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27<sup>th</sup> September 2013

**Letter of report: Horndean Road, Emsworth, Hampshire.**

**Ref: WEc\_Azure63\_3**

Dear Mr White,

Wychwood Environmental (WE) was commissioned by Azure Ecology to undertake a bat survey of trees on land associated with a proposed housing development on existing arable land located just off Horndean Road, Emsworth. The survey was conducted to ensure that plans for development of would not be constrained by the presence of roosting bats.

*Bats are European protected species, protected via The Conservation of Species and Habitats Regulations (2010) and also the Wildlife and Countryside Act 1981, as amended. Therefore, it is an offence to kill or injure a bat or interfere with any roosting or resting site. A bat roost is interpreted as "any structure or place used for shelter or protection" whether or not bats are present at the time.*

Lighting in the vicinity of a bat roost which may be causing disturbance could constitute an offence, so it is important that any lighting proposals in the vicinity of possible roosts and foraging/commuting areas are fully assessed.

Details of legislation and legal protection afforded to all species of British bats are given in Appendix 1.

**Proposed Works**

Five oak trees (*Quercus robur*) are located along the Western boundary of the site. Proposals involve the establishment of a flood abatement wetland to store up to 20,000 square metres of water and the construction of up to 100 new homes. The trees of interest identified during the survey are shown on Figure 1.

**Survey Methods**

*Stage 1 – Initial Tree Inspection*

An initial survey was conducted by Rosalind Salter BSc MSc MCIEEM (Bat licence holder: 20123027) on the 27<sup>th</sup> June 2013. Surveys followed best practice survey techniques as outlined by the Bat Conservation Trust (2012)<sup>1</sup> and Mitchell-Jones and McLeish (2004)<sup>2</sup>.

Trees (nos 1-5) were surveyed at ground level with the use of binoculars (where necessary) to assess their suitability to support roosting bat species. Trees were recorded as having high, medium or low potential to support bats using the following criteria:

|                         |                                                                                                                                                    |
|-------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>High Potential</b>   | Upward developing holes, splits and cracks, peeling bark and woodpecker holes. Old trees with complex growth forms are of particular interest.     |
| <b>Medium Potential</b> | Downward developing holes, splits and cracks, peeling bark, features which could support several bats or a group of bats.                          |
| <b>Low Potential</b>    | Ivy covering only, few or no holes, splits or crevices.                                                                                            |
| <b>Confirmed Roosts</b> | Evidence of use by bats (scratch marks, staining from bat fur, bats heard chattering, seen flying in and out of roost, presence of droppings etc). |

#### *Stage 2 – Activity/emergence survey*

A single dusk activity/emergence survey was conducted by Rosalind Salter BSc MSc MCIEEM and Dr. Craig Turner MCIEEM (Bat license holder: 20122525) at the proposed site. One surveyor covered tree no. 1 and the other tree nos 2-5. Positioning allowed good visibility of the trees. The survey was conducted 15 minutes before sunset and for 1.5 hours after sunset (Table 1).

A Batbox Duet and Bat Box Griffin were used to assist with determining the nature of any bat activity and with bat identification. Analysis software (Sonobat 2.9.6) was used to verify calls identified in the field.

**Table 1 – Survey weather conditions**

| Date     | Sunset/Sunrise | Temp °C | Conditions | Wind                             |
|----------|----------------|---------|------------|----------------------------------|
| 16/09/13 | 19:15 BST      | 12-10°C | Clear      | Gentle – Moderate breeze (BF3-4) |

<sup>1</sup> Bat Conservation Trust (2012) *Bat Surveys – Good Practice Guidelines*. Bat Conservation Trust, London.

<sup>2</sup> Mitchell-Jones A J (2004). *Bat mitigation guidelines*. English Nature.



**Figure 1 – Location of trees (with bat potential).**

## **Results**

*Stage 1* - Table 1 presents the results of the survey including: tree species and observed features that may support bats and assigned bat potential status.

**Table 1. Tree details and bat potential category.**

| Tree No: | Species              | Features                                          | Bat Potential      |
|----------|----------------------|---------------------------------------------------|--------------------|
| 1        | <i>Quercus robur</i> | Upward developing holes, splits and cracks        | High (Category 1*) |
| 2        | <i>Quercus robur</i> | Upward developing holes, splits and cracks        | High (Category 1*) |
| 3        | <i>Quercus robur</i> | Die back – ivy covering, peeling bark and splits. | High (Category 1)  |
| 4        | <i>Quercus robur</i> | Upward developing holes, splits and cracks        | High (Category 1*) |
| 5        | <i>Quercus robur</i> | Large split down the middle of trunk.             | High (Category 1*) |

The initial survey (Stage 1) determined that trees no. 1-5 had a high potential to support bats. These all fall under Category 1 and 1\* of the Bat Conservation Trusts Protocol for visual inspection of trees (see Appendix 2 for details).

The assignment of Category 1 triggered Stage 2 surveys to further inform proposed mitigation.

*Stage 2* – Levels of activity during the survey were extremely low. Only 3 passes were recorded. A single noctule *Nyctalus noctula* was detected commuting overhead at 19:15 and common pipistrelle *Pipistrellus pipistrellus* were observed/detected on two occasions (20:02 and 20:35) foraging along the Southern boundary. No emergence behavior was observed.

### **Constraints**

Conditions during the survey were sub-optimal due to a moderate wind and cool temperatures, although they were still within the guidelines as the dusk temperature did not fall below 10 degrees Celsius.

### **Discussion and Recommendations**

Although no bats were observed emerging from trees on site, their roosting potential remains high and therefore the presence of roosting bats can not be ruled out at other times of the year. The confirmed presence of foraging/commuting bats on site necessitates the need for lighting to be avoided along existing tree lines as this would disturb existing commuting/foraging behavior. It is recommended that any proposed lighting throughout the development is provided at a low level, limiting the level of UV light as far as possible. Appendix 3 provides information of bat friendly lighting.

It is recommended that should any minor tree surgery be necessary then this should be conducted by an Arboriculturist with knowledge of bats and the legal protection afforded to them. Any sections removed should be left on the ground over night, in the unlikely event that a bat may be present, allowing it time to escape. Should any major surgery be required then works should be preceded by a climb and inspect survey, to be conducted by a licensed bat worker. Any felled wood should remain on site (in the form of log piles) to provide habitat for invertebrates, amphibians and reptiles.

Proposed enhancement works (e.g. the creation of the proposed flood abatement wetland area) will improve existing foraging habitat for bats in the local area.

Should you need any further advice on the information provided above please do not hesitate to contact me.

Kind regards,



Ros CIEEM

## APPENDIX 1 – Legislation and Policy

### *Bats*

All species of British bat are fully protected under the Wildlife and Countryside Act 1981 as amended through inclusion in Schedule V. All bat species in the UK are also included in Schedule II of the Habitats Regulations 2010 which transpose Annex II of the Council Directive 92/43/EEC 1992 on the Conservation of Natural Habitats and of Wild Fauna and Flora ("EC Habitats Directive") which defines European protected species of animals.

Bat species are afforded further protection by the Countryside and Rights of Way (CROW) Act 2000; and the Natural Environment and Rural Communities Act 2006.

Under the above legislation it is an offence to:

- kill, injure or take an individual;
- possess any part of an individual either alive or dead;
- intentionally or recklessly damage, destroy or obstruct access to any place or structure used by these species for shelter, rest, protection or breeding;
- intentionally or recklessly disturb these species whilst using any place of shelter or protection; or
- deliberate disturbance in such a way as to be likely to impair their ability to:
  - survive, to breed or reproduce, or to rear or nurture their young; or
  - in the case of animals of a hibernating or migratory species, to hibernate or migrate; or
  - to affect significantly the local distribution or abundance of the species to which they belong;
- keep (possess), transport, sell or exchange, or offer for sale or exchange, any live or dead bat, or any part of, or anything derived from a bat.

It is also an offence to set and use articles capable of catching, injuring or killing bats (for example a trap or poison), or knowingly cause or permit such an action. In the case all species of British bat there is also protection under *Schedule 6 of The Wildlife and Countryside Act 1981* (as amended) relating specifically to trapping and direct pursuit of these species.

A European Protected Species License (EPSL) in relation to bats is required from Natural England for any work that would result in an otherwise unlawful activity (e.g. damage to a bat roost). A license can only be issued to permit otherwise prohibited acts if Natural England are satisfied that all of the following three tests are met:

- The proposal is for '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';
- There is no satisfactory alternative; and
- The action authorised by the license will not be detrimental to the maintenance of bat populations at a favourable conservation status in their natural range.

A bat roost is defined by the Bat Conservation Trust publication *Bat Surveys—Good Practice Guidelines 2nd Edition* as "*the resting place of a bat*"<sup>3</sup>. Generally however, the word roost is interpreted as "*any structure or place, which any wild bat uses for shelter or protection.*"

Bats tend to re-use the same roosts; therefore legal opinion is guided by recent case law precedents, that a roost is protected whether or not the bats are present at the time. This can include for summer roosts, used for breeding; or winter roosts, used for hibernating.

## APPENDIX 2 – Tree Categories for Bat Surveys

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<sup>3</sup> Bat Conservation Trust (2012) *Bat Surveys – Good Practice Guidelines*. Bat Conservation Trust, London.

Protocol for visual inspection of trees due to be affected by arboricultural work, to assess the value of the trees to bats. (Adapted from a protocol provided by Corylus Ecology Ltd.)<sup>4</sup>

| Tree category and description                                                                                                                                                                                                                         | Stage 1<br>Initial survey requirements                                                                                                                                                                                                                           | Stage 2<br>Further measures to inform proposed mitigation                                                                                                                                                                                                                                                       | Stage 3<br>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><br>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.<br><br><i>A consultant ecologist is required</i> | Avoid disturbance to trees, where possible.<br><br>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><br>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.<br><br><i>A consultant ecologist is required</i>                            | Avoid disturbance to trees, where possible.<br>More detailed, off the ground visual assessment.<br><br>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.<br><br>Trees with no confirmed roosts may be downgraded to Category 2 dependent on survey findings |
| <b>Category 2</b><br>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.<br><br><i>A consultant ecologist is unlikely to be required</i>                                                                                                                                                                                            | Avoid disturbance to trees, where possible.<br>No further surveys.                                                                                                                                                                                                                                              | Trees may be felled taking reasonable avoidance measures.<br><br>Stop works and seek advice in the event bats are found, in order to comply with relevant legislation.                                                 |
| <b>Category 3</b><br>Trees with no potential to support bats                                                                                                                                                                                          | None.<br><br><i>A consultant ecologist is not required unless new evidence is found</i>                                                                                                                                                                          | None.                                                                                                                                                                                                                                                                                                           | No mitigation for bats required.                                                                                                                                                                                       |

<sup>4</sup> Table 8.4; p 60: Bat Conservation Trust (2012) Bat Surveys – Good Practice Guidelines. Bat Conservation Trust, London.

# Bat Conservation Trust



## Statement on the impact and design of artificial light on bats:

Artificial night lighting is disturbing to many bat species, including some of our rarest and most vulnerable bat species. Some fast-flying bats, such as common and soprano pipistrelle bats, are more tolerant of light and feed on the insect congregations around street lamps. However, this exposes the bats to predation. For the bats that are repelled by light such as horseshoe bats and brown long-eared bats, insect food becomes scarcer and more difficult to find and hunt.

We know that some bat species will not cross lines of light, such as street lighting. The light acts as a barrier, disrupting flight paths and fragmenting and restricting habitats. In addition, lighting close to roost access points disturb bats within a roost, delay emergence time and may result in the abandonment of a roost.

Smarter lighting, rather than less lighting, is key to mitigating the effects of light pollution. Light should only be erected where it is needed, illuminated during the time period it will be used, and at the levels that enhance visibility.

Mitigation must be guided by an understanding of the particular species that might be affected. For example, some bat species may be more sensitive than others.

## Design recommendations for wildlife-friendly lighting include:

1. Do not "over" light. This is a major cause of obtrusive light and is a waste of energy. Use only the minimum amount of light needed for safety. There are published standards for most lighting tasks, adherence to which will help minimise upward reflected light.
2. Eliminate any bare bulbs and any light pointing upwards. The spread of light should be kept near to or below the horizontal.
3. Use narrow spectrum bulbs to lower the range of species affected by lighting.
4. Use light sources that emit minimal ultra-violet light. Insects are attracted to light sources that emit ultra-violet radiation.
5. Reduce light-spill so that light reaches only areas needing illumination. Shielding or cutting light can be achieved through the design of the luminaire or with accessories, such as hoods, cowls, louvers and shields to direct the light.
6. Reduce the height of lighting columns. Light at a low level reduces ecological impact. However, higher mounting heights allow lower main beam angles, which can assist in reducing glare.
7. For pedestrian lighting, use low level lighting that is directional as possible and below 3 lux at ground level.
8. Use embedded road lights to illuminate the roadway and light only high-risk stretches of roads, such as crossings and merges, allowing headlights to take up the slack at other times.
9. Limit the times that lights are on to provide some dark periods for wildlife.
10. Use lighting design computer programs and professional lighting designers to predict where light spill will occur.