

Countess Hey Barn, Chipping, Preston, PR3 2WU

**ECOLOGICAL SURVEY AND ASSESSMENT
(including a Licensed Bat Survey)**

April 2016

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Great crested newt HSI surveys	Brian Robinson B.Sc. (Hons) MCIEEM	14 th April 2016
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SUMMARY

- i. This Ecological Appraisal presents the ecological, biodiversity and nature conservation status of Countess Hey Barn, Chipping, Preston. The appraisal was requested in connection with proposals to redevelop the site to a residential dwelling.
- ii. The appraisal presents the results of a desktop study, extended Phase 1 Habitat Survey and a licensed bat survey carried out in April 2016.
- iii. The surveys detected the presence of roosting bats within the building, and two ponds which support suitable habitats for breeding great crested newt. Further surveys are required to determine the type of bat roosts present, and to determine whether great crested newt are present at Ponds 1 and 2 (and therefore likely to be present within the site terrestrially). Other than these further surveys, 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.
- iv. The site comprises one detached and disused barn (Building 1) surrounded by coarse unmanaged grassland. A single hedgerow is present within the site, and a small area of grazed pasture grassland is located at the site's eastern end.
- v. The proposals will have no adverse direct effect on statutory or non-statutory designated sites.
- vi. Hedgerow 1 is Priority Habitat and 'important' in accordance with *The Hedgerows Regulations 1997*. It is feasible for the development to retain and protect this hedgerow and its associated mature trees.
- vii. No other habitats within the site are Priority Habitat. 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.
- viii. Invasive species listed on Schedule 9 of the *Wildlife and Countryside Act 1981* (as amended) are present at the site boundary; measures to ensure the proposals do not cause the spread of this species in the wild are presented at **Section 5.3**.
- ix. As stated above, further surveys are required to determine the presence or absence of great crested newt in the wider area. Roosting bats have been detected at two locations in the building; further surveys are required to determine the species present and type of roost present. Barn owl have also been detected roosting within the building. A final report (following the completion of the further surveys) will include a method statement for the protection of great crested newt and/or other amphibians (if required), barn owl and bats. Initial measures for the protection of bats and barn owl are presented at **Section 5.0**.
- x. The buildings, trees and hedgerow are all suitable for nesting birds; recommendations for the protection of nesting birds are presented at **Section 5.5**. No other protected species have been detected.
- xi. The recommendations in **Section 5.0** address, the requirement for further surveys and, where possible, the mandatory measures and ecological recommendations to be applied to ensure compliance with wildlife legislation, the National Planning Policy Framework (NPPF) and best practice.
- xii. The proposals will secure an opportunity to implement beneficial measures such as 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.
- xiii. Notwithstanding the further surveys required, it is considered that the proposals are feasible and acceptable in accordance with ecological considerations and relevant planning policy. Redevelopment 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 Mr. Gornall to carry out an ecological appraisal of Countess Hey Barn, Chipping, Preston, PR3 2WU (hereafter referred to as the 'site'). The Ordnance Survey (OS) grid reference at the centre of the site is SD 5943 4047.
- 1.2 The appraisal was requested in connection with a planning application to renovate the existing barn to a new residential dwelling.

Scope of Survey

- 1.3 The scope of ecological surveys undertaken in April 2016 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 (*Meles meles*), barn owl (*Tyto alba*), great crested newt (*Triturus cristatus*), water vole (*Arvicola amphibius*), bird species and invertebrates;
 - d. Licensed bat survey of the buildings and any trees;
 - 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 on 14th April 2016. The weather was dry and sunny, calm (Beaufort Scale 0) and 10°C at 9am. The conditions and time of year were suitable 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 1:500 (refer to **Figure 8.2**). 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 and 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 The hedgerow at the northern site boundary was assessed in accordance with *The Hedgerows Regulations 1997* Wildlife and Landscape Criteria (H.M.S.O., 1997).
- 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 3rd 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*), Indian 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 8.2**) 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 Surveys were conducted in accordance with guidance presented with *Badgers and Development* (Natural England, 2007) and *Badgers: surveys and mitigation for development projects* (Natural England, 2015).
- 2.3.3 The following signs of badger activity were searched for:
- a. Sett entrances, e.g. entrances that are normally 25 to 35cm in diameter and shaped like a 'D' on its side;
 - b. Large spoil heaps outside sett entrances;
 - c. Bedding outside sett entrances;
 - d. Badger footprints;
 - e. Badger paths;
 - f. Latrines;
 - g. Badger hairs on fences or bushes;
 - h. Scratching posts; and
 - i. Signs of digging for food.
- 2.3.4 All habitats within and surrounding the site were assessed in terms of their suitability for use by foraging and sheltering badger in accordance with their known habitat preferences as detailed in current guidance and *Badger* (Roper, 2010).

Bat species

Daylight Survey

Survey personnel

- 2.3.5 The building 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. 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 3rd Edition* (Mitchell-Jones & Mcleish, 2004) and *Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn)* (Collins, 2016).

Building:

- 2.3.7 An inspection of the external surfaces, walls and roofs of the building was carried out to find potential bat roosting habitat or accesses into internal areas where roosts may be present. Searches for evidence of bat presence in the form of droppings, urine stains, feeding signs, grease marks and other evidence were also carried out. The searches were assisted with the use of a powerful torch (Clulite CB2), binoculars and ladders.
- 2.3.8 The internal survey involved an examination of the accessible internal areas (including roof voids) to find roosting bats or evidence of past use of the building by bats such as droppings and prey remains.
- 2.3.9 A list of equipment used is detailed at **Table 2.1**, below:

Table 2.1: Survey Equipment used during Daylight Bat Survey

Ladders
LED Lenser P14 torch
Clulite CB2 hand lamps
Canon Ixus digital camera
8x20 binoculars
Video Borescope

- 2.3.10 The suitability of the building has been assessed in accordance with Table 4.1 of *Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn)*, (Collins, 2016), taking into account the presence of gaps suitable for access by bats, the presence of features suitable for use by roosting bats within the building (including crevice dwelling and void-dwelling species), and the suitability of the surrounding habitats for use by foraging and commuting bats.

Trees

- 2.3.11 A preliminary assessment of any trees within the site was conducted to assess their suitability for use by roosting bats, and to inform whether further surveys or precautionary measures were required at the site in respect of roosting bats.
- 2.3.12 Trees were assessed for their suitability for use by roosting bats from the ground using binoculars and a high-powered torch. Each tree was searched for the presence of any of the following features:

woodpecker holes, rot holes, hazard beams, other vertical or horizontal cracks or splits in stems and branches, partially decayed platey bark, knot holes, man-made holes, tear-outs, cankers in which cavities have developed, other hollows or cavities, including butt-rots, double-leaders forming compression forks with included bark, gaps between overlapping stems or branches, partially detached Ivy (Hedera helix) with stem diameters in excess of 50mm and bat, bird or dormouse (Muscardinus avellanarius) boxes.

- 2.3.13 Terms used to describe any features present follow (where possible) those outlined and described in *Bat Tree Habitat Key, 2nd Edition* (Andrews, H (ed), 2013).

Habitat Assessment for Commuting / Foraging Bats

2.3.14 Habitats within and adjacent to the site were assessed for their value and suitability for commuting and foraging bats in accordance with Table 4.1 of *Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn)*, (Collins, 2016). Reference has been made using the following categories and descriptions / examples, presented at **Table 2.2**, below.

Table 2.2: Consideration of Suitability of Foraging and Commuting Habitat for Bats

Suitability	Commuting Habitat	Foraging Habitat
Negligible	Negligible habitat features on site likely to be used by commuting or foraging bats.	
Low	Habitat that could be used by small numbers of commuting bats such as a gappy hedgerow or unvegetated stream, but isolated i.e. not very well connected to the surrounding landscape by other habitat.	Suitable, but isolated habitat that could be used by small numbers of foraging bats such as a lone tree or patch of scrub.
Moderate	Continuous habitat connected to the wider landscape that could be used by bats for commuting such as lines of trees and scrub or linked back gardens.	Habitat that is linked to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water.
High	Continuous, high-quality habitat that is well connected to the wider landscape and is likely to be used regularly by commuting bats such as river valleys, streams, hedgerows, lines of trees and woodland edge. Habitats close to and connected to known roosts.	High-quality habitat that is well-connected to the wider landscape and is likely to be used regularly by foraging bats such as broadleaved woodland, tree-lined watercourses and grazed parkland. Habitats close to and connected to known roosts.

Bird species

- 2.3.15 Bird species observed and heard during the walkover survey were recorded.
- 2.3.16 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.
- 2.3.17 The presence of any sign of barn owl within the building was searched for during the internal inspection of the building conducted on the 14th April 2016. The building was searched for pellets, faecal splashes and feathers which may indicate use by roosting or nesting barn owl in accordance within *The Barn Owl Conservation Handbook* (Barn Owl Trust, 2012).

Great Crested Newt

Initial Desktop Search for Ponds

- 2.3.18 In accordance with current Natural England guidance (English Nature, 2001) 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.
- 2.3.19 The search of habitats in the wider area up to a distance of 500 metres from the site boundary revealed the presence of six ponds, as detailed in

2.3.20 **Table 2.3**, below.

Table 2.3: Ponds within 500 metres of the site

Pond Ref	Grid Reference	Distance from site boundary	Location (refer to Figure 2)
1	SD 593 404	15 metres	Across farmyard within field unit to north-west
2	SD 593 404	75 metres	Within field unit to south-west
3	SD 592 401	325 metres	Within an unmanaged field to the south-west
4	SD 594 406	200 metres	Within a field to the north of the site
5	SD 595 406	225 metres	Within a field to the north-east of the site
6	SD 594 409	490 metres	Within a field to the north of the site

Consideration of Requirements for Further Survey

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

- a. Presence of dispersal barriers to great crested newt movements between ponds and the site, as detected during the walkover survey;
- b. Distance of ponds from the site;
- c. Potential influence of the proposed development of the site on any populations of great crested newt (if present at ponds), using the Natural England rapid risk assessment tool; and
- d. Presence of other ponds which may form metapopulations and/or alter the influence of the site on ponds at greater distances.

Presence of Dispersal Barriers

2.3.22 It is considered that the stream located between the site and Pond 3 constitutes a significant dispersal barrier (refer to **Photo 24**, **Table 8.6**, appended). The fast-flowing stream is approximately four metres wide and would represent a barrier to any amphibian movement from Pond 3 northwards. Otherwise, there are no significant dispersal barriers between any of the ponds and the site.

Consideration of Distance of Ponds from Site and Relative Size of Site

2.3.23 Ponds 1 and 2 lie within 100 metres of the 0.129 hectare site. Ponds 4 and 5 lie between 100 and 250 metres of the site, and Ponds 3 and 6 lies greater than 250 metres from the site. **Table 2.4**, 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, 2015).

2.3.24 The tool has been completed based on ponds at these distances, and the size of the development site (0.129 hectares). The rapid risk assessment tool assumes that great crested newt are present.

Table 2.4: Rapid Risk Assessment Result

Component	Likely effect	Notional offence probability score
Great crested newt breeding pond(s)	No effect	0
Land within 100m of any breeding pond(s)	0.1 – 0.5 ha lost or damaged	0.5
Land 100-250m from any breeding pond(s)	0.1 – 0.5 ha lost or damaged	0.1
Land >250m from any breeding pond(s)	0.1 – 0.5 ha lost or damaged	0.005
Individual great crested newts	No effect	0
	Maximum:	0.5
Rapid risk assessment result:	AMBER: OFFENCE LIKELY	

2.3.25 It is noted that the score for ponds greater than 100 metres from the site is 0.1. This score is sufficiently low that the 'Rapid Risk Assessment' classifies potential impacts as 'green: offence highly unlikely'; the

proposed works have the potential to impact upon any breeding great crested newt populations associated with Ponds 1 and 2 (within 100m), however this risk is reduced for ponds which are further from the proposals.

- 2.3.26 Habitat Suitability Index Assessments were conducted at Ponds 1 and 2 to determine the likely presence or absence of great crested newt within the wider area.

Habitat Suitability Index Assessment

- 2.3.27 Ponds 1 and 2 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: **SI**₁: Geographical location; **SI**₂: Pond area; **SI**₃: Pond drying; **SI**₄: Water quality (as indicated by the diversity of aquatic plants and invertebrates); **SI**₅: Shade; **SI**₆: Waterfowl; **SI**₇: Fish; **SI**₈: Abundance of other ponds within a one kilometre radius; **SI**₉: Quality of terrestrial habitat; and **SI**₁₀: Macrophyte cover (i.e. aquatic and emergent plants). The survey was conducted in accordance with *ARG UK Advice Note 5: Great Crested Newt Habitat Suitability Index. Amphibian and Reptile Groups of the United Kingdom* (ARG UK, 2010).

- 2.3.28 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.

- 2.3.29 The assessment followed guidance in relation to interpreting HSI scores, following the categorical scale shown at **Table 2.5**, below.

Table 2.5: 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

Assessment of Terrestrial Habitat

- 2.3.30 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, 2001).

- 2.3.31 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

- 2.3.32 The site and its surroundings were assessed in terms of their suitability for use by reptile species using the important characteristics for reptiles outlined in the draft document ‘*Reptile Mitigation Guidelines*’ (Natural England, 2011), and the *Reptile Habitat Management Handbook* (Edgar, et al., 2010). These habitat characteristics are outlined in **Table 2.6**, below.

Table 2.6: 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

- 2.3.33 Searches for other notable species of wildlife, such as hedgehog (*Erinaceus europaeus*) and brown hare (*Lepus europaeus*), known to be present in the wider area, were conducted during the survey. The searches were also informed by the data search for the site and wider area (see **Section 3.1**, below).

2.4 Survey Limitations

- 2.4.1 The survey was conducted in April when not all plant species are fully in bloom. The surveyor is experienced in identifying plant species via their vegetative characteristics, and the limited range of habitats present is such that no further surveys are considered necessary to assess and evaluate the habitats within the site.
- 2.4.2 The survey was conducted in April when bats are just becoming active; any field signs of bats at the external elevations of the building are likely to have weathered away. Daylight bat surveys can be conducted at any time, however, and all internal areas of the building were fully accessible. It is considered that a suitable assessment of the likely presence or absence of roosting bats was possible at this time of year.
- 2.4.3 Further surveys will be required in respect of bats, great crested newt and barn owl. Notwithstanding this, no significant survey limitations were experienced for the scope of survey conducted in this report.

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 Habitats have been assessed to determine whether they meet those described in *UK Biodiversity Action Plan: Priority Habitat Descriptions* (Maddock, A (ed), 2008); these lists are used to help draw up the statutory lists of Priority Habitats, as required under Section 41 of the *Natural Environment and Rural Communities (NERC) Act 2006*. Where suitable, the ecological value of the habitats present have been assessed using the terms outlined in *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal, 2nd Edition* (CIEEM, 2016).
- 2.5.3 Government advice on wildlife, as set out in the *National Planning Policy Framework* (Great Britain Department for Communities and Local Government, 2012) and associated government circulars has been taken into consideration. Legislation relating to protected species, such as those listed under Schedule 1 and Schedule 5 of the *Wildlife and Countryside Act 1981* (as amended) and *The Conservation of Habitats and Species Regulations 2010* (as amended), is referenced where applicable, and any impacts to protected species are evaluated in accordance with current guidance.
- 2.5.4 The presence of any Priority Species, as listed under Section 41 of the *NERC Act 2006* is noted, and habitats are assessed in terms of their suitability and value for these species. The presence of habitats and/or species listed by the Lancashire BAP Provisional Long List has been taken into account in the evaluation of the site.

3.0 SURVEY RESULTS

3.1 Desktop Study

Site Designations

- 3.1.1 The site is not and does not form part of any site designated for nature conservation. The site lies within a Site of Special Scientific Interest (SSSI) Impact Zone, for the Bowland Fells SSSI and Special Protection

Area (SPA), which lies approximately four kilometres north. The proposals do not match any of the criteria for which further consideration would be required in terms of impacts to the designated site, however.

- 3.1.2 One locally designated site is present within two kilometres of the site; Kidsnape Wood Biological Heritage Site (BHS) is located approximately 1.7 kilometres to the south-west of the site, and is designated for its semi-natural and ancient woodland habitats. The presence of the BHS is considered further at **Section 4.1**, below.

Protected and Notable species

- 3.1.3 No records of protected or notable species are held for the site. Records of protected and notable species are held for the wider area, and are summarised at **Table 3.1**, below.

Taxon Group	Species Name	Notes ¹
Amphibians	Common frog (<i>Rana temporaria</i>)	LBAP 36 records, all dated from 2006, the closest being 525 metres south-west
	Common toad (<i>Bufo bufo</i>)	S41, LBAP 21 records, all dated from 2006, the closest being 525 metres south-west
	Great crested newt (<i>Triturus cristatus</i>)	EPS, WCAs5, S41, LBAP 30 records, all dated from 2006, the closest being 650 metres south
	Palmate newt (<i>Lissotriton helveticus</i>)	LBAP 1 record from 2006, 1.3 kilometres south-west
	Smooth newt (<i>Lissotriton vulgaris</i>)	LBAP 30 records, all dated from 2006, the closest being 665 metres south
Terrestrial mammals	Bats – unnamed species	EPS, WCAs5 2 records, both from 2007, both located within the SD5740 grid square.
	Bats – common pipistrelle (<i>Pipistrellus pipistrellus</i>)	EPS, WCAs5 6 records, dated between 2007 and 2012, all located within the SD5740 grid square.
	Bats – noctule (<i>Nyctalus noctula</i>)	EPS, WCAs5, S41 9 records, dated between 2007 and 2011, the closest being 1.3 kilometres west
	Bats – pipistrelle species	EPS, WCAs5 10 records, dated 2011 and 2012, the closest being 1.2 kilometres west
	Bats – soprano pipistrelle (<i>Pipistrellus pygmaeus</i>)	EPS, WCAs5, S41 5 records, dated between 2007 and 2012, all located within the SD5740 grid square.
	Brown hare	S41 2 records, located within the SD5841 & SD5938 grid squares, dated 1973 & 2014 respectively.
	Badger	PBA 1992 1 record, dated 2010, 1.8 kilometres south of the site.
Birds	WCAs1 Barn owl (<i>Tyto alba</i>) & kingfisher (<i>Alcedo althis</i>) S41 Curlew (<i>Numenius arquata</i>), dunnoek (<i>Prunus modularis</i>), grey partridge (<i>Perdix perdix</i>), house sparrow (<i>Passer domesticus</i>), lapwing (<i>Vanellus vanellus</i>), lesser redpoll (<i>Acanthis cabaret</i>), linnets (<i>Linaria cannabina</i>), reed bunting (<i>Emberiza schoeniclus</i>), skylark (<i>Alauda arvensis</i>), song thrush (<i>Turdus philomelos</i>), spotted flycatcher (<i>Muscicapa striata</i>), starling (<i>Sturnus vulgaris</i>) & tree sparrow (<i>Passer montanus</i>).	
Bony fish	S41 Bullhead (<i>Cottus gobio</i>) & brown trout (<i>Salmo trutta</i>)	
¹ LBAP= Species is listed under the Lancashire BAP Provisional Long List S41= Species is listed under Schedule 41 of the NERC Act 2006		

EPS= European protected species under *The Conservation of Habitats and Species Regulations 2010 (as amended)*
 WCAs5= Species is protected under Schedule 5 of the *Wildlife and Countryside Act 1981 (as amended)*
 PBA1992= Protection of Badgers Act 1992
 WCAs1= Species is protected under Schedule 1 of the *Wildlife and Countryside Act 1981 (as amended)*

3.1.4 The presence of these protected and notable species within the wider area has been considered throughout this report.

3.2 Vegetation and Habitats

General Description

3.2.1 The approximately 0.129 hectare site is located within a rural area of pasture and arable field units with boundary hedgerows, and occasional roads and farm buildings.

3.2.2 The site supports a single building, an area of unmanaged grassland, grazed pasture grassland at its eastern end, and a hedgerow with occasional mature trees at the northern site boundary. The eastern site boundary lies within a field of grazed semi-improved pasture grassland. The southern site boundary is defined by post-and-wire fencing beyond which lies pasture grassland. The western site boundary is also defined by fencing, beyond which lies a residential dwelling.

3.2.3 A Phase 1 Habitat Survey map is appended at **Figure 8.2**. Photographs are appended at **Table 8.4**. The building is described in terms of its suitability for use by roosting bats at **Section 3.3**, as no plant species were detected growing upon it.

Unmanaged Grassland Surrounding Building

3.2.4 Refer to **Photos 1 to 3**. The unmanaged grassland which surrounds the building is characterised by constant, frequent and locally abundant Yorkshire-fog (*Holcus lanatus*), constant and frequent Creeping Buttercup (*Ranunculus repens*), frequent and locally abundant Daisy (*Bellis perennis*), Broad-leaved Dock (*Rumex obtusifolius*), Meadow Foxtail (*Alopecurus pratensis*), moss species and locally abundant Perennial Rye-grass (*Lolium perenne*) and Springy Turf-moss (*Rhytidiadelphus squarrosus*).

3.2.5 The unmanaged grassland is indicative of a former *MG7 Perennial Rye-grass* ley (Rodwell, 1992) in succession to an *MG1 False Oat-grass* grassland (Rodwell, 1992) due to a lack of management. The high relative abundance of mosses, Yorkshire-fog and Creeping Buttercup indicates that the ground beneath the sward is frequently moist. A plant species list is appended at **Table 8.1**.

Short-grazed Pasture Grassland

3.2.6 Refer to **Photo 4**. The short-grazed pasture grassland is characterised by constant and abundant Perennial Rye-grass with occasional and locally frequent Creeping Buttercup, Common Nettle (*Urtica dioica*) and Yorkshire-fog. The grassland is characteristic of an *MG7 Perennial Rye-grass* ley (Rodwell, 1992).

Hedgerow 1

3.2.7 Refer to **Photo 5**. Hedgerow 1 is approximately 30 metres long, unmanaged and gappy, and approximately 30 metres long by 1.5 metres wide and three metres high. Its woody component comprises frequent Hawthorn (*Crataegus monogyna*), Alder (*Alnus glutinosa*), Holly (*Ilex aquifolium*) and Hazel (*Corylus avellana*), with rare Ash (*Fraxinus excelsior*) and Wild Cherry (*Prunus avium*); all six species are listed under the woody species list of *The Hedgerows Regulations 1997*.

3.2.8 The ground flora is characterised by frequent Ivy (*Hedera helix*), Creeping Buttercup and Great Willowherb (*Epilobium hirsutum*) with locally frequent Cow Parsley (*Anthriscus sylvestris*), Red Campion (*Silene dioica*) and Cock's-foot (*Dactylis glomerata*). Herb-robert (*Geranium robertianum*), a species listed under the woodland herbs list of *The Hedgerows Regulations 1997*, is of rare occurrence at the hedgerow.

- 3.2.9 The hedgerow is characteristic of a *W21 Hawthorn – Ivy* scrub community of the NVC (Rodwell, 1991). A plant species list is appended at **Table 8.2**.
- 3.2.10 The hedgerow is considered ‘important’ in accordance with *The Hedgerow Regulations 1997* Wildlife and Landscape criteria; the hedgerow supports six qualifying woody species on average. A full assessment of the hedgerow under the Regulations is appended at **Table 8.3**.

Invasive Species

- 3.2.11 As illustrated on **Figure 8.2** a small area (approximately 3m²) of Montbretia (*Crococsmia x crocosmiiflora*) is located immediately adjacent to the north-western corner of the site. This is considered further at **Section 4.2**, below. No other invasive species listed under Schedule 9 of the *Wildlife and Countryside Act 1981* (as amended) were detected within or adjacent to the site.

3.3 Animal Life

Badger

- 3.3.1 No badger or signs of badger were detected anywhere within the site, or within 50 metres of the site. The habitats within and surrounding the site are suitable for use by foraging badger, however the absence of any signs of badger and the absence of any records within one kilometre of the site are such that the presence of badger is reasonably discounted.

Bat species

Daylight Survey: Building

Building Description

- 3.3.2 Photographs relating to the description of the buildings and bats are appended at **Table 8.5**.
- 3.3.3 Refer to **Photos 7 to 10**. Building 1 is a single-storey detached disused barn constructed from mortared blockwork walls which are rendered externally. The building supports a pitched roof (west / east ridge alignment) of concrete tiles and ridge tiles. A cross-pitch gable is present at the middle of southern roof pitch.
- 3.3.4 Gaps suitable for access by bats are present at the timber soffits at the southern and northern elevations, at the roof verge of both gable ends (at the western and eastern elevations), and at open doorways at each elevation.
- 3.3.5 Refer to **Photos 11 and 12**. Internally the building is split into three sections; two separate rooms at the western and eastern ends, and a joining open-sided section with a canopy roof at the middle of the building. All sections of the building are open to the roof, which is supported on modern pre-fabricated roofing trusses and lined with bitumastic roofing felt.
- 3.3.6 Both the western and eastern room support features suitable for use by roosting bats, at the wall-tops and between the roofing tiles and bitumastic roofing felt. The central section of canopy roof does not support any features suitable for use by roosting bats.

Signs of Bats Detected During Daylight Survey

- 3.3.7 The following signs of roosting bats were detected at the building (refer to **Figure 8.2** for locations):
- Approximately 30 old bat droppings at the internal wall of western elevation’s gable (**Roost 1.1**, refer to **Photos 13 and 14**); and
 - Approximately 50+ old and 2 fresh droppings at the internal wall of the eastern elevation’s gable (**Roost 1.2**, refer to **Photo 15**).

3.3.8 All droppings were indicative of pipistrelle bats (further DNA analysis of the droppings will be conducted to determine the species present), and the location of the droppings is indicative of a crevice-dwelling species. No signs of any bat species which typically fly within roof voids, such as brown long-eared bats (*Plecotus auritus*) were detected.

3.3.9 The presence of two roosting locations at the building is considered further at **Section 4.3**, below.

Trees

3.3.10 Refer to **Photos 16** and **17**. A single Ash (Tree 1, see **Figure 8.2**) supports a single knot hole at a side-branch, approximately six metres from the ground at its south-eastern face. As observed from the ground, the knot-hole appears to extend into a cavity which may be suitable for use by roosting bats.

3.3.11 No other trees support any features suitable for use by roosting bats. The presence of a feature suitable for use by roosting bats at Tree 1 is considered further at **Section 4.3**, below.

Foraging and Commuting Bats

3.3.12 Hedgerow 1 is suitable for use by edge-feeding bat species and for commuting bats. The remaining habitats within the site, being small in size and limited in diversity, are of poor suitability for use by foraging or commuting bats; the building, unmanaged coarse grassland and short-grazed pasture are reasonably unlikely to provide core or important foraging habitat or commuting routes for bat species within the wider area.

3.3.13 Measures to retain the suitability of Hedgerow 1 for foraging and commuting bats are considered further at **Section 4.3**, below.

Bird species

3.3.14 Birds detected in the site and immediate surrounding area in April 2016 are listed in **Table 3.1**, below.

Table 3.1: Bird species Detected on 14th April 2016

Scientific name	Common Name	BOCC Status ¹	Designation ²
<i>Columba palumbus</i>	Wood pigeon	Green	
<i>Cyanistes caeruleus</i>	Blue tit	Green	
<i>Erithacus rubecula</i>	Robin	Green	
<i>Fringilla coelebs</i>	Chaffinch	Green	
<i>Passer domesticus</i>	House sparrow	Red	S41 Priority Species
<i>Pica pica</i>	Magpie	Green	
<i>Prunella modularis</i>	Dunnock	Amber	S41 Priority Species
<i>Streptopelia decaocto</i>	Collared dove	Green	
<i>Sturnus vulgaris</i>	Starling	Red	S41 Priority Species
<i>Troglodytes troglodytes</i>	Wren	Green	
<i>Turdus merula</i>	Blackbird	Green	
<i>Tyto alba</i>	Barn owl	Green	WCA1981s1

¹BOCC: Birds of Conservation Concern (Eaton, et al., 2015);
²S41 Priority Species = Species listed under Schedule 41 of the *NERC Act 2006*; and
WCA1981s1 = Species protected under Schedule 1 of the *Wildlife and Countryside Act 1981* (as amended)

3.3.15 Building 1 and Hedgerow 1 are both suitable for use by nesting passerine (perching) bird species. In addition, old swallow (*Hirundo rustica*) nests were noted in the eastern room of Building 1. The presence of habitats suitable for use by nesting and foraging birds is considered further at **Section 4.3**, below.

3.3.16 Skylark (*Alauda arvensis*), lapwing (*Vanellus vanellus*) and curlew (*Numenius arquata*), all ground-nesting birds and Priority Species were all noted in the fields in the wider area to the site at the time of the survey,

however the habitats within the site, comprising small compartments of grassland habitat close to hedgerows, roads, and buildings, are unsuitable for use by ground-nesting birds.

Barn Owl

- 3.3.17 Signs of roosting barn owl were detected throughout during the internal search of the building. All evidence of roosting barn owl is presented at **Figure 8.2** and photographs are appended at **Table 8.6**.
- 3.3.18 Refer to **Photos 18 to 23**. The following signs of roosting barn owl were detected at the building:
- Three clusters, each containing approximately 20+ old pellets with occasional faecal splashes were detected within the western end of the building. Four fresher pellets (i.e. within the last month) were present at the western end of the building compartment (**Photos 18 and 19**).
 - Faecal splashing and two old pellets were detected at the western end of the central open section of the building (**Photos 20 and 21**); and
 - Faecal splashing and 10 old pellets (12 months and more) and one fresh pellet (i.e. less than one month) are present at the eastern end of the eastern internal compartment.
- 3.3.19 The building is used by roosting barn owl. The level of evidence present indicates the building is regularly used by an individual barn owl; no signs of nesting barn owl were detected. The presence of barn owl at the site is considered further in **Section 4.3**, below.

Great Crested Newt and other Amphibians

Assessment of Terrestrial Habitats within the Site for Amphibians

- 3.3.20 The coarse grassland and rubble mound at the eastern end of the site (refer to **Photo 6, Table 8.4**) provide favourable terrestrial habitat for great crested newt and other amphibians.

Assessment of Ponds within 250 metres for Breeding Amphibians

Great Crested Newt

- 3.3.21 Photographs of Ponds 1 and 2 are presented at **Table 8.7**. Pond 1 (refer to **Photo 24**) is a shallow (approximately 5cm) on-line pool which supports running water with dense marginal vegetation throughout. Pond 2 (refer to **Photo 25**) is a small (approximately 18m²) garden pond with a plastic liner.
- 3.3.22 A Habitat Suitability Index Assessment (HSI) of Ponds 1 and 2 was conducted to determine the likely presence or absence of breeding populations of great crested newt in the wider area, and therefore enable an assessment of the likely presence or absence of terrestrial great crested newt at the site.

Table 3.2: Habitat Suitability Index Assessment for Ponds 1 and 2

Criteria	Description	Pond 1	Score ¹	Pond 2	Score ¹
SI ₁	Location	Optimal	1.0	Optimal	1.0
SI ₂	Pond Area	300m ²	0.5	18m ²	0.05
SI ₃	Permanence	Never dries	0.9	Never dries	0.9
SI ₄	Water Quality	Good	1.0	Good	1.0
SI ₅	Shade	1%	1.0	0%	1.0
SI ₆	Waterfowl	Minor impact	0.67	Absent	1.0
SI ₇	Fish	Absent	1.0	Absent	1.0
SI ₈	Pond count ²	13 ponds	0.88	13 ponds	0.88
SI ₉	Terrestrial habitat	Good	1.0	Good	1.0
SI ₁₀	Macrophyte cover	90%	0.9	60%	0.9
Assessment Result:		Excellent	0.87	Good	0.58

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

3.3.23 The assessment of Pond 1 is 'excellent', and Pond 2 is 'good'. It is considered that this overstates the likely presence of great crested newt at Pond 1, as the water at pond 1 is both shallow and running. However, the likely presence of great crested newt at the pond must be considered, and further surveys must be undertaken to determine the presence or absence of great crested newt at the ponds to fully determine any impacts the proposals may have upon them. The scope of the further surveys is presented at **Section 4.3**, below.

Other Amphibians

3.3.24 Common toad tadpoles were detected at Pond 2, and it is likely that any common toads (a Priority Species) associated with the pond will also utilise the terrestrial habitats within the site. This is considered further at **Section 4.3**.

Reptiles

3.3.25 All debris suitable for sheltering and basking reptiles was examined during the survey; no reptile species were detected.

3.3.26 The habitats within and surrounding the site are of poor quality for sheltering, basking and hibernating reptiles. The small site supports a largely even topography and the homogenous vegetation within and surrounding the site supports little variation in its physiognomy. The site supports no favourable habitat for basking reptiles. The species-poor habitats within the site are reasonably unlikely to support large populations or a variety of invertebrate prey.

3.3.27 The site is not adjacent or linked to any areas of favourable habitat for reptile species, and there are no records of reptile for the site or the wider area. The presence of reptiles within the site is reasonably discounted.

Other Wildlife

3.3.28 The common and widespread buff-tailed bumblebee (*Bombus terrestris*) and small tortoiseshell (*Aglais urticae*) were detected within the site during the survey.

3.3.29 No signs of brown hare, a priority species recorded within the wider area, were detected within the site. The site is considered too small to provide core or important habitat for brown hare.

4.0 EVALUATION AND ASSESSMENT

4.1 Designated Sites

4.1.1 It is considered that the site is sufficiently small and distant from Kidsnape Wood Biological Heritage Site that the proposals will have no impact on the BHS. Further, the habitats within the site do not contribute to the conservation value of the BHS.

4.2 Vegetation and Habitats

4.2.1 Hedgerows 1 qualifies as both Priority Habitat and 'important' in accordance with *The Hedgerows Regulations 1997*. Further, the hedgerow and its trees are considered to be of local importance as they provide structural diversity, and are suitable for use by breeding and foraging birds and foraging bats. It is recommended that the hedgerow is retained by the proposed development at **Section 5.2**, below.

4.2.2 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.

4.2.3 Recommendations for ecological enhancements to incorporate into the final layout of the site are presented at **Section 5.7**.

4.2.4 No invasive species are present within the site. Recommendations relating to care to be taken during works in relation of the Montbretia which lies adjacent to the site boundary are presented at **Section 5.3**, below.

4.3 Protected Species and Other Wildlife

Bats

4.3.1 Two bat roosts have been detected at the building within the site (Roost 1.1 and 1.2). Due to the number, size, shape and location of the droppings, it is considered at this stage that the two roosts are indicative of pipistrelle day roosts.

4.3.2 Bats and their roosts are protected under the *Wildlife and Countryside Act 1981* (as amended) and *The Conservation of Species and Habitats Regulations 2010* (as amended), hereafter referred to as ‘the Regulations’. As such, any development proposals which could impact upon bats and their roosts must only be conducted under a suitable European Protected Species Mitigation (EPSM) licence, granted by Natural England¹.

4.3.3 In order to inform the planning application and any subsequent EPSM Licence application, further surveys must be conducted to determine the species of bat present, the roosting location and the type of roost present, in order that a suitable Bat Mitigation Strategy can be implemented during the construction phase of the proposed development.

4.3.4 The scope of the further surveys required is presented at **Table 4.1**, below.

Table 4.1: Number of Scope of Further Surveys for Bats

Survey type	Number / timing of surveys
Dusk emergence / dawn re-entry surveys	Two surveys in the bat active season (typically May to September inclusive) with at least one survey conducted during the bat maternity season (i.e. June/July). Dusk emergence surveys will be conducted from 15 minutes before sunset until between 1.5 and 2 hours after sunset. Dawn re-entry surveys will be conducted from between 1.5 and 2 hours before sunrise, and last until 15 minutes after sunrise.
DNA Analysis of droppings	To determine the species of bat present – can be conducted at any time.

4.3.5 Any subsequent mitigation strategy must demonstrate that:

- a. Suitable roosting habitat is present for bats during the course of works;
- b. Suitable measures will be implemented to ensure the protection of bats during works; and
- c. That suitable roosting habitat is retained / created by the proposed redevelopment of the building in order that long-term provision for bats is provided as a consequence of the proposals.

¹ In determining whether or not to grant a licence Natural England must apply the requirements of Regulation 53 of the Regulations and, in particular, the three tests set out in sub-paragraphs (2)(e), (9)(a) and (9)(b):

(1) Regulation 53(2)(e) states: a licence can be granted 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”, hereafter referred to as the ‘Overriding Public Importance Test’;

(2) Regulation 53(9)(a) states: the appropriate authority shall not grant a licence unless they are satisfied “that there is no satisfactory alternative”, hereafter referred to as the ‘No Satisfactory Alternative Test’; and

(3) Regulation 53(9)(b) states: the appropriate authority shall not grant a licence unless they are satisfied “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 rang.”, hereafter referred to as the ‘Favourable Conservation Status’ test.

4.3.6 It is considered in this instance that, due to the type of small-scale redevelopment proposed, it is unlikely that an examination of the site under the ‘overriding public importance’ and ‘no satisfactory alternative’ test will be required; Natural England will be satisfied with a Method Statement which details how the ‘Favourable Conservation Status’ of bats at the site will be maintained (Natural England, 2015).

4.3.7 An initial indication of the measures to be employed at the site as part of any bat mitigation strategy at the site are presented at **Section 5.4**, below.

Birds

Barn Owl

4.3.8 Evidence of use of Building 1 by roosting barn owl was found. The renovation of Building 1 will result in the loss of a barn owl roost site.

4.3.9 Appropriate mitigation and compensation, in accordance with the *Barn Owl Conservation Handbook* (Barn Owl Trust, 2012), to ensure there is no net loss of opportunity for use by roosting barn owl at the site, is described in **Section 5.5**.

4.3.10 Habitats within the wider area, such as neighbouring grasslands to the south of the site, offer suitable opportunities for foraging barn owl. Therefore, development at the site will not result in the loss of habitats the barn owl are dependent on for hunting.

4.3.11 As described in **Section 5.5**, the ecological recommendations at the site will aim to:

- a. Provide suitable roosting habitat for barn owl during the proposed renovation of the building;
- b. Ensure that nesting barn owl are not disturbed by the renovation of the building; and
- c. Compensate for the loss of suitable barn owl roosting locations.

Other Bird Species

4.3.12 The building, trees and hedgerow are all suitable for nesting bird species. All native wild British birds are protected whilst they are breeding under the *Wildlife and Countryside Act 1981* (as amended). Recommendations for the protection of nesting birds, and for measures to install provision within the proposed redevelopment for the benefit of nesting birds are presented at **Section 5.5**.

Great Crested Newt and Other Amphibian Species

4.3.13 Ponds 1 and 2 both support suitable (‘excellent’ and ‘good’ respectively) habitat for breeding great crested newt. The site supports suitable terrestrial habitat for terrestrial amphibians, and is close enough that the proposed renovation of the building could impact upon any great crested newt sheltering within the site.

4.3.14 It is therefore recommended that great crested newt presence / absence surveys are conducted at Ponds 1 and 2. The site is sufficiently small and distant from all other ponds that no further ponds within 500 metres of the site will require presence / absence surveys.

4.3.15 The scope of the further surveys required is presented at **Table 4.2**, below.

Table 4.2: Number of Scope of Further Surveys for Great Crested Newt at Ponds 1 and 2

Survey types ¹	Number / timing of surveys for presence / absence ²
Torchlight surveys; Egg searches; Netting	Four surveys between mid-March and mid-June, with at least two surveys conducted between mid-April and mid-May. Torchlight surveys must be conducted after sunset (at least 45 minutes) with powerful torches (1 million candle power). Egg searches and netting can be conducted at any time.
¹ Pond 1 is too shallow to bottle trap, and Pond 2 is small and plastic lined; bottle trapping surveys are an unsuitable methodology to employ at either pond.	
² If presence is detected, two further surveys are required to determine population size.	

- 4.3.16 An initial methodology for the clearance of the site, which assumes great crested newt are absent, is presented at **Section 5.6**, below. This methodology is appropriate to ensure the protection of other amphibian species. If great crested newt are present then the proposals will require a suitable EPSM Licence from Natural England.

5.0 RECOMMENDATIONS AND ECOLOGICAL ENHANCEMENT

5.1 Introduction

- 5.1.1 The recommendations in this section 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.
- 5.1.2 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 below, as required by the NPPF and other relevant planning documents.
- 5.1.3 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 dwelling.

5.2 Protection of Existing Vegetation and Recommendations in Relation to Site Layout

- 5.2.1 It is recommended that the trees, shrubs and hedgerow along the margins of the site will be retained during the proposed renovation of the building and landscaping of its surroundings.
- 5.2.2 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.
- 5.2.3 The fencing will be in accordance with BS5837:2012 *Trees in Relation to Design, Demolition and Construction: Recommendations* (BSI, 2012).
- 5.2.4 If any section of the hedgerow is removed then an equal or greater length of native hedgerow must be planted to compensate for this loss. Suitable native species are presented at **Table 5.2**, below.

5.3 Invasive Species

- 5.3.1 It is an offence under the *Wildlife and Countryside Act 1981* (as amended) to cause the spread of Montbretia in the wild. It is concluded that the preparation of an Invasive Species Management Plan is not necessary in this case; if the species has spread into the site prior to the commencement of works then it will be grubbed out by the roots during site clearance operations.

5.4 Bats

Further Surveys

- 5.4.1 The scope of further surveys required is presented at **Table 4.1**, above.

Initial Method Statement for the Protection of Bats During the Proposed Renovation

- 5.4.2 The following measures will ensure that bats are protected during the proposed renovation, and that suitable habitats for roosting bats are both retained during the construction period and following the completion of the proposed redevelopment.

- 5.4.3 The list below provides an outline only; a detailed Method Statement will be finalised following the completion of the further surveys required.
- a. Provision of suitable habitat for roosting bats prior to the commencement of works (for example, bat boxes may be installed on suitable mature trees within the site to compensate for the loss of roosting habitat whilst the building is re-roofed);
 - b. Use of timing measures and supervision to avoid harming bats during works (for example, works could be conducted between October and February to avoid the period when bats are likely to be present. The roofing tiles at the gable ends will be removed carefully and by hand, under the supervision of a licensed bat worker); and
 - c. Installation of long-term roosting habitats within the final layout of the proposed development (for example, suitable gaps could be left at either gable end following the re-roofing, to allow access to the wall tops).
- 5.4.4 Suitable lighting and landscape design will also be required to ensure the proposed development retains suitable habitats for use by roosting, foraging and commuting bats.
- 5.4.5 The retention of Hedgerow 1 will ensure habitats remain suitable for use by foraging and commuting bats, within the site, and that wildlife links are retained to the proposed retained / new roosting habitat. Lighting is considered further below.

Lighting

- 5.4.6 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

- 5.4.7 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

- 5.4.8 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 Hedgerow 1 and any landscape planting, as lighting overspill may deter use by wildlife such as foraging bats.
- 5.4.9 The lighting scheme will be designed with reference to current guidance, namely:
- a. *Artificial lighting and wildlife. Interim Guidance: Recommendations to help minimise the impact of artificial lighting.* (Bat Conservation Trust, 2014); and
 - b. *Bats and lighting: Overview of current evidence and mitigation guidance* (Stone, 2014)

Retention of Tree 1

- 5.4.10 It is recommended Tree 1 is retained and protected by the proposed development. If this cannot be achieved then further surveys to determine the presence or absence of roosting bats will be required; this may involve dusk emergence / dawn re-entry surveys, as described at **Table 4.1**.

5.5 Birds

Barn Owl

5.5.1 A draft barn owl mitigation strategy is outlined below:

Temporary Alternative Provision

5.5.2 Prior to the commencement of works and the demolition of the buildings, an alternative temporary provision must be provided (to ensure constant suitable habitat for roosting/nesting barn owl at the site during works).

5.5.3 The temporary provision must be installed 30 days before works commence at the site and will stay in place for at least 30 days after the construction of the barn owl permanent provision, although it is recommended the temporary provision is retained to continue to provide additional opportunities for roosting and nesting barn owl.

5.5.4 It is considered that a barn owl box sited on a tree will provide suitable temporary provision at the site. An example of a barn owl box is presented at **Insert 1**, below.



Insert 1: Example of a barn owl box

5.5.5 Suitable boxes are available from the NHBS (www.nhbs.com) and Wild Care Shop (www.wildcareshop.com). ERAP Ltd will advise on the siting of the barn owl box.

Location

5.5.6 The provision should be sited no further than 200 metres from the building, and where it will not be disturbed by the proposed redevelopment works.

5.5.7 The box will be positioned at least three metres above ground level and the entrance hole to the box will be clearly visible.

Interior

5.5.8 Old barn owl pellets gathered from the floor of the existing roost will be added to the floor of the box. This may encourage use by barn owl and will also provide a suitable substrate to prevent eggs from rolling around (barn owl do not make a nest lined with twigs or other materials).

Permanent Provision

5.5.9 A number of options are suitable, namely:

- a. Incorporation of provision for barn owl in the proposed residential dwelling;
- b. Off-site provision (on existing buildings); and
- c. Off-site provision on a purpose-built barn-owl tower.

5.5.10 Examples of each are presented at **Figure 8.3**.

Location

- 5.5.11 The permanent provision must be located in suitable grassland within 200 metres of the site. The provision must be away from main roads which may cause a hazard to barn owl.

Access for Monitoring

- 5.5.12 The permanent provision must be suitable for access to allow monitoring and occasional clearing of debris.

Timing of Demolition of the Buildings

- 5.5.13 Owing to the presence of roosting barn owl at Building 1, demolition must not be carried out between March and August inclusive, *unless* it is appropriately demonstrated by an Ecologist that no evidence of nesting barn owl (or other bird species) is present.

Pre-Demolition Survey

- 5.5.14 Immediately prior to the commencement of demolition of Building 1 (and provided the tree mounted barn owl box has been installed for 30 days) a pre-demolition survey of the building for evidence of use by nesting barn owl (and other birds) will be carried out.
- 5.5.15 The survey will be carried out by an appropriately experienced (and if necessary licensed) Ecologist.
- 5.5.16 If no evidence of nesting is detected the instruction will be provided to proceed with the demolition.
- 5.5.17 If evidence of nesting is detected the building must remain undisturbed until it is confirmed, by an Ecologist, that the young birds have fledged.

Long-term Maintenance and Monitoring

Ownership

- 5.5.18 The tree mounted box and the permanent provision will remain in the ownership of the developer / client, or the final householder, as appropriate.

Maintenance and Monitoring

- 5.5.19 Maintenance of the permanent provision will be minimal but the following will be essential:
- a. Annual strimming of the grassland around the base of the barn owl provision to ensure self-seeded trees and shrubs are controlled;
 - b. Ensuring the barn owl entrance to the permanent provision is free from obstructions; and
 - c. Annual clearing out of the barn owl box in the winter months. Dead chicks, prey remains, pellets and general debris will be removed. Although a thin layer of trampled pellets will be retained to encourage re-use the following year and provide a surface to prevent the eggs from rolling around.
- 5.5.20 If the tree mounted box is retained, as recommended, the box will be cleared out annually ensuring a thin layer of trampled pellets is retained to encourage re-use. The entrance to the box will be kept clear from obstructions.
- 5.5.21 Any signs of use will be reported to LERN to contribute to their long-term record database.

Timetable of Works

- 5.5.22 A suggested timetable / order of works is presented in **Table 5.1**, below.

Table 5.1: Mitigation Strategy for Barn Owl: Order of Works

Action	Pre-requisites	Responsibility
Installation of a tree mounted barn owl box	Planning consent. At least 30 days prior to scheduled demolition of Building 1.	Appointed contractor under the guidance of ERAP Ltd
Pre-work survey of buildings for barn owl	Prior to proposed demolition. At least 30 days after the installation of the barn owl box.	ERAP Ltd
Commencement of works at Building 1	Provided pre-work survey demonstrates an absence of nesting barn owl (and other bird species). Provided other ecological constraints are also adhered to.	Appointed contractor
Construction of the permanent provision to the specifications at Figure 8.3 (or similar).	Provided all buildings have been demolished.	Appointed contractor under the guidance of ERAP Ltd
Removal of tree mounted barn owl box (if required)	At least 30 days after the completion of the barn owl permanent provision and provided there is an absence of nesting barn owl (and other bird species).	ERAP Ltd
Maintenance and monitoring of barn owl permanent provision and tree mounted box for signs of use	-	ERAP Ltd/Appointed contractor or other relevant group

Other Birds

Protection

- 5.5.23 All wild birds are protected under the *Wildlife and Countryside Act 1981* (as amended) while they are breeding. It is mandatory that the building, and any 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.
- 5.5.24 If any of the above habitats are 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.
- 5.5.25 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

- 5.5.26 The installation of a small bird nest box is recommended at the proposed redeveloped building, avoiding areas such as directly above any windows or doors. This 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.
- 5.5.27 Nesting swallows have been detected within the site. Swallows will typically nest within buildings, in sheltered locations. If it is possible to incorporate suitable provision for nesting swallow within the design of the proposed house, then a swallow nest should be installed as part of the proposed redevelopment of the site.
- 5.5.28 Examples of suitable a small bird box and swallow nest box are is given below, at **Insert 2**:



Insert 2: Schwegler 1mr bird box and Swallow bird box

5.5.29 Such bird boxes are available from the NHBS (www.nhbs.com) or Wild Care Shop (www.wildcareshop.com). ERAP Ltd will advise on the siting of bird boxes.

5.6 Great Crested Newt and Other Amphibians

5.6.1 It is recommended that if great crested newt are found to be absent by the further surveys conducted at the site, then Reasonable Avoidance Measures should still be adopted to ensure that other amphibians (and other wildlife) are not harmed by the proposed development. Such reasonable avoidance measures will include:

- a. Strimming of the site in a progressive manner (from north to south) outside the amphibian hibernation period (October to February inclusive) to encourage sheltering animals to move from the site prior to the commencement of more invasive works;
- b. Removal of the rubble mound (and other debris) carefully and by hand, again outside the hibernation period;
- c. Ensuring that all rubble, debris and building materials are stored on pallets, or off-site, to prevent the creation of further suitable habitat sheltering amphibians; and
- d. Covering all holes and trenches overnight, or allowing animals to escape via the installation of a suitable ramp / ladder.

5.6.2 A full Reasonable Avoidance Measures Method Statement will be completed (if appropriate) following the completion of the great crested newt surveys.

5.6.3 If great crested newts are found to be present in either Ponds 1 or 2 then a full Method Statement for their protection will be required.

5.7 Landscape Planting

5.7.1 It is recommended that the landscape planting within the site is composed from native species and species known to be of value for the attraction of wildlife.

5.7.2 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 5.2**.

Table 5.2: 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

-
- 5.7.3 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.
- 5.7.4 Planting schemes that include flowering species such as *Calluna*, *Ceanothus*, *Hebe*, *Lavendula*, *Lonicera*, *Potentilla*, *Rosemarinus* and *Vinca* can maximise opportunities for feeding invertebrates and for the attraction of foraging bats and birds.
- 5.7.5 For further plants suitable for the attraction of pollinators please refer to the *Perfect for Pollinators Plant List* (Royal Horticultural Society, 2012). It is recommended that the selection of plant species at the site ensures that a variety of flowering species are available throughout the year.

6.0 CONCLUSION

- 6.1 Further surveys are required to determine the presence or absence of great crested newt at Ponds 1 and 2, and to ascertain the type of bat roost present at the building within the site.
- 6.2 Otherwise, this ecological appraisal has demonstrated that the proposed redevelopment of the site is feasible and acceptable in accordance with ecological considerations and the National Planning Policy Framework.
- 6.3 It is possible to implement reasonable actions for the protection and long-term conservation of fauna such as roosting bats, nesting birds, roosting barn owl and commuting/foraging bats associated with the site.
- 6.4 Redevelopment at the site will provide an opportunity to secure ecological enhancement for fauna typically associated with rural areas such as breeding birds and roosting bats.

7.0 REFERENCES

- Andrews, H (ed), 2013. *Bat Tree Habitat Key, 3rd Edition*. Bridgewater: AEcol Ltd.
- ARG UK, 2010. *ARG Advice Note 5: Great Crested Newt Habitat Suitability Index*. [Online]
Available at: <http://www.arguk.org/advice-and-guidance/view-category>
- Bainbridge, I. et al., 2013. *Guidelines for the Selection of Biological SSSIs*. Peterborough: Joint Nature Conservancy Council.
- Barn Owl Trust, 2012. *Barn Owl Conservation Handbook*. Exeter: Pelagic Publishing.
- Bat Conservation Trust, 2014. *Artificial Lighting and Wildlife: Interim Guidance: Recommendations to help minimise the impact of artificial lighting*. [Online]
Available at: http://www.bats.org.uk/pages/bats_and_lighting.html
- BSI, 2012. *Trees in relation to design, demolition and construction. Recommendations*. London: BSI Standards Limited.
- CIEEM, 2013. *Technical Guidance Series Competencies for Species: Bats*. Winchester: Chartered Institute of Ecology and Environmental Management.
- CIEEM, 2016. *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal, 2nd Edition*. Winchester: Chartered Institute of Ecology and Environmental Management.
- Collins, J. (.), 2016. *Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn)*. London: The Bat Conservation Trust.
- Eaton, M. A. et al., 2015. Birds of Conservation Concern 4: the population status of birds in the United Kingdom, Channel Islands and the Isle of Man. *British Birds*, Issue 108, pp. 708-746.
- Edgar, P., Foster, P & Baker, J., 2010. *Reptile Habitat Management Handbook*. Bournemouth: Amphibian and Reptile Conservation.
- English Nature, 2001. *Great Crested Newt Mitigation Guidelines*. Peterborough: English Nature.
- Great Britain Department for Communities and Local Government, 2012. *National Planning Policy Framework*. London: H.M.S.O.
- Great Britain, 1981. *Wildlife and Countryside Act*. London: H.M.S.O.
- Great Britain, 2006. *Natural Environment and Rural Communities Act*. London: H.M.S.O.
- Great Britain, 2010. *The Conservation of Habitats and Species Regulations*. London: H.M.S.O.
- H.M.S.O., 1997. *The Hedgerows Regulations 1997, SI 1997/1160*. London: H.M.S.O.
- JNCC, 2010. *Handbook for Phase 1 Habitat Survey: A technique for Environmental Audit*. Peterborough: NCC.
- Langton, T. B. C. a. F. J., 2001. *Great Crested Newt Conservation Handbook*. Halesworth: Froglife.
- Maddock, A (ed), 2008. *UK Biodiversity Action Plan: Priority Habitat Descriptions*. [Online]
Available at: <http://jncc.defra.gov.uk/page-5718>
- Mitchell-Jones, A., 2004. *Bat Mitigation Guidelines*. Peterborough: English Nature.
- Mitchell-Jones, A. J. & Mcleish, A. P., 2004. *Bat Workers' Manual, 3rd Edition*. Peterborough: Joint Nature Conservation Committee.
- Natural England, 2007. *Badgers and Development*, Peterborough: Natural England.
- Natural England, 2011. *The Reptile Mitigation Guidelines*. Peterborough: Natural England.
- Natural England, 2015. *Badgers: Surveys and mitigation for development projects*. [Online]
Available at: <https://www.gov.uk/guidance/badgers-surveys-and-mitigation-for-development-projects>
[Accessed 3 December 2015].
- Natural England, 2015. *Protected species licences when to include a reasoned statement with your application*. [Online]
Available at: <https://www.gov.uk/government/publications/reasoned-statement-to-support-a-mitigation-licence-application/protected-species-licences-when-to-include-a-reasoned-statement-with-your-application>
[Accessed 21 April 2016].
- Natural England, 2015. *Template for Method Statement to Support Application for Licence Under Regulation 53(2)(e) of the Conservation of Habitats and Species Regulations 2010 (as amended) In Respect of Great Crested Newts*

Triturus Cristatus: Form WML-A14-2. [Online]

Available at: <https://www.gov.uk/government/publications/great-crested-newts-apply-for-a-mitigation-licence>

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*, Volume 10(4), pp. 143-155.

Ratcliffe, D. A., 1977. *A Nature Conservation Review*. Cambridge: Cambridge University Press.

Rodwell, J. S., 1991. *British Plant Communities: Volume 1, Woodlands and Scrub*. Cambridge: Cambridge University Press.

Rodwell, J. S., 1992. *British Plant Communities: Volume 3, Grasslands and Montane Communities*. Cambridge: Cambridge University Press.

Roper, T., 2010. *Badger (Collins New Naturalist Library, Book 114)*. Glasgow: Harper Collins.

Royal Horticultural Society, 2012. *Perfect for Pollinators, Garden Plants*. [Online]

Available at: <https://www.rhs.org.uk/science/conservation-biodiversity/wildlife/encourage-wildlife-to-your-garden/plants-for-pollinators>

Stace, C. A., 2010. *New Flora of the British Isles 3rd Edition*. Cambridge: Cambridge University Press.

Stone, E. L., 2014. *Bats and Lighting: Overview of current evidence and mitigation guidance*. Bristol: University of Bristol.

8.0 APPENDIX 1: TABLES AND FIGURES

Table 8.1: Plant Species Composition, Frequency and Abundance for Unmanaged Coarse Grassland

Scientific Name	Common Name	DAFOR	% Cover
	Mosses	F/LA	5%
<i>Agrostis stolonifera</i>	Creeping Bent	LA	10%
<i>Alliaria petiolata</i>	Garlic Mustard	LF	<1%
<i>Alopecurus pratensis</i>	Meadow Foxtail	F/LA	10%
<i>Bellis perennis</i>	Daisy	F/LA	10%
<i>Cirsium arvense</i>	Creeping Thistle	R	<1%
<i>Dipsacus fullonum</i>	Wild Teasel	R	<1%
<i>Epilobium hirsutum</i>	Great Willowherb	O/LF	5%
<i>Geranium robertianum</i>	Herb-Robert	R	<1%
<i>Heracleum sphondylium</i>	Hogweed	LF	5%
<i>Holcus lanatus</i>	Yorkshire-fog	F/LA*	50%
<i>Juncus effusus</i>	Soft-rush	LF	<1%
<i>Lolium perenne</i>	Perennial Rye-grass	LA	5%
<i>Prunus spinosa</i>	Blackthorn	LF	1%
<i>Ranunculus repens</i>	Creeping Buttercup	F*	3%
<i>Rhytiadelphus squarrosus</i>	Springy Turk-moss	LA	1%
<i>Rubus fruticosus agg.</i>	Bramble	LF	<1%
<i>Rumex obtusifolius</i>	Broad-leaved Dock	F/LA	5%
<i>Taraxacum officinale agg.</i>	Dandelion	O/LA	1%
<i>Trifolium repens</i>	White Clover	LA	3%
<i>Urtica dioica</i>	Common Nettle	LF	1%

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

Table 8.2: Plant Species Composition, Frequency and Abundance for Hedgerow 1

Scientific Name	Common Name	DAFOR	% Cover
Woody Species			
<i>Alnus glutinosa</i>	Alder	F	10%
<i>Corylus avellana</i>	Hazel	F	5%
<i>Crataegus monogyna</i>	Hawthorn	F	15%
<i>Fraxinus excelsior</i>	Ash	R	1%
<i>Ilex aquifolium</i>	Holly	F	10%
<i>Prunus avium</i>	Wild Cherry	R	<1%
Herb Species			
<i>Agrostis stolonifera</i>	Creeping Bent	LF	<1%
<i>Alliaria petiolata</i>	Garlic Mustard	O/LF	1%
<i>Anthriscus sylvestris</i>	Cow Parsley	LF	1%
<i>Arum maculatum</i>	Lords-and-Ladies	VLF	<1%
<i>Dactylis glomerata</i>	Cock's-foot	LF	<1%
<i>Epilobium hirsutum</i>	Great Willowherb	F	1%
<i>Galium aparine</i>	Cleavers	O/LF	1%
<i>Geranium robertianum</i>	Herb-Robert	R	<1%
<i>Hedera helix</i>	Ivy	F	10%
<i>Lolium perenne</i>	Perennial Rye-grass	LF	<1%
<i>Ranunculus repens</i>	Creeping Buttercup	F	1%
<i>Rubus fruticosus agg.</i>	Bramble	O/LF	1%
<i>Silene dioica</i>	Red Campion	LF	<1%
<i>Taraxacum officinale agg.</i>	Dandelion	O/LF	<1%
<i>Urtica dioica</i>	Common Nettle	O/LF	1%

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

Table 8.3: Assessment of Hedgerow 1 under The Hedgerows Regulations 1997

Height x width x length (metres)	3 x 1.5 x 30		
Continuity	70%		
Management	Unmanaged		
Number of Qualifying Woody Species			
Section number	1	2	3
Qualifying woody species	6	-	-
Average number	6		
Number of Features Present:			
(a) Bank or wall along at least ½ length	No		
(b) Gaps which in agg. do not exceed 10%	No		
(c)-(e) 1 standard tree per 50m	Yes		
(f) At least 3 woodland species within 1 metre	No		
(g) Ditch along at least 1/2 its length	No		
(h) Connections scoring 4 points or more	No		
(i) Parallel hedge within 15m	Yes		
Total Features	2		
Criteria for Hedgerow Importance 1: Hedgerow contains species listed as:			
(1)Part 1 of Schedule 1, Schedule 5 or Schedule 8 of WCA 1981	No		
(2)Declining breeders in 'Red Data Birds of Britain'	No		
(3)Categorised as 'endangered', 'extinct' or 'vulnerable'	No		
Criteria for Hedgerow Importance 2: Hedgerow Includes (all woody species mentioned in (i)-(iv) reduced by one Lancashire for this criteria only):			
(i)At least 7 Woody Species (on average)	Yes		
(ii)At least 6 woody species and at least 3 features (on average)	No		
(iii)At least 6 woody species (on average), inc. one of: Black poplar, L-leaved Lime, S-leaved Lime or Wild Service Tree	No		
(iv)At least 5 woody species (on average), and has 4 features	No		
Criteria for hedgerow importance 3: Is adjacent to is adjacent to a bridleway, footpath or byway and includes at least 4 woody species on average and 2 features from (a) to (g):			
Qualifies:	No		
Hedgerow Classed as Important?	Yes		

Table 8.4: Photographs of Habitats within the Site



Photo 1: Unmanaged coarse grassland at northern end of the site



Photo 2: Unmanaged coarse grassland at eastern end of the site



Photo 3: Unmanaged coarse grassland at southern end of the site



Photo 4: Short-grazed pasture at eastern end of the site



Photo 5: Hedgerow 1 at northern end of the site



Photo 6: Rubble mound at eastern end of the site



Photo 7: Building 1, northern elevation



Photo 8: Building 1, eastern elevation (orange arrow indicates location of droppings on internal wall, Roost 1.1, refer to Photo 13, below)



Photo 9: Building 1, southern elevation



Photo 10: Building 1, western elevation (orange arrow indicates location of droppings on internal wall, Roost 1.2, refer to Photo 15, below)

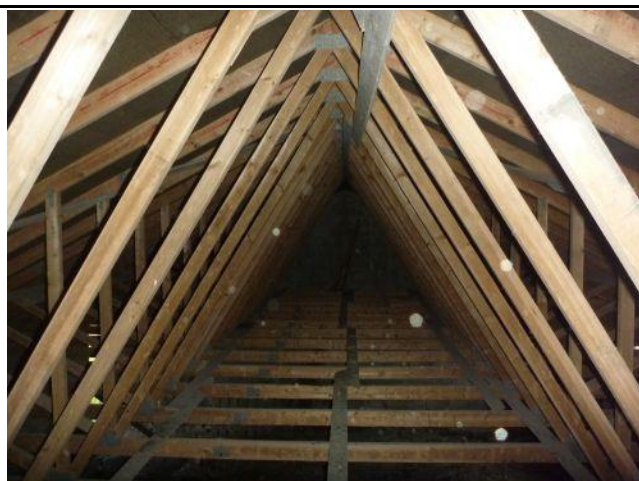


Photo 11: Building 1, internal area, western end of the building



Photo 12: Building 1, internal area, eastern end of the building



Photo 13: Building 1, approximately 30 scattered bat droppings (all old) on internal wall, under western gable end (Roost 1.1)



Photo 14: Building 1, close up of bat dropping at Roost 1.1



Photo 15: Building 1, approximately 50+ scattered bat droppings (old and new) on internal wall, under eastern gable end (Roost 1.2)



Photo 16: Tree 1 (orange arrow indicates feature suitable for use by roosting bats)



Photo 17: Tree 1, close up of feature suitable for use by roosting bats

Table 8.5: Photographs of Evidence of Barn Owl Roosting at the Site



Photo 18: Building 1, old and fresh barn owl pellets under eastern gable end, western building compartment



Photo 19: Building 1, assumed roosting position within western compartment



Photo 20: Building 1, barn owl faecal splashing at central open sided section



Photo 21: Building 1, old pellet under faecal splashing at central open section



Photo 22: Building 1, faecal splashing at internal wall of eastern gable end, eastern end of the building.



Photo 23: Building 1, approximately 10 scattered pellets, old and 1 fresh, near faecal splashing.

Table 8.6: Photographs of Ponds within 500 metres of the Site

 <p>A photograph of a pond surrounded by tall, dry, brown grasses and some green vegetation. The water is dark and still.</p>	 <p>A photograph of a pond with dark water reflecting the sky. The pond is bordered by green grass and some bushes.</p>
<p>Photo 24: Pond 1</p>	<p>Photo 25: Pond 2</p>
 <p>A photograph of a narrow stream flowing through a grassy field with several bare trees in the background.</p>	 <p>A photograph of a pond in a grassy field, with trees and a hill in the background. The water is calm and reflects the surroundings.</p>
<p>Photo 26: Stream which lies between site and Pond 3</p>	<p>Photo 27: Pond 3</p>
 <p>A photograph of a pond with water reflecting the sky, surrounded by large, moss-covered tree trunks and branches.</p>	 <p>A photograph of a pond in a grassy field with a building and trees in the background. The water is calm and reflects the sky.</p>
<p>Photo 28: Pond 4</p>	<p>Photo 29: Pond 5</p>

Figure 8.1: Plan to Show Pond Locations and Habitats Surrounding the Site

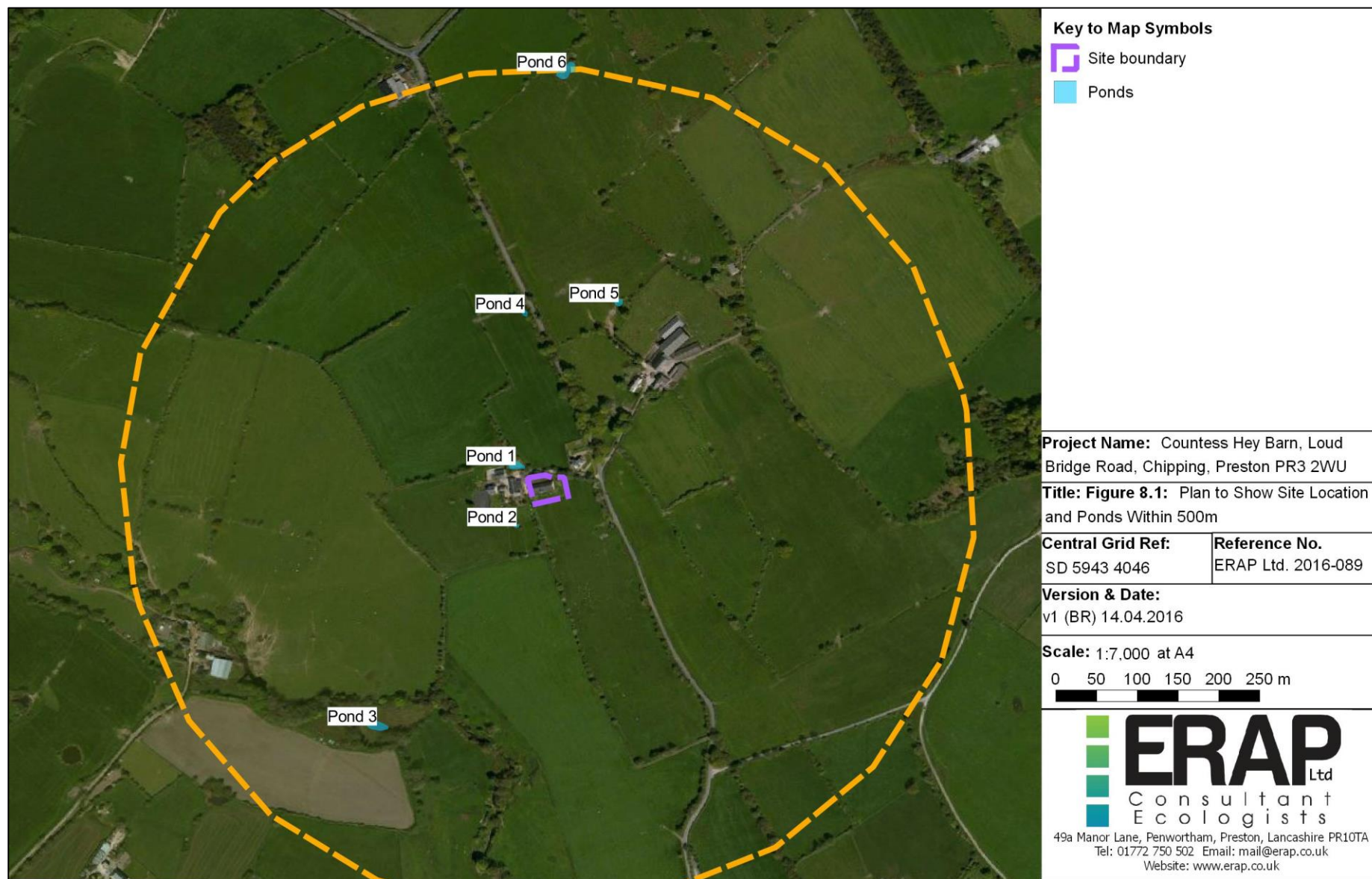


Figure 8.2: Phase 1 Habitat Map

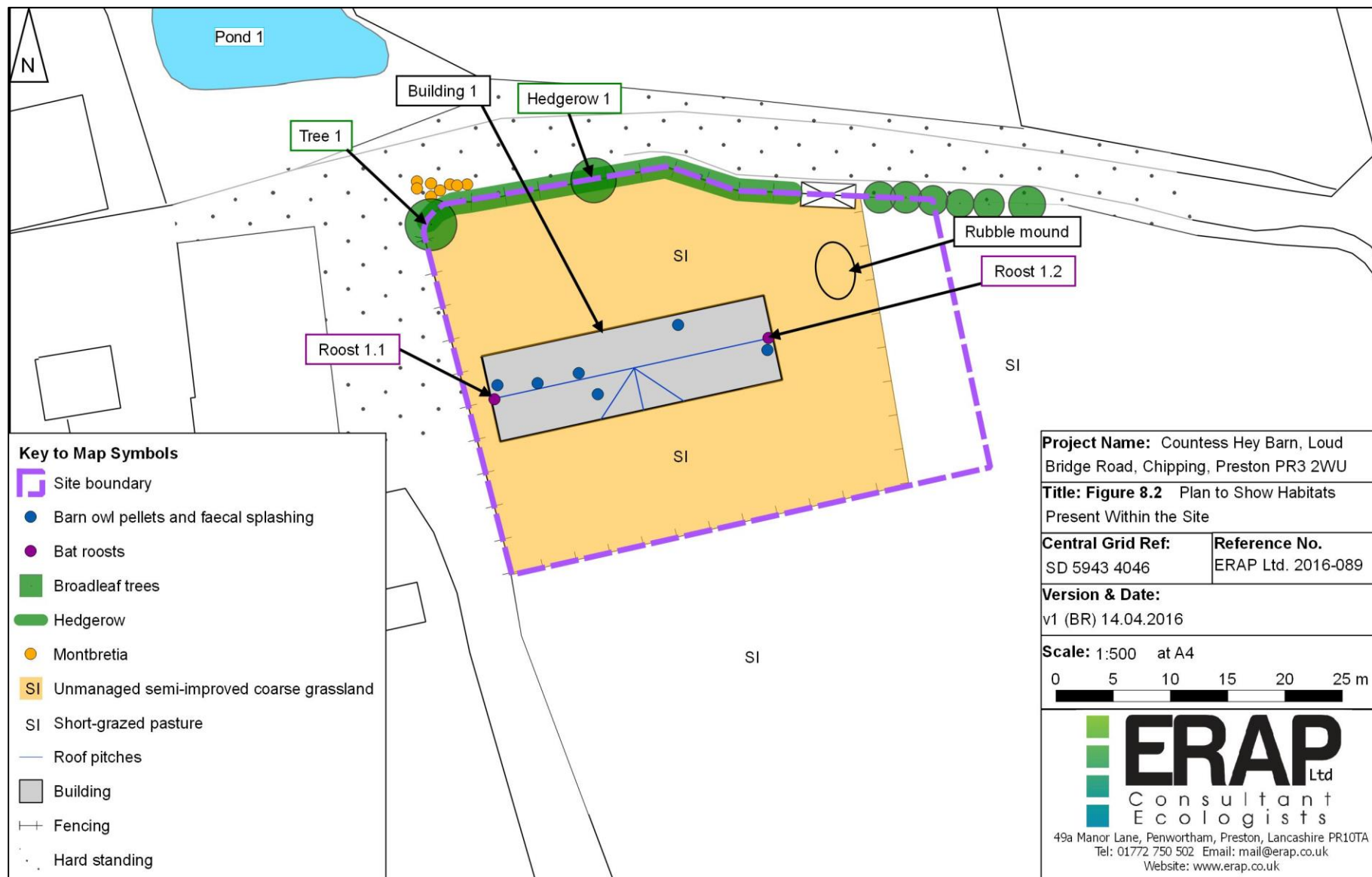


Figure 8.3: Photographs of Alternatives for Long-term Provision for Roosting Barn Owl

Examples of Permanent Provision



Photos A to C: showing examples of barn owl roosting habitat which has been integrated into the design of a residential dwelling.



Photos D to F: showing examples of barn owl roosting habitat which has been installed within existing farm buildings.



Photos G to I: showing examples of barn owl roosting towers.

Examples of Temporary Provision



Photos J and K: barn owl nesting boxes installed within trees.

Project Name: Countess Hey Barn, Loud Bridge Road, Chipping, Preston PR3 2WU

Title: Figure 8.3 Plan to Show Alternatives For Long-term Barn Owl Provision

Central Grid Ref: SD 5943 4046

Reference No. ERAP Ltd. 2016-089

Version & Date: v1 (BR) 14.04.2016



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