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Tutbury, Staffordshire
Amphibian and Bat Survey

Report to:

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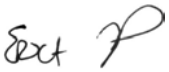

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1. Introduction

1.1.1 ECUS Ltd was commissioned by Peveril Homes Ltd to undertake a bat emergence survey of a mature ash (*Fraxinus excelsior*) tree and an amphibian survey at Tutbury, Staffordshire (Ordnance Survey Grid Reference SK214282), ahead of a proposed housing development. Locations of ponds and the ash tree are given in Figure 1 (Appendix 1). The requirement for survey was identified as a result of the ecological walkover, undertaken by ECUS Ltd in November 2009 (ECUS Ltd, 2010).

1.1.2 This report details the findings of the survey work and subsequent assessment. Recommended mitigation measures for potential impacts and the need for any further survey work are included as appropriate.

2. Relevant Legislation

2.1.1 There are seven species of native British amphibians, five of which are found in Staffordshire;

- great crested newt (*Triturus cristatus*);
- smooth newt (*Lissotriton vulgaris*);
- natterjack toad (*Bufo calamita*):
- common frog (*Rana temporaria*), and
- common toad (*Bufo bufo*).

2.1.2 Great crested newts (GCN) are a European protected species and as such receive protection under The Conservation of Habitats and Species Regulations 2010 and the Wildlife and Countryside Act (1981) as amended[1]. It is illegal to kill, injure, capture, handle or disturb them, and the places they use for breeding, resting, shelter and protection are protected from being damaged or destroyed. Great crested newts are a UK Biodiversity Action Plan (BAP) priority species.

2.1.3 Smooth newt, natterjack toad, common frog and common toad are included in Section 9(5) of the Wildlife and Countryside Act (1981) as amended which prohibits sale, barter, exchange, transporting for sale and advertising to sell or to buy these species. Common toad is also a species of conservation concern under the UK BAP.

2.1.4 All species of bat are protected under the EC Habitats Directive (1992), as implemented by the Habitat Regulations (2010). These regulations amend the Wildlife and Countryside Act (1981), which provides protection to certain animals under Section 9 and listed in Schedule 5 of the Act. Under the Act (as amended) it is an offence intentionally or recklessly to kill, injure, capture or disturb bats or to damage, destroy or obstruct access to any place used by bats for shelter or protection. This is irrespective of whether the animals are present. All bats are European protected species and a range of bat species are listed on the UK Biodiversity Action Plan as Priority Species.

2.1.5 European Protected Species Licenses (EPSL), granted by Natural England, permit otherwise illegal activities. Under The Conservation of Habitats and Species Regulations 2010 provision 53(1) '*Subject to the provisions of this regulation, the relevant licensing body may grant a licence for the purposes specified in paragraph (2').* The purposes are:

(a) scientific or educational purposes;

(b) ringing or marking, or examining any ring or mark on, wild animals;

(c) conserving wild animals or wild plants or introducing them to particular areas;

[1] Refer to Office of Public Sector Information for full legislative details

(d) protecting any zoological or botanical collection;

(e) preserving public health or public safety or other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment;

(f) preventing the spread of disease; or

(g) preventing serious damage to livestock, foodstuffs for livestock, crops, vegetables, fruit, growing timber or any other form of property or to fisheries.

2.1.6 Licenses are only granted when certain conditions are met including 53(9) *The relevant licensing body must not grant a licence under this regulation unless they are satisfied:*

(a) that there is no satisfactory alternative; and

(b) that the action authorised will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range.

3. Methodology

3.1 Desk Study and Data Consultation

3.1.1 Data consultation was undertaken by ECUS Ltd with Staffordshire Ecological Record (SER) in 2009 for the initial ecological assessment of the site, to ascertain whether any amphibian or bat records were held within 1 km of the site. Records are included in this report as appropriate, for ease of reference.

3.2 Amphibian Survey

Habitat Suitability Index

3.2.1 All water bodies falling within 250 m of the site[2] (as shown on an Ordnance Survey map 1:2500 scale[3]) were assessed (access permitting) during the initial ecological walkover survey in 2009, using a Habitat Suitability Index (HSI) (Oldham *et al.,* 2000) for their potential to support for great crested newts. This approach identifies readily observable habitat features in an objective model, which provides an informed view of the value of a site for great crested newt.

Presence/absence survey

3.2.2 Amphibian survey was undertaken based on methodologies described in the Great Crested Newt Mitigation Guidelines (English Nature, 2001). To determine presence/absence of great crested newts, four survey visits were undertaken between mid-April and mid-May. Survey was undertaken when night-time air temperatures were greater than 5ºC.

3.2.3 Surveys use a combination of techniques appropriate to the site conditions including bottle trapping, netting, torchlight searches, refugia searches and egg searching. Although these survey methods are tailored to determining presence/absence of great crested newts, they are also suitable for detecting other British amphibian species.

3.2.4 The survey utilised all five recognised approaches as follows;

- bottle trapping;
- torching;
- manual search of suitable refugia present on site;
- egg searches of aquatic vegetation, and
- netting

[2] Great-crested newts generally utilise terrestrial habitats within 250 m of breeding ponds.

[3] www.ordnancesurvey.co.uk

3.2.5 Surveys were undertaken under the appropriate Natural England (NE) survey licence and by two experienced ecologists for health and safety reasons.

3.3 Bat Emergence Survey

3.3.1 Evening emergence survey was undertaken on 6th May 2010 by licensed bat worker Jeremy Truscott (Natural England bat licence number 20093329) and an assistant, to identify any bats emerging from the mature ash tree in the centre of the site. The survey focussed on a woodpecker hole in the trunk of the tree, previously identified during the ecological walkover survey in 2009.

3.3.2 Survey was conducted in accordance with The Bat Worker's Manual (JNCC, 2004) and the Bat Conservation Trust (BCT) Good Practice Guidelines (BCT, 2007). Surveyors were in place from 15 minutes prior to sunset until around 75 minutes after sunset and used heterodyne bat detectors.

4. Survey Findings and Evaluation

4.1 Data Consultation

4.1.1 No records of great crested newts within 1 km of the site were provided by Staffordshire Ecological Record (SER), however existing records were found in the wider area using the National Biodiversity Network (NBN), approximately 6 km to the south-east.

4.1.2 Staffordshire Ecological Record provided 12 records of bats within 1 km of the site, 10 of which were of roosts. Of the 12 records, seven were of common pipistrelles (*Pipistrellus pipistrellus*) and five were of Daubenton's bats (*Myotis daubentonii*). The closest roost to site was a pipistrelle roost recorded in 2002, approximately 170 m to the west of the site.

4.2 General Site Description

4.2.1 The site at Tutbury comprises a patchwork of arable fields and semi-improved pasture, bordered by hedgerows and scattered trees. There are two ponds (P1 and P2) adjacent to the site boundary.

4.2.2 The site is bordered to the north and west by the village of Tutbury and to the south and east by farmland. The busy Burton Road (A511) runs along the eastern boundary of the site. The wider area comprises farmland, extensive hedgerow networks and the River Dove approximately 1 km to the north of the village.

4.3 Habitat Suitability Index

4.3.1 The HSI score for P1 is 0.46, indicating that the pond offers 'poor' habitat suitability for GCN. Factors attributing to this low score are the small size of the pond, its regular drying out, the absence of macrophytes and the lack of ponds in the surrounding area. A discussion paper on National Amphibian and Reptile Recording Scheme (NARRS) website states that less than 5 % of ponds with a 'poor' HSI score will support GCN.

4.3.2 The HSI score for P2 is 0.63 indicating that the pond offers 'average' habitat suitability for GCN. This pond is located approximately 400 m from P1, is slightly larger than P1 and comprises a more permanent waterbody. There was also some aquatic vegetation present at the time of survey. The pond is prevented from achieving a higher score due to the lack of ponds in the surrounding area. Using the same discussion paper as above, approximately 55 % of ponds with an 'average' HSI score will support GCN.

4.3.3 Whilst both ponds appeared to lack large populations of fish or waterfowl; both factors which negatively affect the habitat suitability for GCN, other factors, such as the apparent lack of nearby ponds, combine to keep the HSI scores relatively low.

4.3.4 Both ponds are well-connected to the hedgerow network within the site and the wider area. Hedgerows have the potential to act as wildlife corridors facilitating the movement of species such as GCN throughout the landscape.

The apparent lack of ponds in the area may increase the likelihood of any GCN in the area travelling the 400 m between the two ponds.

4.3.5 As a result of good supporting habitats and being unable to rule out the presence of GCN, further presence/absence survey was recommended in the initial ecological assessment for the site.

4.4 Great crested Newt Presence/Absence Survey

4.4.1 A presence/absence survey comprising four visits was undertaken between April and May 2010. Survey details and findings are provided in Tables 1-5 below:

Table 1. Details of amphibian surveys

Visit No.	Date	Night-time Air Temperature (ºC)	Weather Conditions
1	12.04.10	6°C	Dry, cool, slight breeze
2	19.04.10	10°C	Dry, mild, still
3	26.04.10	9°C	Dry, mild, still
4	06.05.10	8°C	Dry, cool, still

Table 2. Results of bottle trapping (m=male; f=female; j=juvenile;?=unidentified)

Visit	Pond No.	Great crested newt	Smooth newt	Palmate newt	Common frog	Common toad
1	**1**	-	-	-	-	-
1	**2**	-	-	-	-	-
2	**1**	-	-	-	-	-
2	**2**	-	-	-	-	-
3	**1**	-	-	-	-	-
3	**2**	-	2m 1f	-	-	-
4	**1**	-	-	-	-	-
4	**2**	-	1f	-	-	-

Table 3. Results of torching (m=male; f=female; j=juvenile;?=unidentified)

Visit	Pond No.	Great crested newt	Smooth newt	Palmate newt	Common frog	Common toad
1	1	-	-	-	-	-
1	2	-	-	-	-	-
2	1	-	-	-	-	-
2	2	-	1m	-	-	-
3	1	-	-	-	-	
3	2	-	1f	-	-	-
4	1	-	-	-	-	-
4	2	-	3f	-	-	-

Table 4. Results of egg searching (m=male; f=female; j=juvenile;?=unidentified)

Visit	Pond No.	Great crested newt	Smooth newt	Palmate newt	Common frog	Common toad
1	1	-	-	-	-	-
1	2	-	-	-	-	-
2	1	-	-	-	-	-
2	2	-	-	-	-	-
3	1	-	-	-	-	-
3	2	-	-	-	-	-
4	1	-	-	-	-	-
4	2	-	-	-	-	-

Table 5. Results of refugia searching (m=male; f=female; j=juvenile;?=unidentified)

Visit	Pond No.	Great crested newt	Smooth newt	Palmate newt	Common frog	Common toad
1	1	-	-	-	-	-
1	2	-	-	-	-	-
2	1	-	-	-	-	-
2	2	-	-	-	-	-
3	1	-	-	-	-	-
3	2	-	-	-	-	-
4	1	-	-	-	-	-
4	2	-	-	-	-	-

4.4.2 Both ponds were also netted during one survey visit but no amphibians were found.

4.4.3 No GCN were recorded in either pond during the four survey visits. Smooth newts were recorded in P2 on three of the four visits, the largest number of smooth newts recorded in one visit, using one survey method being three. No smooth newts were recorded in Pond 1. No other amphibians were recorded in either pond during survey.

4.5 Bat Emergence Survey

4.5.1 Surveyors were stationed at either side of the tree to give thorough coverage of the identified cavity and the tree overall. Details of the survey are provided in Table 6 below.

Table 6. Details of bat emergence survey

Visit No.	Date	Night-time Air Temperature (ºC)	Weather Conditions
1	06.05.10	8^{o}C	Dry, cool, slight breeze, overcast

4.5.2 No bats were seen to emerge from the tree but noctule (*Nyctalus noctula*) and common Pipistrelle (*Pipistrellus pipistrellus*) activity was recorded in the vicinity. A single noctule was recorded at 21:06 h and again at 21:14 h. It

was believed to be foraging around trees/scrub to the south-east of the site but was not seen. A single common pipistrelle pass along the hedgerow from east to west was recorded at 21:19 and again at 21:22. At 21:27, a single common pipistrelle was recorded flying in from the west and foraging repeatedly and for prolonged periods of time around the ash tree until 21:40.

4.5.3 No other bat activity was recorded during the survey.

5. Ecological Assessment & Mitigation

5.1 Proposed development

5.1.1 It is understood that total landtake of arable fields and pasture will be required to accommodate the development as proposed, however, the majority of hedgerows and the mature ash tree will be retained, with some severance of hedgerows. Both ponds will be retained as they are outside of the site boundary.

5.1.2 A Habitat Management and Enhancement Plan has been commissioned by Peveril Homes for the site, to accompany the planning application. This will be produced by ECUS Ltd in consultation with, where possible, the County Ecologist and local Wildlife Trust. The aim of the Habitat Management and Enhancement Plan is to ensure that the ecological interest on site is retained and enhanced where possible.

5.2 Assessment of Impacts and Recommendations

Amphibians

5.2.1 Amphibian survey was undertaken during peak survey season and at suitable temperatures. No great crested newts were recorded during four survey visits, utilising a combination of five different survey techniques. Given the absence of great crested newts in the ponds and the lack of existing records within 1 km of the site, great crested newts are not considered to be a receptor with respect to the development as proposed.

5.2.2 As the ponds are being retained, breeding and foraging habitat for other common amphibians, such as smooth newt, will remain. It is recommended that best practice guidelines (CIRIA, 2001) are followed during all proposed works to ensure that no indirect adverse effects to the ponds occur as a result of the proposed development. This requires proper storage and transport of chemicals and management of any waste controlled by waste regulations. Procedures should also be implemented to prevent run-off entering the ponds during development and contingency plans in place to deal with accidental spillages. In addition, the advice set out in the relevant Environment Agency Pollution Prevention Guidelines should be applied (Environment Agency, website accessed 15/10/09).

5.2.3 Working to the above guidance and methodologies will minimise the potential for a pollution incident into the ponds to occur and, therefore, no significant indirect adverse impact is anticipated from the development as proposed.

5.2.4 Should any amphibians be found during works, they should be carefully moved to Pond 2 or its immediate surroundings.

5.2.5 The proposed creation of wetland features in the northern area of the site will also provide new aquatic habitat for common amphibian species and represent a benefit to nature conservation within the local area. Detailed enhancements of habitats on site will be provided in the Habitat Enhancement and Management Plan.

Bats

5.2.6 The evening emergence survey was undertaken at an optimal time of year for detecting bat roosts and under suitable weather conditions. No bats were recorded emerging from the ash tree at any time during the survey.

5.2.7 Bat activity within the vicinity of the ash tree was restricted to a single common pipistrelle bat foraging around the tree canopy with several pipistrelle bat passes, and a single noctule bat recorded foraging in the wider area within the site. Bat records supplied by SER and the location of the site indicate that these bats are likely to be using neighbouring housing and woodland/trees in the local area for roosting.

5.2.8 With the exception of the ash tree, there are no suitable roosting sites for bats within the application area. Based on the absence of emerging bats associated with the tree during the peak survey window, roosting bats are not considered to be a receptor for this scheme. It is understood that the ash tree will be retained within the proposed development and therefore the foraging resource provided by the tree will remain.

5.2.9 It should be appreciated that bats require very limited cavity space and only very small roost entry gaps into cavities or any other structure which provides close shelter. If works have not proceeded within two years of this bat survey or if future aboricultural works are required, it is recommended that the tree is re-assessed by a suitably qualified bat specialist prior to any works being undertaken. If bats are discovered at any point during works, contractors must stop work immediately and a licensed bat worker and should be contacted.

5.2.10 As general guidance and taking a best practice approach to nature conservation issues, bat roosting provision could be incorporated into the fabric of new structures. Whilst roosting bats are not considered to be a receptor for the site, given its rural location and the abundance of suitable foraging habitat, including trees and hedgerows, providing bat roosting provision, where practicable, would represent a benefit to nature conservation. In this instance roosting provision may include incorporation of 'bat bricks' into walls and/or Schwegler 1FR and 2FR bat tubes, and bat boxes may also be attached to the ash tree. These should be positioned at a minimum of 4 m from the ground, with unobstructed access for bats, and avoiding heavily lit areas (see Section 6 for suggested suppliers).

5.2.11 Whilst the habitats on site may provide some foraging opportunity for bats resident within the local area, there is abundant similar foraging habitat within the local and wider area, including hedgerows, woodland and the River Dove. Due to the abundance of optimal habitat locally, landtake associated with the development as proposed is not considered to represent a significant adverse impact to foraging bats. Bats were observed foraging around trees and commuting along hedgerows on site and it is recommended that trees are retained, where practicable, and Root Protection Zones (RPZs) are implemented around retained trees, in accordance with British Standard 5837 (BSI, 2005). These should also be implemented around any newly planted trees. This would safeguard potential foraging habitat and navigational features. Retention of hedgerows, where practicable, and planting standard

trees at the ends of severed hedgerows to bridge gaps over roads and paths would be beneficial to foraging and commuting bats that may use the site.

5.2.12 The proposed creation of wetland features in the northern area of the site may also provide foraging opportunity for bats resident within the local area and details will be included in the Habitat Enhancement and Management Plan.

6. References

Bat Conservation Trust. 2007. *Bat Surveys-Good Practice Guidelines*. Bat Conservation Trust, London.

CIRIA (2001) *Best Practice Guide*. Ciria, 2001

ECUS Ltd (2010) *Tutbury, Staffordshire - Ecological Assessment*. ECUS Ltd. Sheffield.

English Nature (2001) *Great crested newt mitigation guidelines*. English Nature, Peterborough.

Environment Agency. *Pollution Prevention Guidlines 1 – 28.* http://www.environment-agency.gov.uk/business/topics/pollution/39083.aspx (accessed 12/05/10)

JNCC. 2004. *Bat Workers' Manual*. 3rd Edition (Eds Mitchell-Jones A J & McLeish AP). JNCC. Peterborough.

National Amphibian and Reptile Recording Scheme (NARRS). Accessed 13/05/10. http://www.narrs.org.uk/Documents/nasdocuments/HSI_guidance.pdf

Oldham, R.S; Keeble, J; Swan, M.J.S. and Jeffcote, M. (2000) Evaluating the suitability of habitat for the great crested newt (*Triturus cristatus*). *Herpetological Journal.* 10: 143-155.

Suggested suppliers of bat boxes/bricks

Ibstock http://www.ibstock.com/sustainability-ecozone.asp (Accessed 10/05/10)

Schwegler http://www.alanaecology.com/acatalog/Schwegler_Boxes.html (Accessed 10/05/10)

Appendix 1