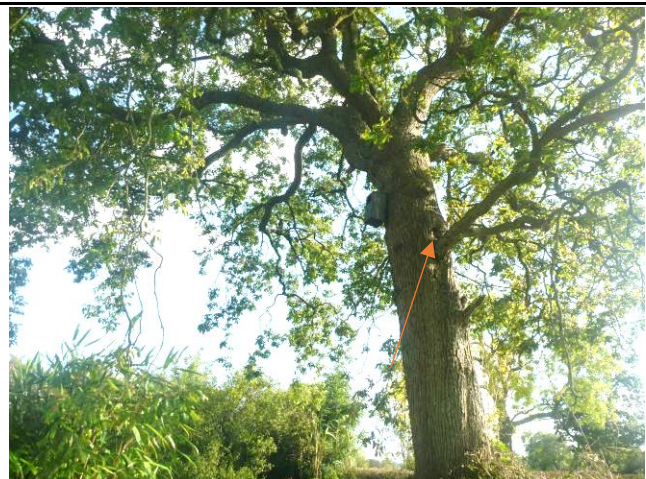
**Photo 15:** Occupied dwelling, southern elevation



**Photo 16:** Occupied dwelling, western elevation



**Photo 17:** Open-sided barn



**Photo 18:** Tree 1. Orange arrow indicates feature suitable for use by roosting bats.



**Photo 19: Tree 1**



**Photo 20: Pond 3**

