



envirotech

Ecological Consultants
Environmental and Rural Chartered Surveyors

Ecological Appraisal

LAND OFF RIBBLESDALE VIEW, CHATBURN



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PROFESSIONAL RESPONSIBILITY

This report has been commissioned and the actions of the surveyor have been made in accordance with the Code of Professional Conduct for the Chartered Institute of Ecology and Environmental Management. (www.cieem.org.uk) and the Royal Institution of Chartered Surveyors (www.rics.org.uk)

ACCURACY OF REPORT

This report has been compiled based on the methodology as detailed and the professional experience of the surveyor. Whilst the report reflects the situation found as accurately as possible, all of the protected species this survey covers are wild and can move freely from site to site. Their presence or absence detailed in this report does not entirely preclude the possibility of a different past, current or future use of the site surveyed.

We would ask all clients acting upon the contents of this report to show due diligence when undertaking work on their site and/or in their interaction with protected species. If protected species are found during a work programme, and continuing the work programme could result in their disturbance, injury or death, either directly or indirectly an offence may be committed.

If in doubt, stop work and seek further professional advice.

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1. EXECUTIVE SUMMARY

- 1.1.1 Envirotech NW Ltd were commissioned in May 2016 by Rural Solutions to carry out an ecological appraisal of land off Ribblesdale View, Chatburn, Lancashire. It is proposed that new residential dwellings will be built on the site.
- 1.1.2 A data search and desk study of the site and an area within 2km of the site were undertaken to establish the presence of protected species and notable habitats.
- 1.1.3 The site was then visited by two licenced ecologists from Envirotech NW Ltd on the 18th May 2016. A full botanical survey of the site was initially undertaken and this was followed by surveys to establish the presence or absence of bats, amphibians, nesting birds, brown hares and badgers at the site or in proximity such that they may be affected by the proposed development.
- 1.1.4 The plant species assemblages recorded at the site are all common in the local area and of considered of low ecological value. Domestic gardens and sympathetically landscaped open space is considered to offer habitat of equal or greater ecological value.
- 1.1.5 Low numbers of common bat species were recorded foraging over the site. No bats were recorded roosting on or near site. It is proposed that some roosting provision for bats will however be incorporated into the new houses on site.
- 1.1.6 Birds are likely to utilise scrub on site for nesting between March and September. Any vegetation clearance should therefore be undertaken outside of this period.
- 1.1.7 No other notable or protected species were recorded on the site.

2. INTRODUCTION

2.1 Background

2.1.1 In May 2016 Envirotech NW Ltd were commissioned by Rural Solutions to carry out an Ecological Appraisal of land off Ribblesdale View, Chatburn, Lancashire, central grid reference SD 77155 44334 (Figure 1). A site investigation was undertaken and a report compiled which includes recommendations for any future actions and or mitigation required.

2.1.2 The survey was requested in connection with the proposed construction of new houses.

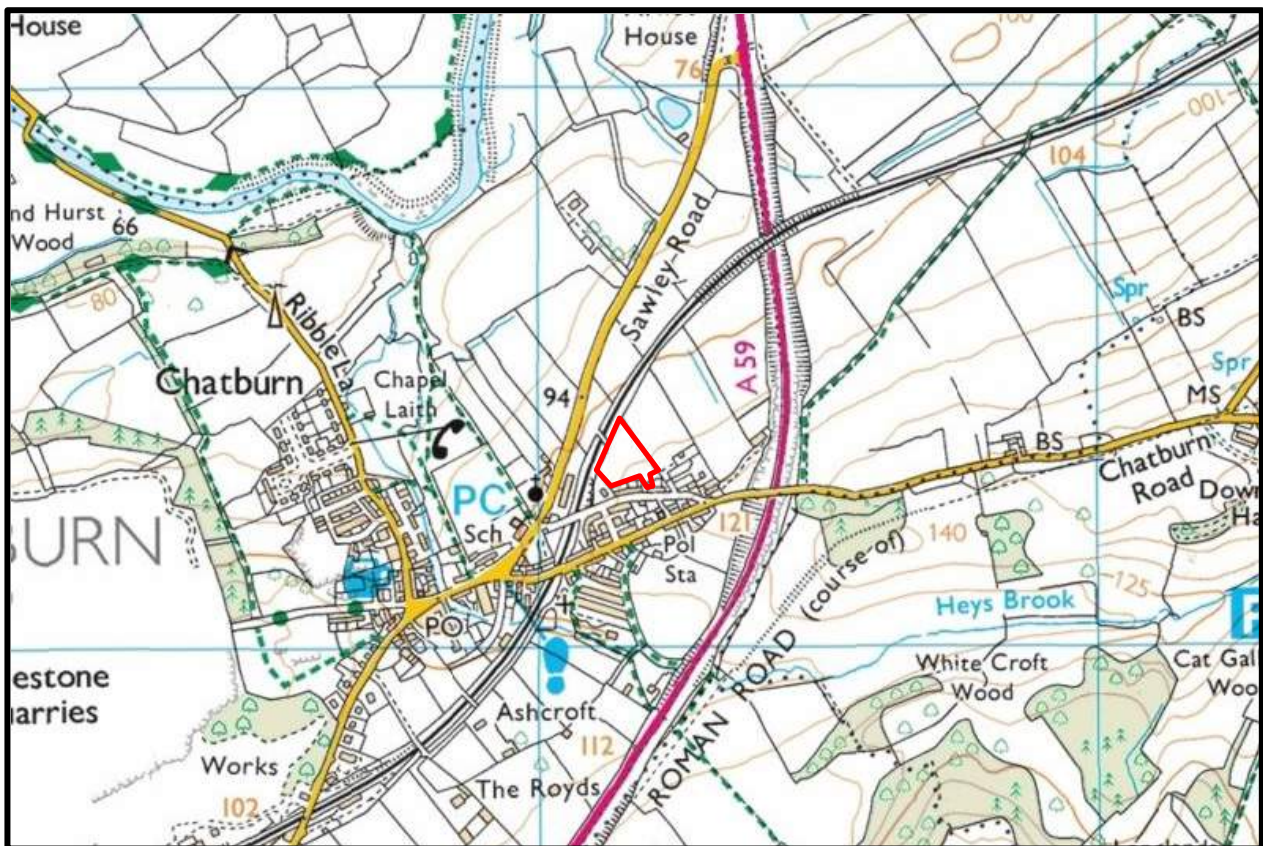


Figure 1 Site location shown in red

2.2 Objectives

2.2.1 The main objectives of the study were:

- The completion of a Phase 1 Habitat Survey including the preparation of a vegetation and habitat map of the site and the immediate surrounding area.
- The survey and assessment of all habitats for statutorily protected species.
- An evaluation of the ecological significance of the site.
- The identification of any potential development constraints and the specification of the scope of mitigation and enhancement required in accordance with wildlife legislation, planning policy and other relevant guidance, and;
- The identification of any further surveys or precautionary assessments that may be required prior to the commencement of any development activities.

3. METHODOLOGY AND SOURCES OF INFORMATION

3.1 *Data Search*

- 3.1.1 The Biological Records centre for Lancashire “LERN”, the Envirotech dataset, and the Multi-Agency Geographic Information for the Countryside (MAGIC) were searched to establish the presence of any records of statutorily protected, notable or rare species, and any designated sites of international, national, regional or local importance within a 2km radius of the site boundary.
- 3.1.2 The Envirotech dataset is compiled from extensive field surveys from the period 2004-present, as well as records obtained from third parties during this time.
- 3.1.3 Google Earth and Google Street View were consulted to establish the presence of any features of ecological importance within the local area.

3.2 *Vegetation and Habitats*

- 3.2.1 A vegetation and habitat map was produced for the site and the immediate surrounding area. The mapping is based on the Joint Nature Conservation Committee Phase 1 Habitat Survey methodology (JNCC 2003).
- 3.2.2 Searches were made for uncommon, rare and statutorily protected plant species, those species listed as protected in the Wildlife and Countryside Act (1981) and indicators of important and uncommon plant communities. All plant nomenclature follows Stace (1991).
- 3.2.3 Searches were carried out for the presence of invasive species, including those listed on Schedule 9 of the Wildlife and Countryside Act (1981), namely Japanese knotweed (*Fallopia japonica*), Himalayan balsam (*Impatiens glandulifera*) and giant hogweed (*Heracleum mantegazzianum*) on terrestrial habitat and aquatic species such as floating pennywort (*Hydrocotyle ranunculoides*), water Hyacinth (*Eichhornia crassipes*) and New Zealand pygmyweed (*Crassula helmsii*).
- 3.2.4 The survey was also informed by questioning the landowner/site agent to ascertain the recent history of the site.

3.3 *Timing and Personnel*

- 3.3.1 The site and surrounding land was visited on the 19th May 2016.
- 3.3.2 During the visit, weather conditions were suitable for the survey types undertaken being warm and dry in spring (Table 1).

Date of visit		18 th May 2016		Notes
Site inspection		1hr		
Weather conditions	Cloud	30%		1
	Wind	Nil		1
	Rain	Nil		1
	Temperature	13 °C		1
Activity survey	Start/ Light Level	20:55	250 lux	
	End/ Light Level	22:30	0.2Lux	
Surveyors		MT, CA		

Table 1 Survey dates and times

1. Weather conditions were considered acceptable for a survey at the site given the potential for use of the site and species which may be present. Bats are usually active with temperatures above 7 degrees Celsius.

- (CA) Mr Chris Arthur BSc (Hons), MSc, Grad CIEEM
Natural England Bat Class Licence (Level 2)
Natural England Barn Owl Licence
Natural England Great Crested Newt Licence (Level 1)
- (JS) Mr Jack Sykes BSc (Hons), MCIEEM
Natural England Bat Class Licence (Level 2)
Natural England Barn Owl Licence
Natural England Great Crested Newt Licence (Level 1)

4. SPECIES SURVEY METHODOLOGY

4.1 Amphibian

4.1.1 Great crested newts (*Triturus cristatus*) are listed on Annexes II and IV of the EC Habitats Directive and Appendix II of the Bern Convention. It is protected under Schedule 2 of the Conservation (Natural Habitats) Regulations (2010) and Schedule 5 of the Wildlife & Countryside Act (1981).

4.1.2 There are no waterbodies on site or within 500m of its boundaries. Consequently, no further surveys were warranted.

4.2 Badger

4.2.1 Badgers (*Meles meles*) and their setts are protected under the Protection of Badgers Act (1992). This legislation arises from animal welfare issues (rather than on the basis of nature conservation grounds) and essentially protects badgers from killing, injuring or disturbance. The main issue on proposed development sites tends to be the potential disturbance of badgers in their setts as a result of construction operations. Natural England recommends that the use of heavy machinery in proximity of a sett entrance should be avoided, with a 'disturbance free-zone' being established. The degree of disturbance attributed to construction activity is a function of the background level of activity badgers are accustomed to and that which will be attributed to a proposed activity. The "disturbance free zone" is therefore site specific.

4.2.2 The survey for badgers comprised an assessment of all suitable habitat within and outside the study area boundary (where this was possible) for indications of use by badgers.

4.2.3 Signs of badgers which were searched for included:

- Setts - 'D' shaped entrances at least 25cms wide and wider than they are high with large spoil mounds
- Discarded bedding at sett entrances (this includes grass and leaves)
- Scratching posts on shrubs and trees close to a sett entrance
- The presence of badger hairs which are coarse, up to 100mm long with a long black section and a white tip
- Dung pit latrines and footprints
- Habitual runs through vegetation and beneath fences
- Hedgehog carcasses
- Surveys were also undertaken at night, during the bat surveys, by scanning the study area with a torch.

4.3 Bats

- 4.3.1 All British bat species are fully protected under Schedule 5 of the Wildlife and Countryside Act (1981), and are included on Schedule 2 of the Conservation (of Natural Habitats) Regulations (2010), as European Protected Species. Taken together, these pieces of legislation make it an offence to:
- Intentionally or recklessly kill, injure or capture bats;
 - Deliberately or recklessly disturb bats (whether in a roost or not);
 - Damage, destroy or obstruct access to bat roosts.
- 4.3.2 The Bat Conservation Trust (Hundt (2012)) and Collins, J. (ed) (2016) issued guidelines on bat survey methodology, a key feature of their recommendation is for the undertaking of a pre-survey assessment - an initial desk-study and a walkover assessment of the survey area and its surrounding area to identify the relative value of the habitats present for bats and likely commuting routes. This is to be followed by a survey program that is appropriate to the likely level of bat activity within the survey area to be determined by and based on the experience of the surveyor.
- 4.3.3 The potential value of the survey area for foraging bats was assessed through consideration of two main factors: professional knowledge of bat ecology and foraging behaviour in combination with the geographical location, topography and habitats present within the survey area and surrounds. This resulted in the production of a map showing habitat quality both on and adjacent to the site.
- 4.3.4 The survey area has small hedgerows within it and linear routes on its boundary. The main site however comprises an area which is open, exposed and structurally poor, it has a very low potential for use by bats.
- 4.3.5 As a result of the potential suitability of the habitat outside the site and along its boundaries for foraging bats but the low potential for impacts upon bat species due to the proposal being on open and exposed grassland, a single bat activity survey was deemed necessary. The survey was based upon standard guidelines Hundt (2012), Collins, J. (ed) (2016) and NCC (1987) and Mitchell-Jones (2004) and was undertaken in suitable weather conditions by suitably qualified and experienced personnel (Table 1).
- 4.3.6 The survey methods comprised a transect route which was walked in order to cover all on site habitats from sunset until light levels dropped to the extent that bat flight heights could not be determined and walking over the site in the dark was judged to be unsafe. Surveyors used Wildlife Acoustics EM3 bat detectors.
- 4.3.7 In addition to the activity survey, trees on site were assessed for their potential to support roosting or hibernating bats. This comprised a close inspection of all trees on site and an assessment of their potential to be used by bats by a licensed surveyor.
- 4.3.8 Trees were all assessed in accordance with Collins, J. (ed) (2016).

4.4 Birds

- 4.4.1 All breeding birds, other than pest species, are protected under the Wildlife and Countryside Act of 1981 when building a nest, rearing young or sitting on eggs. Some bird species, such as barn owl (*Tyto alba*), are protected when near an active nest site. Several birds are listed as UK and or County BAP species.
- 4.4.2 The poor quality habitat suggested a low potential for breeding bird species of interest.
- 4.4.3 Bird species and behaviour was noted during the other field surveys. All areas are covered equally, in order to avoid the subjective survey of better quality 'bird habitat'. All birds displaying breeding behaviour were recorded.

4.5 Brown Hare

- 4.5.1 The brown hare (*Lepus europaeus*) is a UK BAP species.
- 4.5.2 The survey method involved walking boundaries and surveying with binoculars. The survey was conducted at a suitable distance to ensure that the hares were not disturbed. Generally, surveys were undertaken throughout the early afternoon and evening when hares are thought to be most active and feeding.
- 4.5.3 There present the number of brown hares in each field or hedgerow was recorded, together with the nature and use of the field, climatic conditions and time of day. The presence of forms and faeces where present were also recorded.

4.6 Invertebrates

- 4.6.1 A general assessment was made of the study area's suitability for supporting invertebrates during the phase 1 survey. The study area's lack of habitat diversity, species-poor composition and uniformity of vegetation structure (i.e., lack of variation in height and microtopography) resulted in our belief that a low diversity of invertebrates would be likely to occur across the site.
- 4.6.2 The presence of invertebrates was noted during the other surveys which were undertaken. The extent of sampling was limited in that it could be confirmed that no priority or BAP species would be likely to be affected by the proposal.

4.7 Otter

- 4.7.1 Otters (*Lutra lutra*) are given protection by Annexes II & IV of the Habitats Directive and by Schedule 5 of the Wildlife and Countryside Act (1981) as amended and Schedule 2 of the Conservation (Natural Habitats etc.) Regulations (2010).

This protection means that it is an offence to deliberately or recklessly:

- Kill or injure otters;
- Destroy, damage or obstruct their dens, and

- Disturb them whilst in the den.

4.7.2 There are no watercourses on, or connected to the site, and so no surveys for this species were undertaken.

4.8 Reptiles

4.8.1 All native reptiles are protected in Britain under the Wildlife and Countryside Act of 1981. It is an offence to intentionally kill, injure, sell or advertise to sell any of the six native species.

4.8.2 The survey for these species was based on assessing the habitat type and suitability of the site. This comprised an assessment of satellite imagery for the site and surrounding area as well as comparison of the results from the records searches with habitat types. The general habitat at the site was evaluated in terms of its suitability to reptiles for

4.8.3 Reptile surveys comprising visual encounter surveys were undertaken. Habitat at the site was not considered sufficiently suitable for a full presence/ absence survey to be warranted.

4.9 Water Vole

4.9.1 Water voles (*Arvicola amphibious*) and their habitat are fully protected under Schedule 5 of the Wildlife and Countryside Act (1981). This provides protection from killing or taking by certain prohibited methods and their breeding and resting places are fully protected from destruction or obstruction, it is also an offence to disturb them in these places.

4.9.2 There are no watercourses on, or connected to the site, and so no surveys for this species were undertaken.

4.10 Survey limitations

4.10.1 Due to the habitats present on site there were no significant constraints in respect of identifying the botanical interest of the site. Bats were active at the time of the survey.

4.10.2 The duration, extent and scope of the surveys were considered sufficient to plan appropriate mitigation and recommend additional precautionary survey work required prior to the commencement of work.

4.10.3 No significant survey limitations were encountered.

5. RESULTS

5.1 *Data Search*

- 5.1.1 Envirotech and LERN hold no records of protected or notable species for the site. There are however records of protected or notable species within 2km (Figure 2). These are discussed in the relevant sections below.
- 5.1.2 There are several non-statutory designated sites within 2km, the nearest being the A59 Road Cutting Biological Heritage Site (BHS), c. 400m to the East (Figure 3). This is isolated from the site by residential dwellings and public highways composing the village of Chatburn.
- 5.1.3 There are no statutory designated sites for nature conservation within 2km of the site. Clitheroe Knoll Reefs Site of Special Scientific Interest (SSSI) and Salthill and Bellmanpark Quarries SSSI are located c. 500m East and 1800m South-west, respectively, but these are designated for geological reasons (Figure 4).
- 5.1.4 The site is not located within any SSSI Impact Risk Zones for this development type.

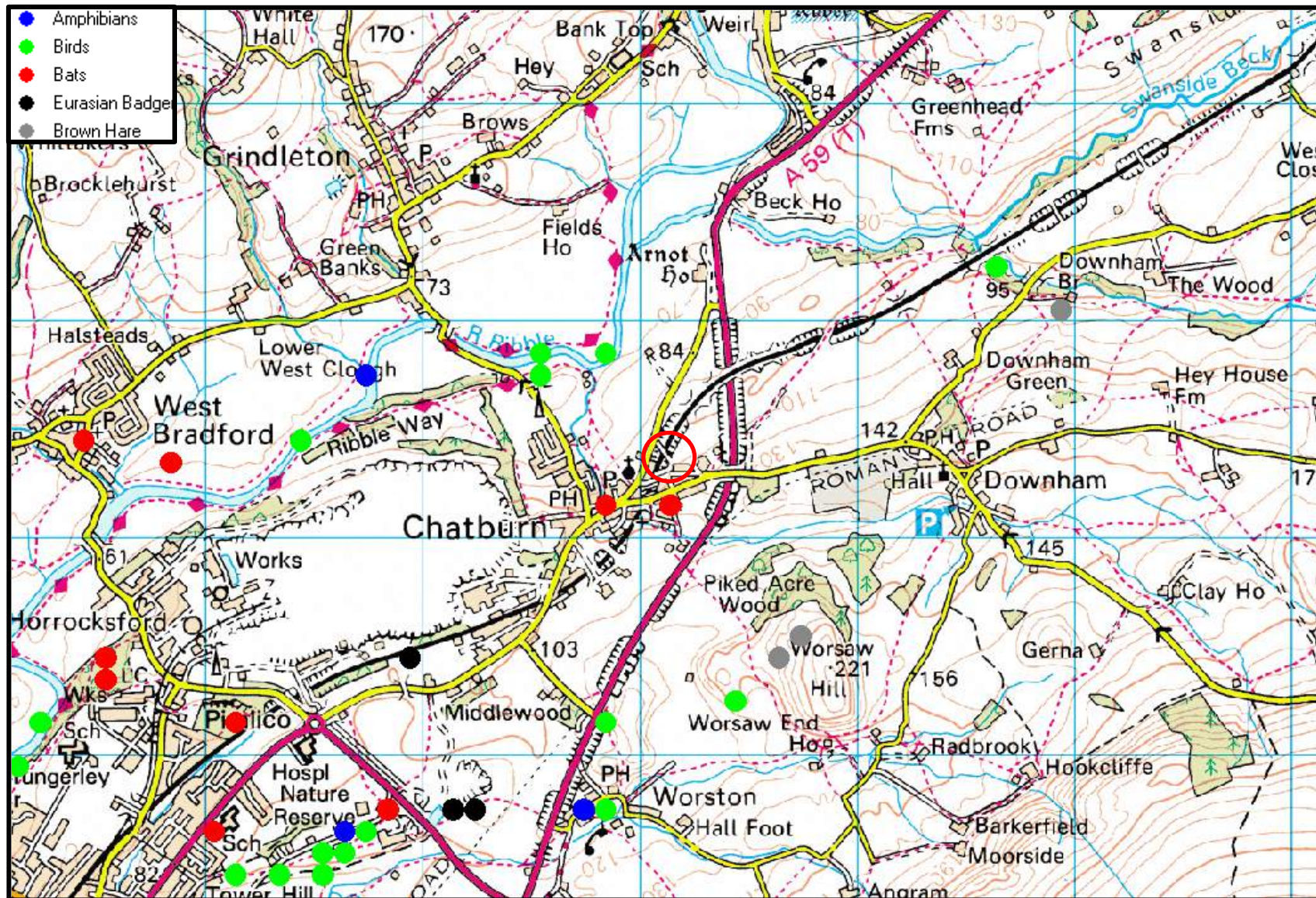
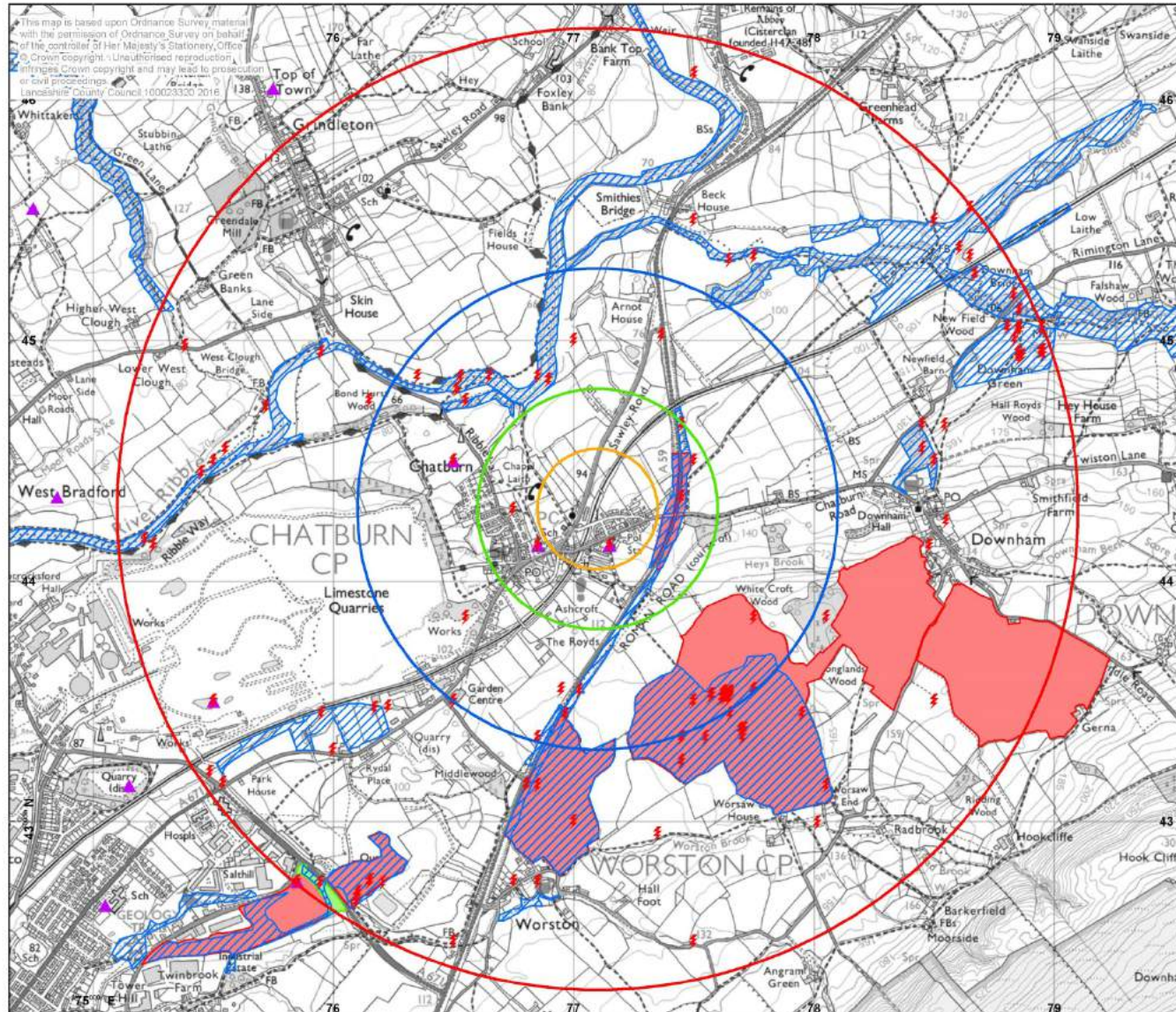


Figure 2 Notable species records; site location circled red



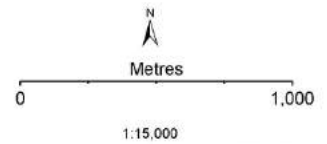
Project:
Ribblesdale Drive

Client:
Envirotech NW Ltd

Grid Ref: 377100 444300

- Legend**
- 250 m Buffer
 - 500 m Buffer
 - 1 km Buffer
 - 2 km Buffer
 - Lancashire Key Species
 - Bats subset of LKS
 - Biological Heritage Sites
 - Local Nature Reserve
 - SSSI

**N.B. THIS IS AN INTERACTIVE PDF
LAYERS CAN BE TURNED ON OR OFF
TO AID CLARITY.**



"Boundaries of statutory designations (Natura 2000, SSSI etc) are included for information only. Definitive information for these designations should be obtained from Natural England."

Lancashire Key Species records are plotted at the centre of the area to which they relate (the precision of each record is given in the accompanying attribute data and spreadsheet).

Lancashire Environment Record Network
C/O Planning Group
Environment Directorate,
Lancashire County Council,
PO Box 100,
County Hall,
Preston PR1 0LD



lern@lancashire.gov.uk http://www.lancashire.gov.uk/learn.aspx

Figure 3 Non-statutory sites 2km buffer

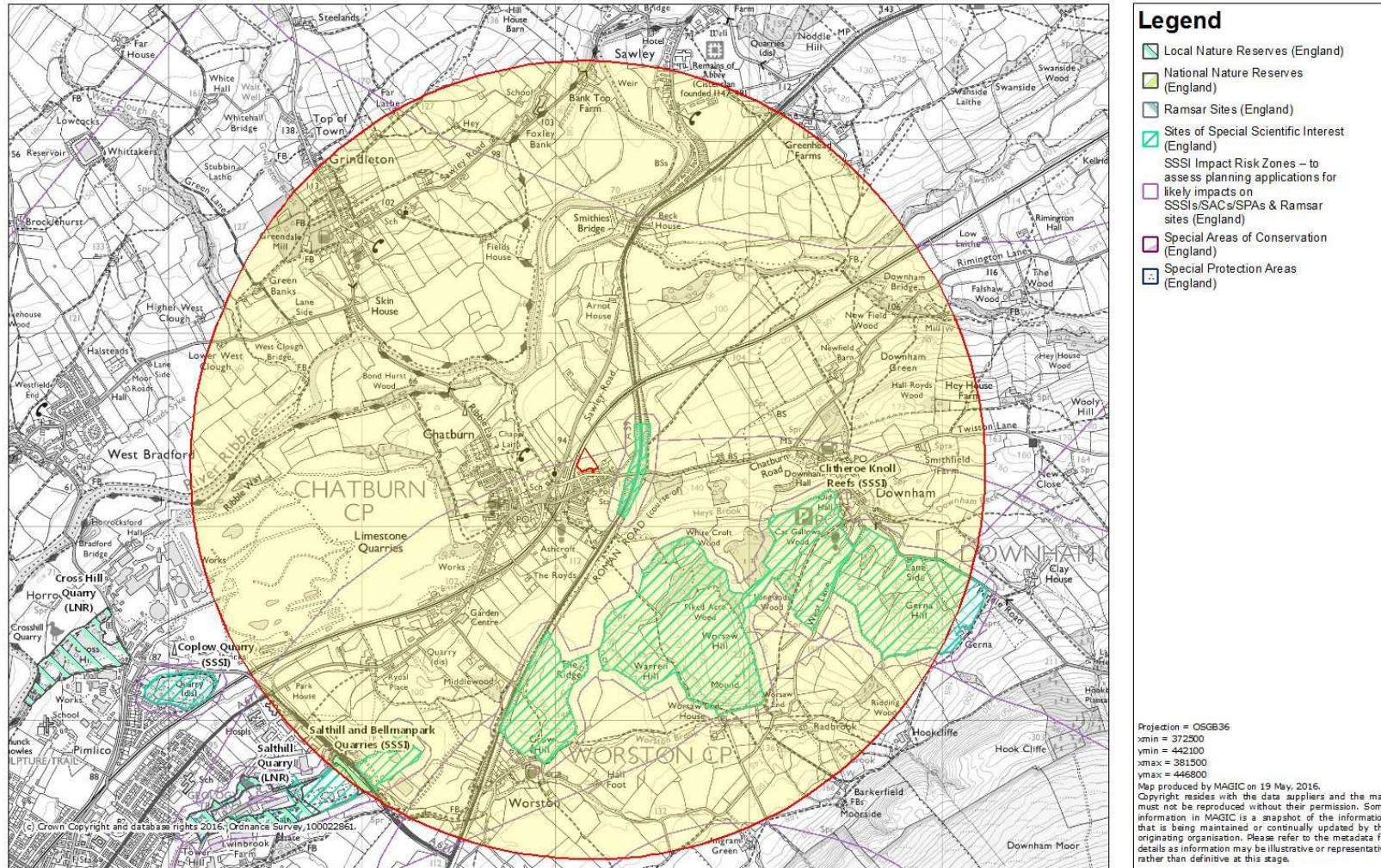


Figure 4 Statutory designated sites 2km buffer

6. PHASE 1 SURVEY RESULTS

6.1 *Habitat Results*

- 6.1.1 The site is a parcel of poor semi-improved grassland which was razed by cattle at the time of the survey. The site is bound to all sides by fences, though there is a hedgerow adjacent to the East and dense scrub to the North. There are two mature trees on the Eastern boundary.
- 6.1.2 The site abuts residential housing to the South and West, poor semi-improved grassland, and a railway line flanked by scrub to the North. The railway is crossed by a green bridge leading to another small field which is contiguous with the site.
- 6.1.3 See Figure 5 for the Phase 1 Habitat Plan and Table 1 for the descriptive Botanical and Faunal Target Notes, hereafter referred to as BTN and FTN.

Target Note	Description	Comment
BTN1	Poor semi-improved grassland	The site is a parcel of poor semi-improved grassland which was grazed by cattle at the time of the survey. The sward is typical of this habitat type and is dominated by graminoids comprising annual meadow grass (<i>Poa annua</i>), meadow foxtail (<i>Alopecurus pratensis</i>), sweet vernal grass (<i>Anthoxanthum odoratum</i>), Yorkshire fog (<i>Holcus lanatus</i>) and cock's foot (<i>Dactylis glomerata</i>). Forbs present in the grassland consist of creeping buttercup (<i>Ranunculus repens</i>), meadow buttercup (<i>R. acris</i>), sorrel (<i>Rumex acetosa</i>), dandelion (<i>Taraxacum officinale</i>), daisy (<i>Bellis perennis</i>), white clover (<i>Trifolium repens</i>), common mouse ear (<i>Cerastium fontanum</i>), creeping thistle (<i>Cirsium arvense</i>), nettle (<i>Urtica dioica</i>), lesser celandine (<i>Ficaria verna</i>) and cuckooflower (<i>Cardamine pratensis</i>).
BTN2	Fence	The site is bound on all sides by a post and wire fence.
BTN3	Scattered/parkland broadleaf trees	On the North-east boundary of the site are two mature ash (<i>Fraxinus excelsior</i>) trees. The Southernmost tree is slightly larger.
BTN4	Scattered/parkland broadleaf trees	
BTN5	Intact hedge - species poor	Adjacent to the North-east boundary is a hawthorn (<i>Crataegus monogyna</i>) hedge. Small amounts of holly (<i>Ilex aquifolium</i>) are also present, along with bramble (<i>Rubus fruticosus</i> agg.) and bluebells (<i>Hyacinthoides x massartiana</i>) at the base.
BTN6	Scrub dense/continuous	The North-west boundary abuts a corridor of dense scrub along the top of railway embankment. This is composed of hawthorn, sycamore (<i>Acer pseudoplatanus</i>) and apple (<i>Malus</i> sp.) trees, with nettle, bramble and ramsons (<i>Allium ursinum</i>).
BTN7	Poor semi-improved grassland	Poor semi-improved grassland, comparable to that within the site, continues to the North-east.
BTN8	Other habitat	Residential housing abuts the site to the South.

FTN1	Bats	The two ash trees on the North-east boundary have significant potential to be used by roosting bats, containing numerous features suitable for such use. There was, however, no evidence of roosting bats found during the dusk activity survey undertaken at the site.
Table 2 Details of Botanical and Faunal Target Notes		





The site is a parcel of cattle grazed poor semi-improved grassland (BTN1).



It is bound to all sides by fences (BTN2), though there is a hedgerow adjacent to the North-east (BTN5).



To mature ash trees are also present on the North-east boundary (BTN3 & BTN4).

These are of high potential to be used by roosting bats, though no evidence to confirm this was found during the dusk activity survey (FTN1).



The North-west boundary abuts a corridor scrub along the top of a railway embankment (BTN6).

Table 3 Photographs

6.2 Vegetation

- 6.2.1 Details of the plant species found on site are included in the target notes. Species recorded are all commonly occurring and undoubtedly occur elsewhere in similar habitats in the local area.
- 6.2.2 The poor semi-improved grassland has a very low species diversity and ecological value. Whilst the assemblage of species within it is higher than improved pasture, the species are all indicative of regular grazing and disturbance; this habitat does not constitute a BAP habitat.
- 6.2.3 Trees within the site boundary comprise two mature ash trees on the Eastern boundary. These trees do not form woodland but should be retained in any proposed scheme.
- 6.2.4 There is no evidence of Japanese knotweed, giant hogweed or Himalayan balsam on the site. No other invasive or notable weed species listed on Schedule 9 (Section 14) of the Wildlife and Countryside Act (1981) (as amended) was identified within the site or adjacent land.

6.3 Amphibian

- 6.3.1 There are 17 records for amphibians within 2km of the site, comprising records of smooth newt (*Lissotriton vulgaris*), palmate newt (*L. helveticus*) and common frog (*Rana temporaria*).
- 6.3.2 There are no records of great crested newt within 2km.
- 6.3.3 There is no standing water on site, or visible within 500m on aerial photography or OS mapping.
- 6.3.4 The core development area has a low value to amphibians being open and exposed. The adjacent hedgerow and scrub along the railway line could be utilised as refuges and/or hibernacula but there are no breeding ponds in proximity to the site.
- 6.3.5 The proposed development will not result in the permanent loss of or a substantial negative effect on any waterbodies or foraging areas linked to them. Boundary areas which may provide foraging or refuge sites are to be retained.

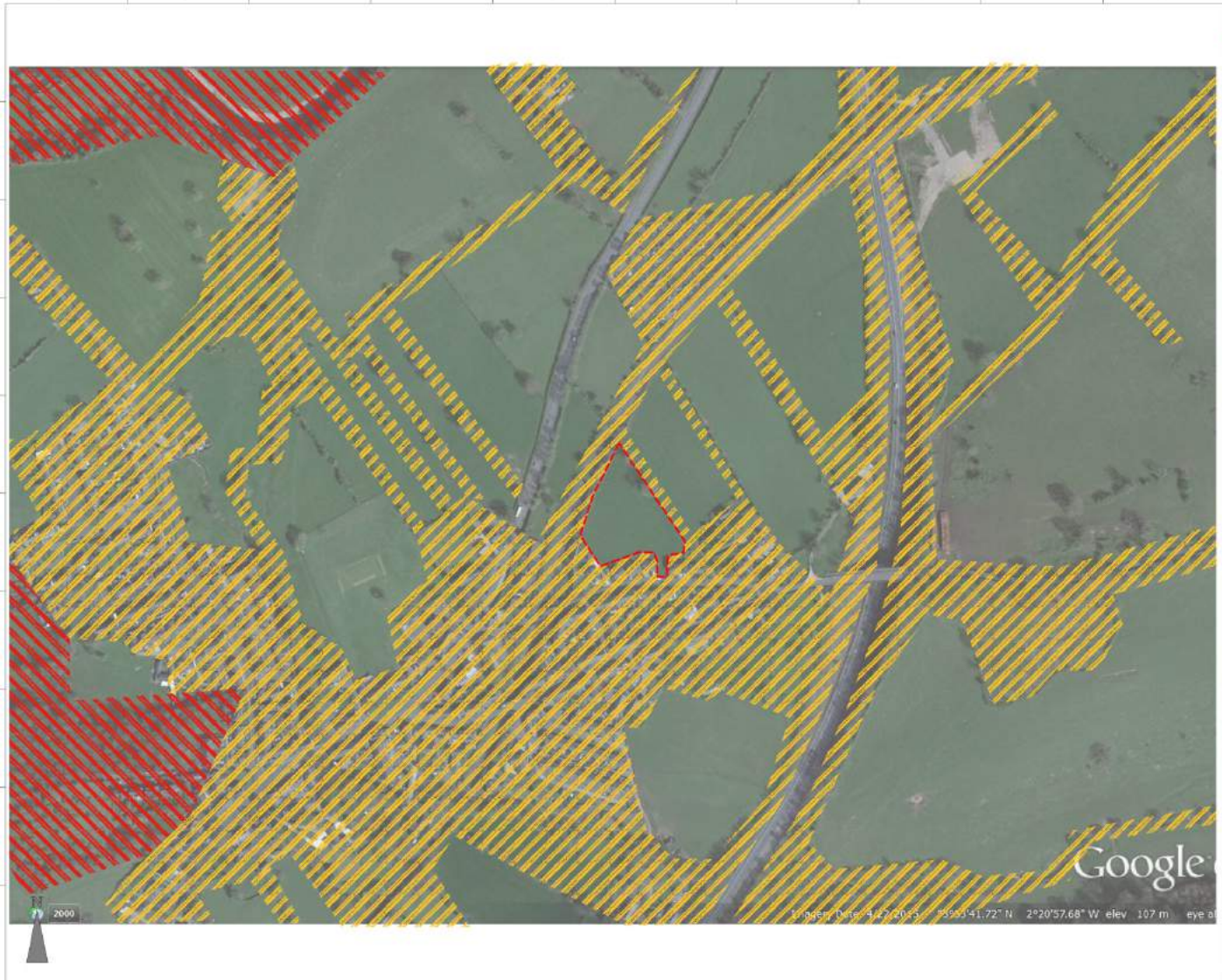
6.4 **Badger**

- 6.4.1 Six records of badgers occur within 2km of the site.
- 6.4.2 Badger setts do not occur on site or within 30m of its boundaries, and there were no indications of badger feeding found on site.
- 6.4.3 The proposed development will not impact on any existing badger runs or setts. The porosity of the surrounding fields to the passage of badgers will not be affected.
- 6.4.4 Precautionary mitigation is considered appropriate during construction. The design of fences/walls should be considerate to the passage of badgers.

6.5 **Bats**

- 6.5.1 There are five records of common pipistrelle (*Pipistrellus pipistrellus*) bat within 2km of the site. No other bat species have been recorded locally.
- 6.5.2 The foraging habitat at the site is poor for bat species being open and exposed. The poor semi-improved grassland offers negligible foraging opportunities for bats.
- 6.5.3 There is moderate quality foraging habitat adjacent to the site, along the scrubby railway corridor to the North-west and the residential housing to the South. These areas are connected by the hedgerow adjacent to the North-east boundary, and this offers the highest potential for foraging bats on the site (Figure 6).
- 6.5.4 The two ash trees on the site perimeter were assessed in accordance with Collins ed. (2016) and assigned a risk. These are category 1* (very high risk) and category 1 (high risk). Highly suitable roost sites for bats were located within both trees. Risk categories from Hundt (2012) and the requirement for mitigation for each tree category are shown on Figure 8.
- 6.5.5 To confirm the site is not used by significant numbers of bats, a walked transect of the site for a period of 1.45hrs was undertaken by two surveyors. Dates, times and weather conditions can be found in Table 1.
- 6.5.6 The survey recorded a low level of commuting activity along the North-east boundary of the site by common and soprano pipistrelle (*P. pygmaeus*) bats. Soprano pipistrelle bats were also seen commuting along the scrubby corridor to the North-west. No bat activity was recorded within the centre of the site, and no bats were seen to emerge from, or forage around, the ash trees to the North-east.
- 6.5.7 The results of the activity survey (Figure 7) confirm our assessment of the potential for the habitat, trees and buildings at the site to support bats.
- 6.5.8 It is not considered there would be significant degradation of foraging habitat as a result of the proposal so long as the hedgerow and trees to the North-east are retained or their loss is compensated for in any landscaping scheme.
- 6.5.9 Precautionary mitigation would be appropriate in respect of ensuring the foraging habitat on site is at least improved for use by bats during development. If the two ash

trees are to be affected, further survey effort will be required to ensure these are not used by roosting bats.



Key




- - - Site Boundary
-  High Value
-  Medium Value
-  Low Value



Figure 6
Results* of
Bat Habitat Survey

SCALE: NTS REV 01

*Habitats outside the site boundary are indicative only and have been mapped from within the site boundary or from publicly accessible land.



Tree category and description	Stage 1 Initial survey requirements	Stage 2 Further measures to inform proposed mitigation	Stage 3 Likely mitigation
Known or confirmed roost	Follow SNCO guidance and these guidelines wherever possible, to establish the extent to which bats use the site. This is particularly important for roosts of high risk species and/or roosts of district or higher importance and above		The tree can be felled only under EPS licence following the installation of equivalent habitats as a replacement.
Category 1* Trees with multiple, highly suitable features capable of supporting larger roosts	Tree identified on a map and on the ground. Further assessment to provide a best expert judgement on the likely use of the roost, numbers and species of bat, by analysis of droppings or other field evidence. <i>A consultant ecologist is required</i>	Avoid disturbance to trees, where possible. Further dusk and pre-dawn survey to establish more accurately the presence, species, numbers of bats present and the type of roost, and to inform the requirements for mitigation if felling is required.	Felling would be undertaken taking reasonable avoidance measures' such as 'soft felling' to minimise the risk of harm to individual bats.
Category 1 Trees with definite bat potential, supporting fewer suitable features that category 1* trees or with potential for use by single bats	Tree identified on a map and on the ground. Further assessed to provide a best expert judgement on the potential use of suitable cavities, based on the habitat preferences of bats. <i>A consultant ecologist required</i>	Avoid disturbance to trees, where possible. More detailed, off the ground visual assessment. Further dusk and pre-dawn survey to establish the presence of bats, and if present, the species and numbers of bats and type of roost, to inform the requirements for mitigation if felling is required.	Trees with confirmed roosts following further survey are upgraded to Category 1* and felled under licence as above. Trees with no confirmed roosts may be downgraded to Category 2 dependent on survey findings
Category 2 Trees with no obvious potential, although the tree is of a size and age that elevated surveys may result in cracks or crevices being found; or the tree supports some features which may have limited potential to support bats.	None. <i>A consultant ecologist is unlikely to be required</i>	Avoid disturbance to trees, where possible. No further surveys.	Trees may be felled taking reasonable avoidance measures. Stop works and seek advice in the event bats are found, in order to comply with relevant legislation.
Category 3 Trees with no potential to support bats	None. <i>A consultant ecologist is not required unless new evidence is found</i>	None.	No mitigation for bats required.

Figure 8 Tree risk categories from Hundt (2012)

6.7 Birds

- 6.7.1 There are numerous records of birds within 2km of the site.
- 6.7.2 The poor semi-improved grassland has a low potential for use by nesting birds as the grassland is grazed and as such is usually short. Trampling risks are also very high within this area of the site.
- 6.7.3 There were rot holes and cracks in the ash trees on the North-east boundary which would support tree hole dwelling species such as woodpeckers. The trees would also provide nesting and foraging opportunities for other bird species.
- 6.7.4 A risk assessment of the site in respect of its future potential for and value to nesting birds could be adequately made.
- 6.7.5 The habitat on site is not considered to be of anything more than of local significance, habitats present are well represented in the local area. The impact on nesting birds is therefore considered likely to be minor.
- 6.7.6 Precautionary mitigation would be appropriate in respect of construction activities and compensation for lost nesting and foraging opportunities will be required.

6.8 Brown Hare

- 6.8.1 Brown hare are a UK BAP priority species. There are six records of brown hares within 2km of the site.
- 6.8.2 No indication of brown hares was recorded on the site.
- 6.8.3 The site boundary to the North-east has some potential for brown hares to create forms but use of the site is likely to be limited due to its open and exposed nature and regular human presence.
- 6.8.4 A risk assessment of the site in respect of its future potential for and value to brown hares could be adequately made. We consider the risk to brown hares is very low.

6.9 Invertebrates

- 6.9.1 Notable invertebrates have been recorded within 2km of the site.
- 6.9.2 No deadwood or vegetation on site was recorded which would provide an important resource for invertebrates in the local area.
- 6.9.3 Given the poor quality habitats contained within the site in comparison to the wider area, it is not considered that this site is of any local significance for invertebrates.
- 6.9.4 Impacts on the species are considered likely to be negligible; post development domestic gardens will create greater habitat diversity in the area than already exists.

6.10 Otter

6.10.1 There are no records of otters within 2km of the site.

6.10.2 There are no waterbodies or watercourses in the vicinity of the site. This species is considered absent and will not be affected by the proposals.

6.11 Reptiles

6.11.1 There are no records for reptiles within 2km of the site.

6.11.2 No indication of reptiles was recorded at the site.

6.11.3 The majority of the site has a very low value to reptiles being devoid of significant ground cover. There are no areas of the core development area which would be particularly favourable to reptiles.

6.11.4 Reptiles may occur along the railway on the North-west boundary of the site and this provides linkage across the local landscape. It is however outside the site boundary and is unaffected by the proposal.

6.11.5 As a consequence, precautionary mitigation would be appropriate in respect of construction activities so as to ensure reasonable avoidance measures are taken to avoid the killing or injury of these species.

6.12 Water vole

6.12.1 There are no records of water voles within 2km of the site.

6.12.2 There are no waterbodies or watercourses in the vicinity of the site. This species is considered absent and will not be affected by the proposals.

6.13 Other

6.13.1 The site may be crossed by species such as fox (*Vulpes vulpes*) and rabbit (*Oryctolagus cuniculus*) are known to occur locally.

6.14 Statutory and Non-Statutory Sites

Direct Impacts:

6.14.1 There are no statutory or non-statutory sites which are connected to the site such that site development would directly affect the dispersal of species between them or directly impact upon their integrity.

6.14.2 The habitats on site do not represent or are linked to those found in any of the statutory or non-statutory sites locally.

Indirect Impacts:

6.14.3 There are no statutory or non-statutory sites which are connected to the site such that site development would indirectly affect the dispersal of species between them or indirectly impact upon their integrity.

7. MITIGATION/RECOMMENDATIONS

7.1 *Compensatory planting and habitat enhancement*

- 7.1.1 The roots of the ash trees on the North-east boundary should be adequately protected during work in accordance with industry standards. These all trees should as far as possible be retained in the scheme.
- 7.1.2 The landscaping scheme should utilise plants which are native and wildlife friendly. In particular night flowering species would be beneficial to bats. Wildflower seed could be used to plant verges to enhance the ecological value of the site and continuity between the site and the wider area.

7.2 *Amphibians*

- 7.2.1 There is no requirement for specific mitigation for these species. There are currently no suitable breeding sites on or near the site. However, as a precautionary measure, in the unlikely event that any signs of any amphibian activity is subsequently found, all site works should cease and further ecological advice should be sought with a view to a detailed method statement and programme of mitigation measures being prepared and implemented.
- 7.2.2 Consider the use of SUDS on site to provide new aquatic habitat during development. Such areas would be best placed in public open space where connectivity to the site boundaries and wider area is improved.

7.3 *Badger*

- 7.3.1 Badger setts do not occur on or adjacent to the site but in order to minimise impacts on badgers passing over the site the following points should also be followed.
- All work must take place during daylight hours as badgers are more likely to be commuting over the site at night and this will ensure the risk to any badgers passing through the site will be minimised.
 - Should any trenches and excavations be required, an escape route for animals that enter the trench must be provided, especially if left open overnight. Ramps should be no greater than of 45 degrees in angle. Ideally, any holes should be securely covered. This will ensure badgers are not trapped during work.
 - All excavations left open overnight or longer should be checked for animals prior to the continuation of works or infilling. Back filling should be completed immediately after any excavations, ideally back filling as an on-going process to the work in hand.
 - Boundary fences/walls should incorporate gaps at their base to facilitate the passage of badgers across the site.

7.4 Bats

- 7.4.1 Work at night should be restricted, new planting within the site should enhance structural diversity and light spill onto the boundary should be minimised.
- 7.4.2 New roosting provision for crevice dwelling bats could be incorporated into the buildings on site or bat boxes could be erected in retained trees.
- 7.4.3 If either of the ash trees are to be felled, they must be re-inspected for bats to confirm they remain absent.
- 7.4.4 Overall it is considered there is more than sufficient scope for mitigation and compensation at the site such that there will be no adverse impact on the favourable conservation status of bats affected by the proposal.

7.5 Birds

- 7.5.1 Nesting by birds within the development area is considered unlikely to occur. Birds may nest within trees on the periphery of the site.
- 7.5.2 Any vegetation to be trimmed or cleared should be checked for nesting birds before it is removed. Ideally this should occur outside the bird nesting period March-September. If vegetation clearance is to occur in the March-September period a check for nesting birds should be conducted first by a suitably qualified individual.
- 7.5.3 New planting within the site and the retention of trees and shrubs on the site boundary will maintain the ecological functionality of the site for breeding birds.
- 7.5.4 Artificial bird nesting sites for swallow could be incorporated into the new buildings under the eaves in suitable locations.
- 7.5.5 If nesting birds are found at the site all site works shall cease and further ecological advice shall be sought with a view to a detailed method statement and programme of mitigation measures being prepared and implemented.

7.6 Brown Hares

- 7.6.1 There is no requirement for specific mitigation for this species. However, as a precautionary measure, in the unlikely event that any signs of any brown hare activity is subsequently found, all site works should cease and further ecological advice should be sought with a view to a detailed method statement and programme of mitigation measures being prepared and implemented.
- 7.6.2 The points in respect of not working at night and leaving open trenches with means of escape detailed for badgers are also applicable to this species.

7.7 Invertebrates

- 7.7.1 Landscaping should include native or wildlife friendly species including night flowering plants.

7.8 Otter

7.8.1 There is no requirement for specific mitigation for this species. However, as a precautionary measure, in the unlikely event that any signs of any otter activity is subsequently found, all site works should cease and further ecological advice should be sought with a view to a detailed method statement and programme of mitigation measures being prepared and implemented.

7.9 Reptiles

7.9.1 There is no requirement for specific mitigation for these species. However, as a precautionary measure, in the unlikely event that any signs of any reptile activity is subsequently found, all site works should cease and further ecological advice should be sought with a view to a detailed method statement and programme of mitigation measures being prepared and implemented.

7.9.2 Dense scrub on the edge of the development site should be retained such that it is in proximity to open areas of ground which will also be suitable for basking.

7.9.3 The points in respect of not leaving open trenches without means of escape detailed for badgers are also applicable to these species.

7.10 Water vole

7.10.1 There is no requirement for specific mitigation for this species. However, as a precautionary measure, in the unlikely event that any signs of any Water vole activity is subsequently found, all site works should cease and further ecological advice should be sought with a view to a detailed method statement and programme of mitigation measures being prepared and implemented.

8. CONCLUSION

- 8.1.1 Ecological surveys, site appraisals and impact assessments were carried out with respect to land comprising open ground off Ribblesdale View, Chatburn, Lancashire. It is proposed new houses will be constructed on the site.
- 8.1.2 Bats are known to occur in the local area but there was no conclusive evidence of any specifically protected species regularly occurring on the site or the surrounding areas which would be negatively affected by site development following the mitigation proposed.
- 8.1.3 The vegetation to be cleared has a low ecological significance in the local area.
- 8.1.4 The protection of trees on the site boundary and landscaping will promote structural diversity in both the canopy and at ground level and will encourage a wider variety of wildlife to use the site than already occurs.
- 8.1.5 Contractors will be observant for protected species and all nesting birds. Should any species be found during construction, all site works should cease and further ecological advice should be sought with a view to a detailed method statement and programme of mitigation measures being prepared and implemented.
- 8.1.6 I certify this report has been compiled in accordance with the code of professional conduct for the Chartered Institute of Ecology and Environmental Management and The Royal Institute of Chartered Surveyors and reflects my objective opinion of the facts found in relation to the instruction received and information available based upon the methodology, assumptions and constraints detailed within this report.

8 REFERENCES

Collins, J. (ed) (2016) *Bat Surveys for Professional Ecologists: Good practice guidelines* (3rd edn). The Bat Conservation Trust, London.

Hundt, L. (2012) *Bat Surveys: Good Practice Guidelines* (Second Edition). BCT, London.

Joint Nature Conservation Committee (2010). *Handbook for Phase 1 Habitat Survey - a Technique for Environmental Audit*. Reprinted by JNCC, Peterborough. - See more at: <http://www.cieem.net/habitats-general#sthash.mJYlrP8L.dpuf>

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.

Stace, C. (1991). *New Flora of the British Isles*. Cambridge University Press.