



**envirotech**

Ecological Consultants  
Environmental and Rural Chartered Surveyors

# Ecological Appraisal

## Bourble's Lane, Pilling



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## 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.

## Quality and Environmental Assurance

This report has been printed on recycled paper as part of our commitment to achieving both the ISO 9001 Quality Assurance and ISO 14001 Environmental Assurance standards. Envirotech have been awarded the Gold standard by the Cumbria Business Environmental Network for its Environmental management systems.

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## 1. EXECUTIVE SUMMARY

- 1.1.1 Envirotech NW Ltd were commissioned in April 2016 by CFM Consultants to carry out an ecological appraisal of land off Bourble's Lane, Pilling. It is proposed there is a change of use of the site, which will involve significant landscaping and ecological enhancements.
- 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 on three occasions by three licenced ecologists, one early April, then late April, and finally in late May. A full botanical survey of the site was initially undertaken and this was followed by surveys to establish the presence or absence of notable species 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 are considered to be of low ecological value. The sites floral diversity and ecological value could easily be improved.
- 1.1.5 The hedgerow around the site perimeter was not considered important under the Hedgerow Regulations (1997).
- 1.1.6 The high stocking rates of both carp and mallard at the site have resulted in the site being of low ecological value. The water quality at the site is very low.
- 1.1.7 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 be incorporated into the landscaping for the site.
- 1.1.8 Birds are likely to utilise any of the dense vegetation on site for nesting between March and September. Any vegetation clearance should therefore be undertaken outside of this period.
- 1.1.9 There is some potential for ground nesting birds to utilise the arable land at the site for nesting although the site surveys recorded no evidence of this.
- 1.1.10 The northern most part of the site falls within an area designated as a Biological Heritage Site for its importance for overwintering wildfowl however the land there is poor for use for these purposes and the site is specifically used for shooting wildfowl in the winter.
- 1.1.11 No other notable or protected species were recorded on the site.

## 2. INTRODUCTION

### 2.1 Background

2.1.1 In April 2019 Envirotech NW Ltd were commissioned by CFM Consultants to carry out an Ecological Appraisal of land off Bourble's Lane, Pilling, central grid reference SD 37721 47690 (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 alteration of the use of the site, to other leisure uses. There would be significant landscape and ecological improvements as a result of the proposals.

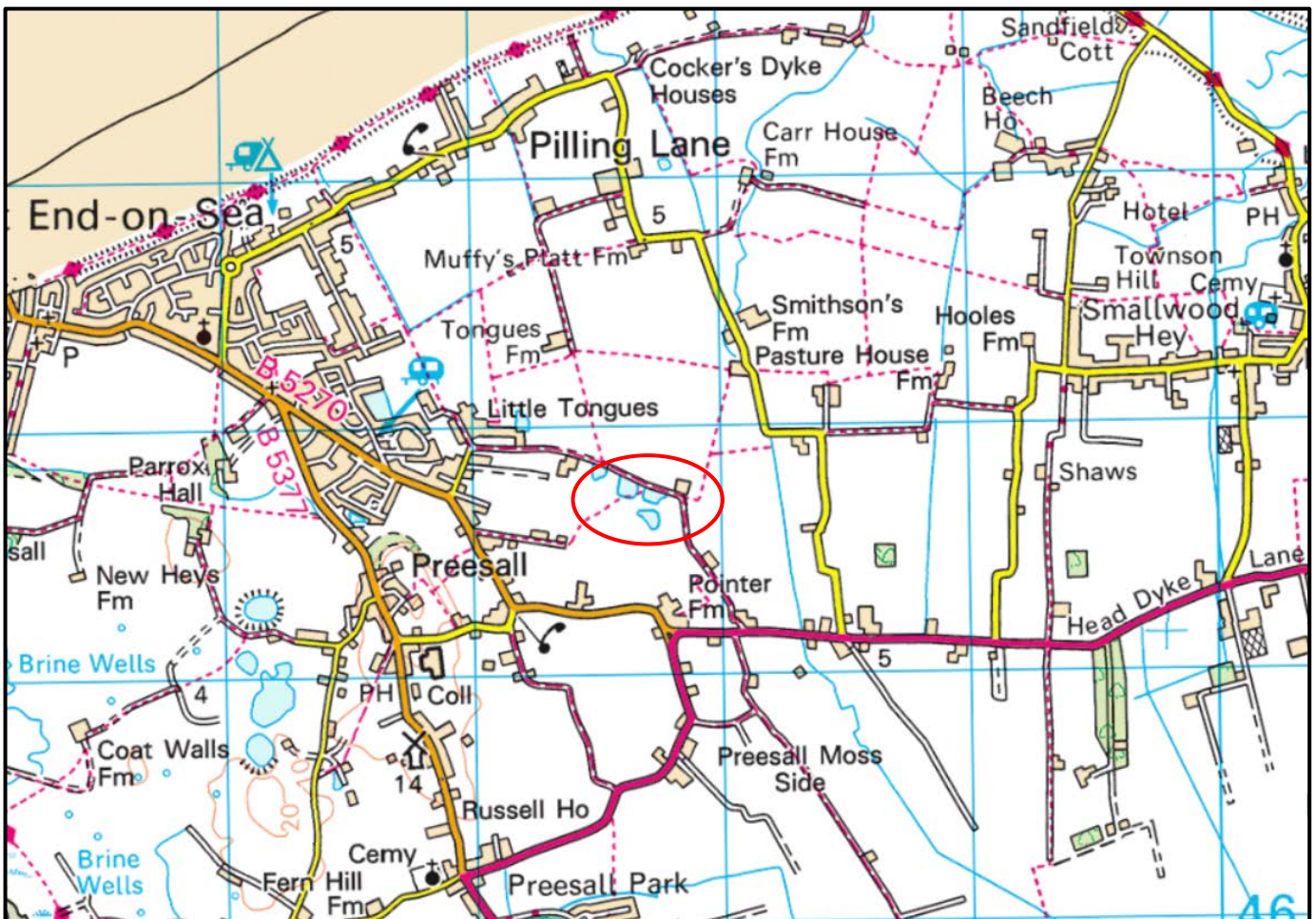


Figure 1 Site location at SD 37721 47690 circled red.

## 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 During the visit, weather conditions were suitable for the survey types undertaken.

3.3.2 The site and surrounding land was visited on the/by:

- 14<sup>th</sup> April 2019

(AG) Mr Andrew Gardner BSc (Hons), MSc, MCIEEM, MRICS, CEnv  
Natural England Bat Class Licence (Level 2)  
Natural England Bat Low Impact Class Licence  
Natural England Barn Owl Licence  
Natural England Great Crested Newt Licence (Level 1)  
Natural England Badger Class Licence

- 25<sup>th</sup> April 2019

(MT) Mr Matthew Thomas BSc (Hons), Grad CIEEM  
Natural England Bat Class Licence (Level 2)  
Natural England Barn Owl Licence  
Natural England Great Crested Newt Licence (Level 1)  
Natural England Natterjack Toad Licence

(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)

- 23<sup>rd</sup> May 2019

(MT) Mr Matthew Thomas BSc (Hons), Grad CIEEM  
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Natural England Great Crested Newt Licence (Level 1)  
Natural England Natterjack Toad Licence

(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 (2017) and Schedule 5 of the Wildlife & Countryside Act (1981).
- 4.1.2 Water-bodies located within or adjacent to the study area were identified and where access was possible were assessed for their potential to support great crested newts.
- 4.1.3 Water samples were collected from each of the ponds on site and sent away for eDNA analysis in accordance with Natural England protocols.
- 4.1.4 Assessments were made of the quality of the habitats on site for use by amphibians. Where possible any potential refugia were searched.

### 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 protects badgers from being killed, injured or disturbed whilst occupying a sett.
- 4.2.2 A disturbance to badgers in their setts may occur 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.
- 4.2.3 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.
- 4.2.4 The survey for badgers comprised an assessment of all suitable habitat within and outside the study area boundary (where this was possible) to a distance of 30m for indications of use by badgers.
- 4.2.5 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

### **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 (2017), 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 As a result of the potential suitability of the habitat on the site and along its boundaries for foraging bats two bat activity surveys were deemed necessary. The surveys were based upon standard guidelines Hundt (2012), Collins, J. (ed) (2016) and NCC (1987) and Mitchell-Jones (2004) and were undertaken in suitable weather conditions by suitably qualified and experienced personnel.
- 4.3.5 All trees and structures on and within the survey area boundary were assessed for their potential to support roosting or hibernating bats. This comprised a close inspection of all trees and buildings on the site to allow an assessment of their potential to be used by bats to be made by a licensed surveyor.
- 4.3.6 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 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 Where 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 (2017).

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 Watercourses were assessed for their suitability and for the presence of otters within 10m of the banks. The banks and scrub vegetation were carefully searched for spraints, feeding remains, runs, prints and couches/holts.

## **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 foraging or breeding.
- 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 Survey limitations**

- 4.9.1 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 The nearest non-statutory site is a section of the north of the site and large areas of the surrounding landscape, Figure 3. Pilling Moss - Head Dyke is a Biological Heritage Site (BHS) designated for its importance for overwintering wildfowl, namely pink footed geese (*Anser brachyrhynchus*) and whooper swans (*Cygnus cygnus*).
- 5.1.3 The nearest statutory protected site is Morecambe Bay Ramsar, SSSI, SAC, SPA 1800m to the north (Figure 4).

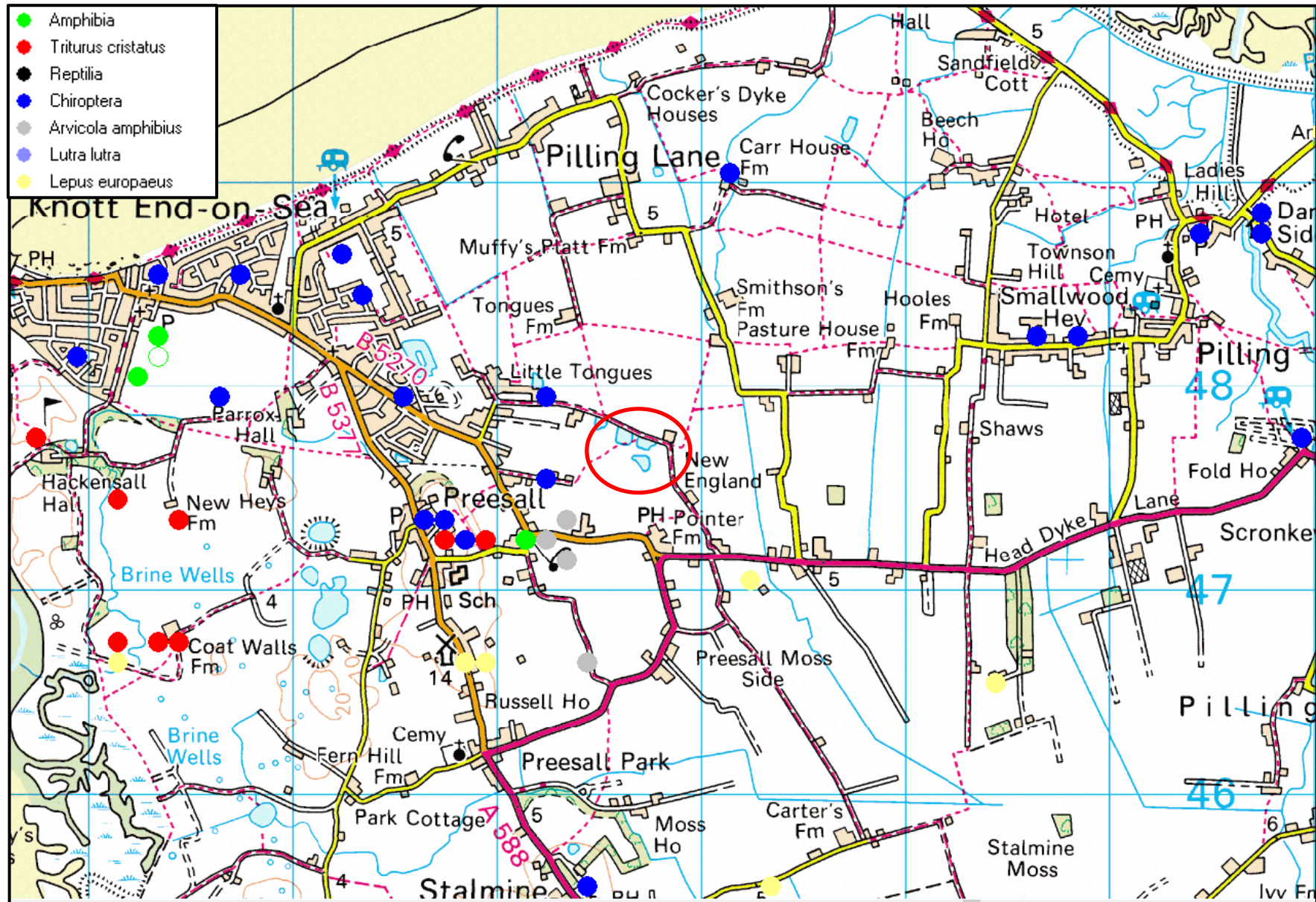


Figure 2 Notable species records, site location is circled red.



# Lancashire County Heritage Sites

## Biological Heritage Site

Pilling Moss - Head Dyke



**Site Boundary**

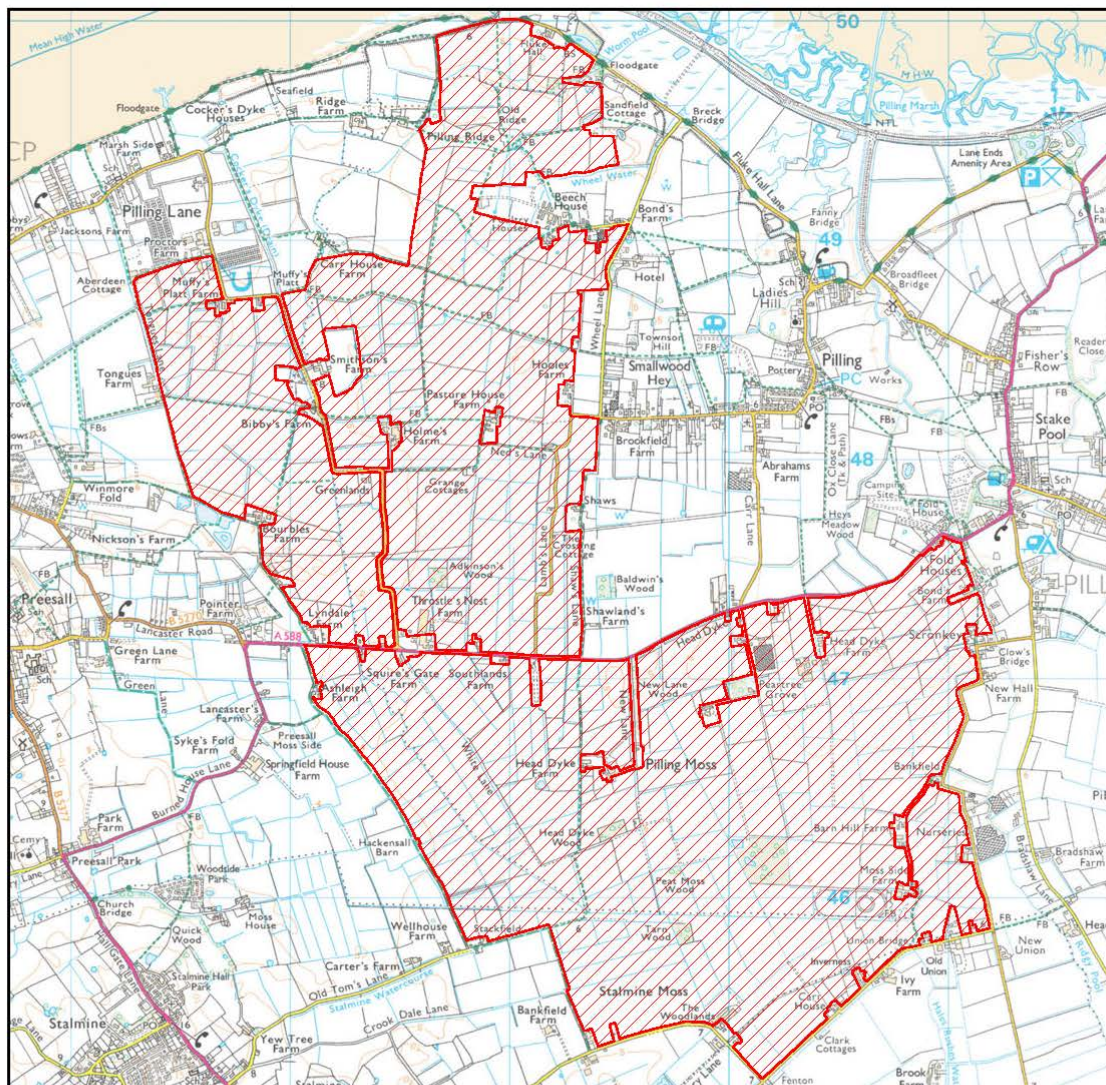
Ref No. 34NEW1

*Biological Heritage Sites Partnership*

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 Natural England

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This map shows only the boundary of the Biological Heritage Site named above. It does not show any other designated sites which may occur within the area covered by the map.



Grid ref. SD396462

Scale 1:27,000

Site approved

Map 1 of 1

Boundary revised

Date of Map 29/09/14



Figure 3 Non-statutory sites 2km buffer.



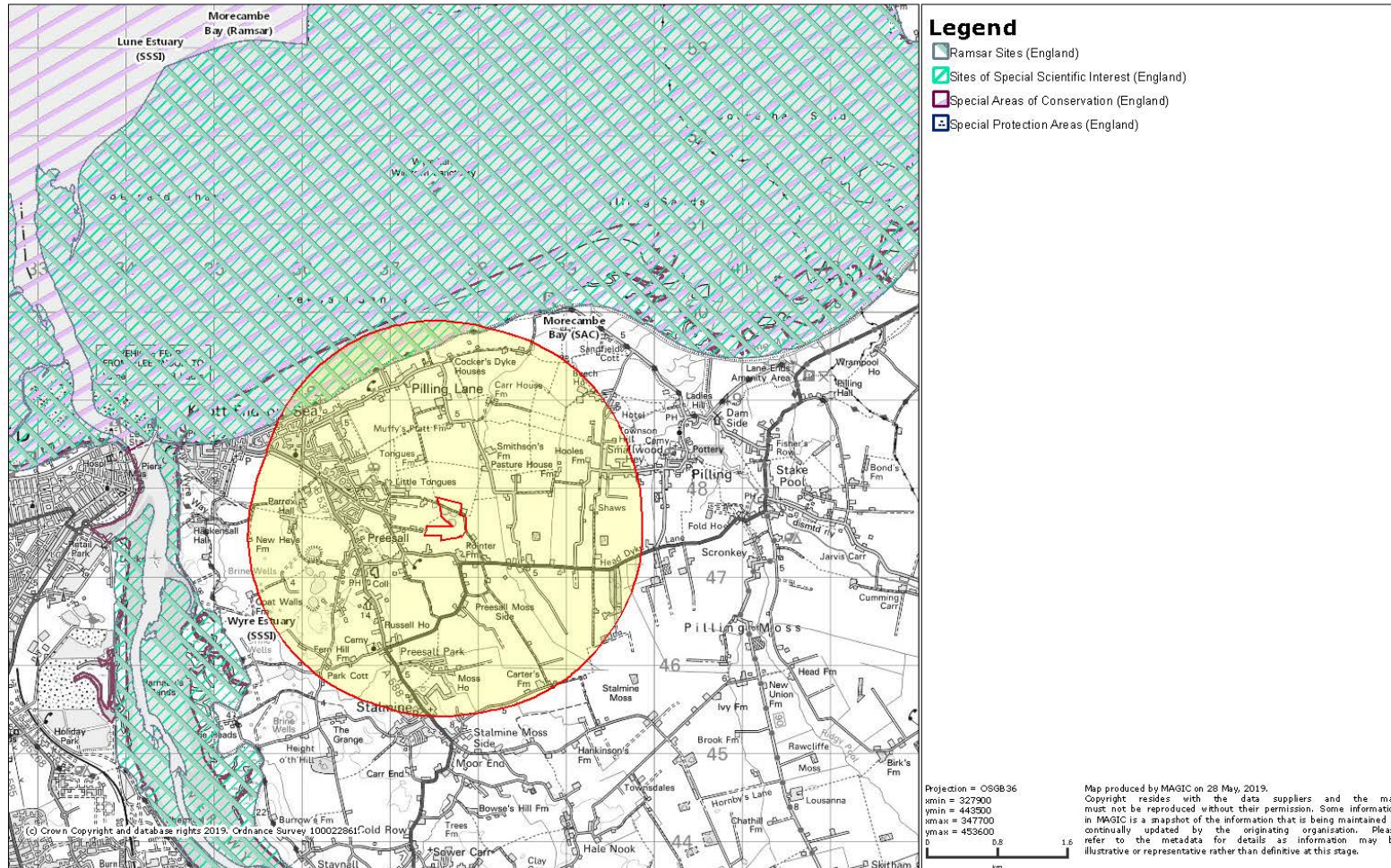


Figure 4 Statutory designated sites 2km buffer.

## 6. PHASE 1 SURVEY RESULTS

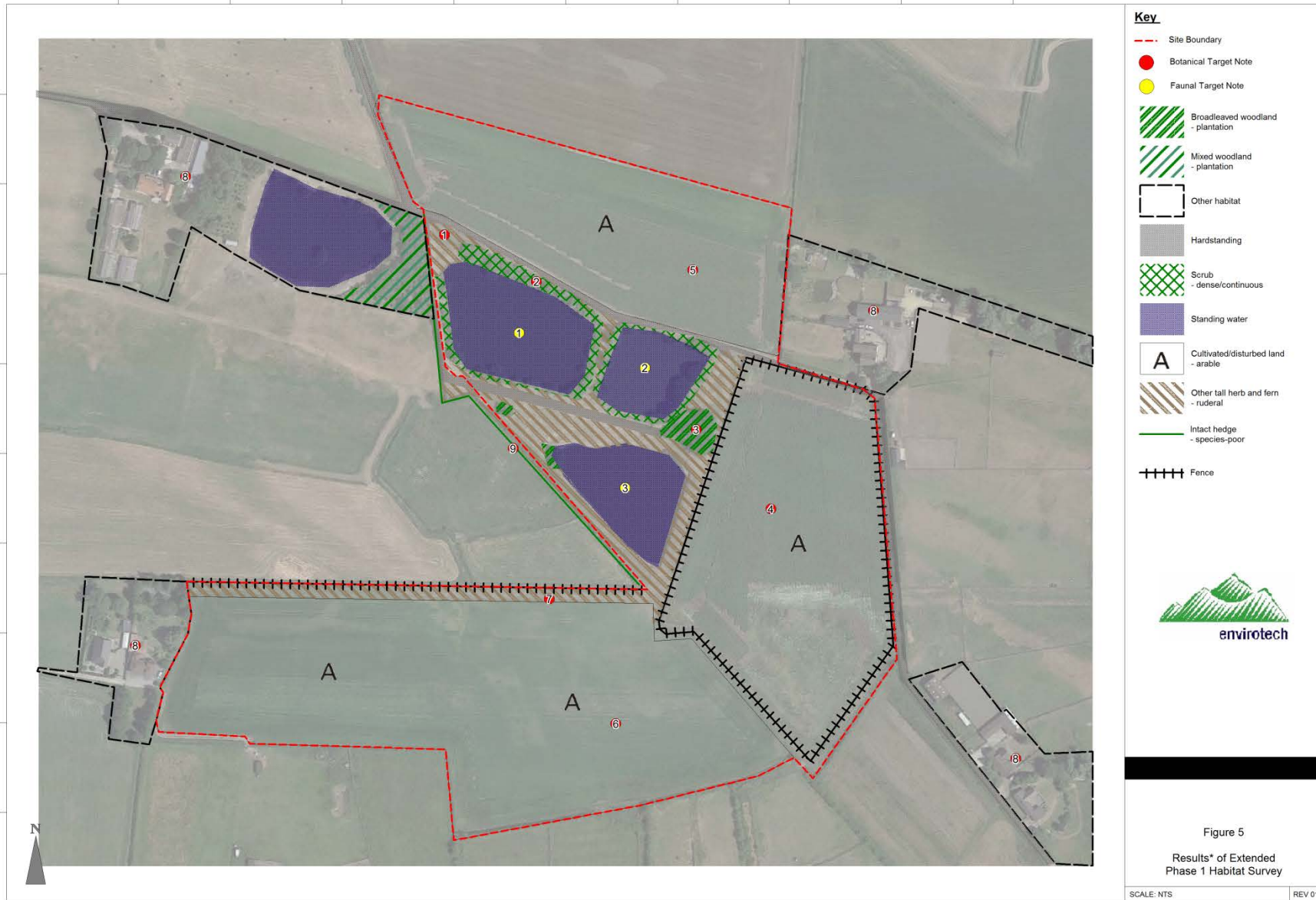
### 6.1 *Habitat Results*

- 6.1.1 The site comprises a complex of three lakes used for carp fishing and duck shooting, with two arable fields and an area fenced and used for rearing fowl. Overall the site is extremely disturbed by the heavy stocking of both carp and mallard (*Anas platyrhynchos*).
- 6.1.2 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	Other tall herb/fern - ruderal	Areas of the site are grassland grazed randomly by the fowl kept on site and as such ruderals have begun to take over in places and this reaches the shores of the lakes in some places also. Species recorded are cow parsley ( <i>Anthriscus sylvestris</i> ), soft rush ( <i>Juncus effuses</i> ), pineapple mayweed ( <i>Matricaria discoidea</i> ), nettle ( <i>Urtica dioica</i> ), rosebay willow herb ( <i>Epilobium angustifolium</i> ), garlic mustard ( <i>Alliaria petiolata</i> ), red dead nettle ( <i>Lamium purpureum</i> ), cocksfoot ( <i>Dactylis glomerata</i> ), bramble ( <i>Rubus fruticosus</i> agg.), wild oat grass ( <i>Avena fatua</i> ), perennial ryegrass ( <i>Lolium perenne</i> ), ribwort plantain ( <i>Plantago lanceolata</i> ), greater plantain ( <i>P. major</i> ), reed canary grass ( <i>Phalaris arundinacea</i> ), horsetail ( <i>Equisetum</i> sp.), creeping buttercup ( <i>Ranunculus repens</i> ), broadleaved dock ( <i>Rumex obtusifolius</i> ), silverweed ( <i>Argentina anserina</i> ), spear thistle ( <i>Cirsium arvense</i> ), dandelion ( <i>Taraxacum officianale</i> ), sow thistle ( <i>Sonchus</i> sp.), Yorkshire fog ( <i>Holcus lanatus</i> ), cleavers ( <i>Galium aparine</i> ), common reed ( <i>Phragmites australis</i> ), hogweed ( <i>Heracleum sphondylium</i> ), Ground elder ( <i>Aegopodium podagraria</i> ), chickweed ( <i>Stellaria media</i> ), ragwort ( <i>Jacobaea vulgaris</i> ) and forget-me-not ( <i>Myosotis scorpioides</i> ).
BTN2	Scrub dense/continuous -	The scrub areas of the site are dominated by willow ( <i>Salix</i> spp.) which grows around much of the lakes shores.
BTN3	Broadleaved woodland - plantation	A couple of small stands of broadleaved woodland are present on the site. Species present in these stands are alder ( <i>Alnus</i> sp.), sycamore ( <i>Acer pseudoplatanus</i> ) and apple ( <i>Malus</i> sp.). There is an understorey of snowberry ( <i>Symphoricarpos albus</i> ), some hawthorn ( <i>Crataegus monogyna</i> ) and some hazel ( <i>Corylus avellana</i> ).
BTN4	Cultivated/disturbed land - arable	A field fenced to all sides with an electric perimeter fence. This area is used for rearing the fowl for the lakes adjacent. During the first two site visits this area was found to be bare earth, but had been planted with an arable crop, likely wheat by the third visit.
BTN5	Cultivated/disturbed land - arable	An area ploughed with ridge and furrow and a crop of what appeared by the third site visit to be soy bean.
BTN6	Cultivated/disturbed land - arable	An area of arable land sown with what appears to be wheat.
BTN7	Other tall herb/fern - ruderal	A wide strip of ruderal alongside the arable field. Species present are similar as BTN1, except with the addition of woundwort ( <i>Stachys</i> sp.).

BTN8	Other habitat	Farmsteads and private houses are present around the periphery of the site.
BTN9	Intact hedge - species poor	A species poor hedge of predominantly hawthorn but with occasional elder ( <i>Sambucus nigra</i> ).
FTN1	Pond	Man made pleasure lakes used for both carp fishing and duck shooting with both at very high stocking densities. Fish are visible and active on all three lakes, whilst up to 80 mallard ( <i>Anas platyrhynchos</i> ) and other fowl may be present on each of the ponds at any one time. Water quality within the ponds appears to be very poor, highly eutrophic, with a thick algal bloom.
FTN2	Pond	
FTN3	Pond	
<b>Table 1 Details of Botanical and Faunal Target Notes.</b>		





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



**BTN1/BTN2**

The lakes at the site are surrounded by scrub and ruderal, with access cleared at regular intervals.



**BTN3/BTN4**

There are 3 small stands of trees on the site. An area of arable land at the east of the site is completely fenced, including electric fencing and is used for rearing fowl for the site.





**BTN6**

There are gravel tracks around the site, the arable field to the south appears to have been planted with soy. Bourble's farm (BTN8) is visible to east.



**BTN7**

There is a wide strip of ruderal along the boundary of the arable field at the south of the site.



**FTN3**

Fish were clearly visible in all the lakes on the site.  
Up to 80 fowl were counted on one of the lakes, outside of the shooting season.



**FTN2**

The water quality in the lakes appeared to be very poor. There is considerable algal bloom and disturbance of the lakes sediment from fish and fowl.

*Table 2. Photographs of target noted and other notable features on the site.*



## **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 ruderal and scrub assemblages that cover much of the site have a low species diversity and ecological value.
- 6.2.3 The intact hedge bounding the site to the south-west is species poor, but may provide habitat for small birds and may also provide some cover from the weather in what is otherwise very open landscape.
- 6.2.4 None of the hedgerows are classified as important under the Hedgerow Regulations (1997) (See Appendix 1).
- 6.2.5 Trees within the site boundary comprise semi-mature sycamore, willow, alder and apple. There are no mature trees on site and no trees that were considered to be of notable value to wildlife.
- 6.2.6 The arable land on the periphery of the site is utilised by several species of breeding birds.
- 6.2.7 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 six records of three species of amphibian within 2km of the site. Two of the records are for great crested newts.
- 6.3.2 The closest great crested newt records are over 1km from the site.
- 6.3.3 Water samples were collected from the lakes on site and sent to Surescreen Scientifics for eDNA testing. The samples returned a negative result, see appendix.
- 6.3.4 Given the stocking densities of both fowl and fish in the lakes, it is considered highly unlikely that any amphibian species could breed successfully at the site. Ponds on site appear highly eutrophic.
- 6.3.5 The areas of ruderal and hedgerows may offer foraging and commuting opportunities for amphibians, but the risk of predation from fowl even in these more dense areas of foliage remains high.
- 6.3.6 There are no features on the site that were considered to offer potential refuge or hibernacula opportunities for amphibians. Features such as rock, log or rubble piles are absent.

6.3.7 It is considered the pressures on amphibian species at the site would simply be too high for any to breed successfully.

## **6.4 Badger**

6.4.1 There are no records of badgers within 2km of the site. Records of badgers are scarce in this part of Lancashire.

6.4.2 Badger setts do not occur on site and a lack of feeding signs or runs across the site would suggest that they do not occur within 30m of site boundaries.

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.

## **6.5 Bats**

6.5.1 There are 20 records of bats within 2km of the site, with LERN only recording 'Pipistrelle species'.

6.5.2 The foraging habitat at the site would appear to be of moderate quality because of the presence of lakes, although these have low water quality. The surrounding habitat is open and exposed, there appear to be few opportunities for bats to forage in proximity to the site (Figure 6).

6.5.3 There are no buildings on site for bats to utilise for roosting. There are no buildings in close proximity to the site where bats could roost.

6.5.4 All trees on the site were assessed in accordance with Collins ed. (2016) and assigned a risk category. All of the trees on site were category category 3 (negligible) risk. The majority of trees on site are less than 20 years old, and densely foliated willow. Where other tree species are present, such as alder, they are in good condition and free from any potential roosting features. Risk categories from Hundt (2012) and the requirement for mitigation for each tree category are shown on Figure 7.

6.5.5 To assess the sites current level of use by bats and confirm the absence of roosts on site, two activity surveys were undertaken. The activity surveys were walked transects of the site for a period of 1.5 hours, undertaken by licenced surveyors in suitable weather conditions. The surveyors were using Echo Meter Touch Pros.

6.5.6 A summary of bat activity, showing the observed direction of the arrival of bats is shown in Figure 8. No bats were seen to originate on site. The abundance and diversity of bats observed foraging on site was much lower than expected and this is potentially due to the low quality of habitats present on site and the lack of available roosting opportunities.

6.5.7 In conclusion it is considered that the sites potential for use by bats could be improved, both in terms of its potential for use by bats for roosting and for foraging.



Tree category and description	Stage 1 Initial survey requirements	Stage 2 Further measures to inform proposed mitigation	Stage 3 Likely mitigation
<b>Known or confirmed roost</b>	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.
<b>Category 1*</b> 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.
<b>Category 1</b> Trees with definite bat potential, supporting fewer suitable features than 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
<b>Category 2</b> 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.
<b>Category 3</b> 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 7 Tree risk categories from Hundt (2012).





## **6.7 Birds**

- 6.7.1 There are 252 records of birds within 2km of the site. 100's of mallard, 10's of greylag geese (*Anser anser*), and low numbers of shelduck (*Tadorna tadorna*), coot (*Fulica atra*), moorhen (*Gallinula chloropus*), robin (*Erithacus rubecula*) and black headed gull (*Chroicocephalus ridibundus*).
- 6.7.2 Oystercatcher (*Haematopus ostralegus*) and lapwing (*Vanellus vanellus*) are present in low numbers on the arable areas of the site but no chicks were recorded.
- 6.7.3 The sites primary use has been the rearing of fowl for shooting at the site. This is the reason for the high density of mallard present on the site.
- 6.7.4 The north section of the site is part of Pilling Moss - Head Dyke BHS designated for its importance to overwintering wildfowl, namely pink footed geese and whooper swans, however given its use as arable land which is fallow over winter, it is considered that it is unlikely to be of major significance to these species, which prefer grassland for foraging. Pinkfooted Geese are also a quarry species and are shot on and around the existing lakes as part of the high fly shoot.
- 6.7.5 No kingfisher (*Alcedo atthis*) were recorded on site and this is likely due to the poor quality of the lakes on site and the species poor assemblages of fish in the lakes.
- 6.7.6 The hedges on site, areas of scrub and small stands of woodland are likely to offer nesting habitat to a range of small passerine species.
- 6.7.7 There were no apparent tree holes or crevices that could support notable species such as redstart (*Phoenicurus phoenicurus*) or pied flycatcher (*Ficedula hypoleuca*), or larger species such as owl or goosander (*Mergus merganser*).
- 6.7.8 It is considered that the site is under significant pressure from the stocked fowl at the site. The sites potential for use by wild birds could easily be improved.

## **6.8 Brown Hare**

- 6.8.1 Brown hare are a UK BAP priority species. There are 9 records of brown hares within 2km of the site.
- 6.8.2 No indication of brown hares was recorded on the site. Only rabbits (*Oryctolagus cuniculus*) were seen in the arable land and wider landscape.
- 6.8.3 The site boundaries have little potential for use by brown hares to create forms 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 Numerous 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 The sites potential for use by invertebrate species could easily be improved.

## **6.10 Otter**

- 6.10.1 There are no records of otters within 2km of the site and this species would likely be an unwelcome visitor to the site.
- 6.10.2 No indication of the presence or past use of the site by otter was found. There are no holts on the site.
- 6.10.3 The site is not well linked with other potentially high quality habitats for this species.
- 6.10.4 It is unlikely there is a significant risk to this species from the proposals. Precautionary mitigation would be appropriate.

## **6.11 Reptiles**

- 6.11.1 There are no records for reptiles within 2km of the site.
- 6.11.2 The habitats on site would appear suitable for use by this species, however in the absence of amphibians or significant sources of invertebrates; foraging opportunities are likely to be very poor.
- 6.11.3 There is an absence of features that would offer potential refuge or hibernation opportunities.
- 6.11.4 It was considered that these species are likely absent from the site.

## **6.12 Other**

- 6.12.1 The boundary hedgerow is species poor and provides little potential for use by hedgehog (*Erinaceus europaeus*). Fragmentation of habitat locally and existing land use do not provide optimal conditions for the free passage of this species across the site and slugs and snails are likely to occur only at very low numbers.
- 6.12.2 The site may be crossed by species such as fox (*Vulpes vulpes*) and rabbit are present across the local landscape.

6.12.3 The site provides poor habitat for small mammals such as field vole (*Microtus agrestis*) and shrew (*Sorex araneus*) and the habitats on site would not be suitable for use by water vole (*Arvicola amphibious*).

### **6.13 Statutory and Non-Statutory Sites**

6.13.1 Pilling Moss - Head Dyke BHS covers the north arable field of the site and is designated for its importance to overwintering wildfowl. This is however viewed as a blanket designation of the area; the arable land and ponds are shot over by High Fly and large numbers of wildfowl are released onto the ponds on site for shooting.

6.13.2 The cessation of shooting on and near the site would reduce the disturbance impacts on overwintering wildfowl creating a safe refuge. It is unlikely that the change of use of this land would have any direct effects on this non-statutory designated land.



## 7. MITIGATION/RECOMMENDATIONS

### 7.1 *Compensatory planting and habitat enhancement*

- 7.1.1 The roots of trees on the site and its boundaries should be adequately protected during work in accordance with industry standards. All trees should as far as possible be retained in the scheme. New trees, ideally including a range of other native species could be introduced to the site.
- 7.1.2 The landscaping scheme should utilise plants which are native and wildlife friendly. Wildflower seed should be used to across the site on all verge areas, hedgerow bases and open areas to enhance the ecological value of the site and continuity between the site and the wider area.
- 7.1.3 Hedgerows around the site should be retained or improved where possible. The roots of hedgerow plants/trees should be adequately protected during development from compaction/ground disturbance.
- 7.1.4 Hedgerows should be used in preference to fences on the site. Where new hedgerows are to be planted they should include as diverse an assemblage of plants as possible.
- 7.1.5 Consider erecting pole mounted bat boxes at the site as there is currently negligible potential for bats to roost on the site.
- 7.1.6 Consider erecting a range of bird boxes across the site as there are currently few nesting opportunities at the site for small passerines.
- 7.1.7 Consider increasing the diversity of fish species in the lakes at the site and introducing some aquatic plants. These alterations may help increase water quality at the site.
- 7.1.8 Consider adding some piles of brash and/or logs to the site. These features can provide habitat for a range of species.

### 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 In order to further minimise impacts on amphibians the following points should also be followed.
  - All work must take place during daylight hours as amphibians are more likely to be commuting over night and this will ensure the risk to any amphibians commuting through the site will be minimised.

- During the development, measures should be put in place to discourage amphibians from using the development area, the creation of any piles of earth, materials and rubble which could form potential artificial hibernacula and refuge should be avoided at all times. It is recommended that any spoil or rubble will be removed immediately to skips, or on hard standing or short grass. This will ensure that no potential amphibian hibernation or resting sites are created.
- The storage of all loose materials must be palletised or similar so they are off the ground whenever possible.
- 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 amphibians 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.

7.2.3 Additional ponds could be created and the reduction in wildfowl use due to the cessation of releases onto the lakes may result in amphibian breeding opportunities.

### **7.3 Badger**

7.3.1 Badger setts are not known to occur within 2km of the site but in order to minimise potential impacts on any 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 should be minimised.
- 7.4.2 New roosting provision for crevice dwelling bats could be incorporated into the buildings on site or pole mounted bat boxes could be erected.
- 7.4.3 Overall it is considered that with increased plant species diversity at the site and improvement in water quality, use of the site by bats is likely to increase.

## **7.5 Birds**

- 7.5.1 Nesting by birds within the development area is considered likely to occur. Birds may nest within hedge, scrub, arable land and woodland areas on the site.
- 7.5.2 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. Ideally all vegetation clearance would take place outside the nesting bird season.
- 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 A range of bird boxes could be erected across the site.
- 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.
- 7.7.2 Contaminants should not be allowed to enter the soils or water bodies during work. To effect this, spill kits should be provided on site. Re-fuelling of all plant and machinery should be undertaken away from open drains and water courses. Drip trays should be used under static machinery.
- 7.7.3 Woodpiles stacked around the site would provide opportunities for these species.

## **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.
- 7.8.2 The points in respect of not working at night and leaving open trenches with means of escape detailed for amphibians are also applicable to this species which is only likely to pass through the site at night.

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

## 8. CONCLUSION

- 8.1.1 Ecological surveys, site appraisals and impact assessments were carried out with respect to land comprising a duck shoot and carp fishery off Bourble's Lane, Pilling. It is proposed the site will become a leisure facility and possibly enhanced ecologically.
- 8.1.2 Bats and nesting birds are known to occur on the site, there was however 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 site is under significant pressure from its current use as a carp fishery and duck shoot with very high stocking densities. Water quality at the site is currently very low and the sites value to wildlife is generally low.
- 8.1.4 The introduction of additional floral species to the site and reduced pressure on the water bodies will improve that quality of the habitats on site 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.



## 9. 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.mJYIrP8L.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.

## 10. APPENDIX

Folio No: E4438  
 Report No: 1  
 Order No: 5115  
 Client: ENVIROTECH  
 Contact: Andrew Gardner  
 Contact Details: andrew@envtech.co.uk  
 Date: 30/04/2019

## TECHNICAL REPORT

### ANALYSIS OF ENVIRONMENTAL DNA IN POND WATER FOR THE DETECTION OF GREAT CRESTED NEWTS

**Date sample received at Laboratory:** 16/04/2019  
**Date Reported:** 30/04/2019  
**Matters Affecting Results:** None

#### RESULTS

Lab Sample No.	Site Name	O/S Reference	SIC	DC	IC	Result	Positive Replicates
634	Bourbles Lane	SD 376 477	Pass	Pass	Pass	Negative	0

#### SUMMARY

When Great Crested Newts (GCN); *Triturus cristatus* inhabit a pond, they deposit traces of their DNA in the water as evidence of their presence. By sampling the water, we can analyse these small environmental DNA (eDNA) traces to confirm GCN habitation, or establish GCN absence.

The water samples detailed below were submitted for eDNA analysis to the protocol stated in DEFRA WC1067 (Latest Amendments). Details on the sample submission form were used as the unique sample identity.

#### RESULTS INTERPRETATION

Lab Sample No.- When a kit is made it is given a unique sample number. When the pond samples have been taken and the kit has been received back in to the laboratory, this sample number is tracked throughout the laboratory.

Site Name- Information on the pond.

O/S Reference - Location/co-ordinates of pond.

SIC- Sample Integrity Check. Refers to quality of packaging, absence of tube leakage, suitability of sample (not too much mud or weed etc.) and absence of any factors that could potentially lead to results errors. Inspection upon receipt of sample at the laboratory. To check if the Sample is of adequate integrity when received. Pass or Fail.

DC- Degradation Check. Analysis of the spiked DNA marker to see if there has been degradation of the kit since made in the laboratory to sampling to analysis. Pass or Fail.

IC- Inhibition Check- PCR inhibitors can cause false results. Inhibitors are analysed to check the quality of the result. Every effort is made to clean the sample pre-analysis however some inhibitors cannot be extracted. An unacceptable inhibition check will cause an indeterminate sample and must be sampled again.

Result- NEGATIVE means that GCN eDNA was not detected or is below the threshold detection level and the test result should be considered as no evidence of GCN presence. POSITIVE means that GCN eDNA was found at or above the threshold level and the presence of GCN at this location at the time of sampling or in the recent past is confirmed. Positive or Negative.

Positive Replicates- To generate the results all of the tubes from each pond are combined to produce one eDNA extract. Then twelve separate analyses are undertaken. If one or more of these analyses are positive the pond is declared positive for the presence of GCN. It may be assumed that small fractions of positive analyses suggest low level presence but this cannot currently be used for population studies. In accordance with Natural England protocol, even a score of 1/12 is declared positive.

## METHODOLOGY

The laboratory testing adheres to strict guidelines laid down in WC1067 Analytical and Methodological Development for Improved Surveillance of The Great Crested Newt, Version 1.1

The analysis is conducted in two phases. The sample first goes through an extraction process where all six tubes are pooled together to acquire as much eDNA as possible. The pooled sample is then tested via real time PCR (also called q-PCR). This process amplifies select part of DNA allowing it to be detected and measured in 'real time' as the analytical process develops. qPCR combines PCR amplification and detection into a single step. This eliminates the need to detect products using gel electrophoresis. With qPCR, fluorescent dyes specific to the target sequence are used to label PCR products during thermal cycling. The accumulation of fluorescent signals during the exponential phase of the reaction is measured for fast and objective data analysis. The point at which amplification begins (the Ct value) is an indicator of the quality of the sample. True positive controls, negatives and blanks as well as spiked synthetic DNA are included in every analysis and these have to be correct before any result is declared so they act as additional quality control measures.

The primers used in this process are specific to a part of mitochondrial DNA only found in GCN ensuring no DNA from other species present in the water is amplified. The unique sequence appropriate for GCN analysis is quoted in DEFRA WC 1067 and means there should be no detection of closely related species. We have tested our system exhaustively to ensure this is the case in our laboratory. We can offer eDNA analysis for most other species including other newts.

Analysis of eDNA requires scrupulous attention to detail to prevent risk of contamination. Kits are manufactured by SureScreen Scientifics to strict quality procedures in a separate building and with separate staff, adopting best practice from WC1067 and WC1067 Appendix 5. Kits contain a 'spiked' DNA marker used as a quality control tracer (SureScreen patent pending) to ensure any DNA contained in the sampled water has not deteriorated in transit. Stages of the DNA analysis are also conducted in different buildings at our premises for added security.

SureScreen Scientifics Ltd also participate in Natural England's proficiency testing scheme and we also carry out inter-laboratory

checks on accuracy of results as part of our quality procedures.

**Reported by:** Troy Whyte

**Approved by:** Chris Troth

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End Of Report

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Hedge		Feature		
<b>BTN9</b>	Yes	Length 20m +	Yes	Hedge is not bounding the curtilage of dwelling
	Yes		Yes	Hedge established more than 30years
	Yes		Yes	Hedge boundary of protected or common land or land used for agriculture or forestry
	<b>ARCHAEOLOGY AND HISTORY</b>			
	No*		No*	Archaeological feature which is included in the schedule of monuments
No*		No*	Situated wholly or partly within an archaeological site	
No*		No*	Boundary of a pre-1600 AD estate	
No*		No*	Integral part of a field system	
No		No	Protected species records	
<b>FEATURES</b>				
No	Bank or wall			
Yes	Gaps less than 10%			
No	Standard trees			
No	Ditch			
No	Parallel hedge			
No	Footpath/ Bridleway			
0	Connection points			
2	Woody species			
0	Average ground flora species			
<b>No</b>	<b>HEDGE CLASSIFIED AS IMPORTANT</b>			<b>AS</b>
		7 woody species or 6 woody species + 3 features or 5 woody species + 4 features or highway + 4 woody species and 2 features		

\* Historic and archaeological records have not been checked for this site.