

## 3 Bats

### 3.1 Further Information Required

The full comment received from NCC in its formal response dated 2<sup>nd</sup> November 2015 is provided in the introduction to this report. The specific requirements for additional information are:

- clarification of how trees and buildings were assessed for their bat roost potential;
- clarification of the likely zone of influence of the proposed development, including identification of potential roost sites;
- further assessment of potential noise and vibration disturbance to bats roosting bats.

Clarification of the above points is provided below.

### 3.2 Approach to the Identification of Trees and Buildings of Bat Roost Potential

The approach taken is summarised in the method statement provided in the submitted ecology report.

All trees and buildings within and immediately adjacent to the boundary shown on the Phase 1 Habitat map provided as Annex B were appraised for their bat roost potential by a suitably experienced ecologist on the 9<sup>th</sup> April 2015.

All trees were confirmed by a suitably experienced ecologist as unsuitable for roosting bats and therefore no further information was presented. This assessment was further validated on the 11<sup>th</sup> November 2015, when another suitably experienced ecologist re-inspected all trees and reached the same conclusion. This was based on ground level visual inspections of all trees. All of the trees on site are of relatively recent planted origin, or have arisen through subsequent colonization by trees and shrubs. As such, they are of species and age classes that are unlikely to support suitable roosting features. No features suitable for roosting bats were found in association with the trees, i.e. none of the following potential roost features were observed:

- cracks, trunk and branch splits;
- woodpecker holes;
- rot holes where branches have been removed;
- hollow sections of trunk and branches;
- cavities beneath loose bark, old root buttresses and coppice stools; or
- gaps within dense epicormic growth, areas behind dense ivy.

The buildings associated with the site are as identified in the submitted ecology report comprise:

- several large warehouses of metal construction that are located between Borehole 1 and Boreholes 2 to 4;
- two small brick-built buildings adjacent to Borehole 1 (Buildings 1 and 2);
- Misson Springs Cottage located 35 m south of Borehole 1; and
- agricultural barn on third-party land to the north of Boreholes 2 to 4.

Access was not possible to Buildings 1 and 2 at the time of the original survey, but they were subsequently subject to a bat roost potential survey on the 11<sup>th</sup> November 2015. The results of the survey are provided below, along with comment on the bat roost potential of other relevant buildings.

No consideration is given to any other more distant off-site buildings as their relative distance and the screening effects of plantation woodland and other buildings means that that disturbance would be unlikely. Such buildings would not be

routinely considered when assessing larger scale permanent developments, so it would be disproportionate to require information on these buildings for a temporary development of the scale proposed.

### **3.3 Building Descriptions and Associated Bat Roost Potential**

#### **3.3.1 Warehouses**

The warehouses are all in a good state of repair and are of metal A-frame construction and clad with metal sheeting (Photograph 1, Annex E). The nature of their construction means that they sub-optimal for roosting bat roosts as the metal cladding is subject to wide temperature fluctuations, meaning that any potential roosting crevices would be similarly affected. No potential access points for bats were identified and all of the warehouses are considered to be of no bat roost potential.

#### **3.3.2 Building 1**

The location of this building is shown as Target Note 13 on the Figure provided as Annex B. This building is a single-storey brick shed with an asbestos sheet roof. The walls are constructed of a single course of bricks with no internal cavity. There are three broken windows. The top half of the single door has been removed and therefore provides free access into the building. Due to the open door and broken windows the building is drafty and cold inside (Photograph 2 and 3, Annex E).

There are narrow strips of wooden fascia board beneath the eaves of the roof. There are small gaps allowing access behind the fascia, but these gaps are covered by cobwebs confirming that they have not been used by bats. Small gaps were present within brickwork and around door/window frames, but these could be fully inspected and no evidence of bats was found.

No evidence of bats was found in association with the building. The building is of low suitability because of the exposed drafty conditions and the lack of any substantive cavities. The building is considered to be of negligible bat roost potential and, in the absence of any evidence to indicate the presence of bats, it is not relevant to the proposed development and requires no further consideration.

#### **3.3.3 Building 2**

The location of this building is shown as Target Note 14 on the Figure provided as Annex B. This building is a small bunker constructed of brick with a concrete roof cap (Photograph 3 and 4, Annex E). The walls are constructed of a single course of brick. There are no windows. There is a single open doorway that results in cold drafty conditions inside the building. One air vent to the roof was observed but this was blocked. The internal brickwork was intact with no cavities. There were small gaps in external brickwork, but these could be fully inspected and no evidence of bats was found.

No evidence of bats was found in association with the building. The building is of low suitability because of the exposed drafty conditions and the lack of any suitable cavities. The building is considered to be of negligible bat roost potential and, in the absence of any evidence to indicate the presence of bats, it is not relevant to the proposed development and requires no further consideration.

#### **3.3.4 Misson Springs Cottage**

Misson Springs Cottage, located 35m south of Borehole 1 (see Figure provided as Annex B), was inspected during the original site visit in April 2015. This house and its connected outbuilding (Photograph 5, Annex E) had numerous internal and external features of potential value to roosting bats and it was assessed to have high bat roost potential.

#### **3.3.5 Agricultural Barn**

There is a barn approximately 30m north of Borehole 3, from which it is screened by mature plantations. The barn is of A-frame construction and is clad with sheeting. The nature of the barn's construction is such that it would not be expected to be of any more than negligible bat roost potential. The possible opportunistic use of the barn as a transitory roost by individual bats during the summer cannot be entirely discounted, but there is no reasonable likelihood of the barn supporting regular roosts and it is unsuitable for breeding and hibernation.

### **3.4 What Constitutes a Disturbance Offence**

All species of bat are classified as "European Protected Species" and are therefore fully protected under the Conservation of Habitats and Species Regulations 2010 (as amended), as well as also receiving domestic protection under the Wildlife & Countryside Act 1981 (as amended). With reference to the higher level protection afforded through the Regulations, this legal protection includes provisions relating to deliberate or reckless disturbance. The Supreme Court (19<sup>th</sup> January 2011) has clarified how disturbance should be interpreted when determining planning applications and has confirmed that this excludes trivial disturbances. A disturbance offence is triggered when:

- it affects the population rather than individual animals; and
- the disturbance impact on the population is “sufficient” to be considered “harmful” in the biological sense i.e. it must pose a threat to the favourable nature conservation status of the population by impairing the ability of bats to survive, breed, reproduce or rear or nurture their young .

It is considered highly unlikely that the proposed development, because it involves temporary works of short duration, would result in disturbance sufficient to adversely affect favourable nature conservation status of any bat roosts present, and therefore there would be no reasonable likelihood of an offence being triggered under the Regulations. The only building of any substantive bat roost potential is Misson Springs Cottage, which is located 35m to the south of Borehole 1. None of the other boreholes is located in proximity to any buildings of any more than negligible bat roost potential (see Section 3.3) and therefore these boreholes have no potential to result in disturbance.

### 3.5 Likely Zone of Influence

Only Borehole 1 is sufficiently close potential optimal bat roosting habitat to require consideration for its potential to result in noise and vibration disturbance to bats. This relates to its proximity to Misson Springs Cottage only. Boreholes 2 to 4 are set within an area that is buffered from buildings by open space and mature woodland plantations, and therefore there is no potential for temporary works of the nature proposed to have a significant impact on off-site receptors of bat roost potential.

Few studies have been undertaken on the impacts of noise and vibration on bats<sup>7</sup>, and these have been conducting on foraging rather than roosting bats. Studies have focussed on foraging bats because they utilise noise (echolocation) to find prey and therefore they may need to alter their calls when there is interference from ambient noise. The zone of influence over which bat roosts may be vulnerable to noise and vibration disturbance is not known but anecdotal evidence collated by experienced bat workers<sup>8,9</sup> indicates that roosting bats can tolerate relatively high noise and vibration when roosting. For example, bat roosts are widely recorded in association with church bell towers, road and rail bridges, and in proximity to airport runways. In the experience of AECOM, temporary works of the nature proposed would not typically require species-specific assessment or otherwise be considered likely to adversely impact favourable nature conservation status of local bat populations.

In the context of the proposed development, it has been determined that vibration is not a relevant consideration. This is because the boreholes will be drilled using a rotary bore that has limited potential to generate vibration, and this vibration would not reasonably be expected to spread beyond the footprint of the temporary works. In addition, as all of the potential roost features are associated with the above ground level structure of Misson Springs Cottage, these roost features would be inherently buffered from any minor vibrations arising from below ground level rotary drilling. The zone of influence for vibration would therefore be the operating footprint of the drilling rig and therefore is not considered further in this report.

### 3.6 Is a Disturbance Offence Likely Under The Conservation Of Habitats And Species Regulations 2010 (As Amended)?

The only works requiring assessment are those associated with Borehole 1, due to its proximity to Misson Springs Cottage. There is no published information on the sensitivity of British bat species to noise when roosting, therefore professional judgement needs to be applied based on the specifics of the works proposed.

As stated above, for an offence to be committed under the relevant legislation, the level of noise experienced by roosting bats would need to be of a scale that would pose a threat to the favourable nature conservation status of the population by impairing the ability of bats to survive, breed, reproduce or rear or nurture their young . This assumption seems unjustified based on the specifics of the proposed development. The duration of the potentially disturbing works is limited to a two week period. It is highly unlikely that works of such limited duration, that would be restricted to the specified working hours, and that would not be undertaken continuously throughout this period, would result in disturbance that would compromise the suitability of Misson Springs Cottage to roosting bats or have any adverse impact on favourable nature conservation status. Therefore it is considered that there is no reasonably likelihood of bats being adversely affected.

<sup>7</sup> Radford, A., Morley, E. and Jones, G. (2012) *The Effects of Noise on Biodiversity (NO0235) Final Report to DEFRA*. School of Biological Sciences, University of Bristol on behalf of Defra.

<sup>8</sup> Schaub, A., Ostwald, J. & Siemers, B.M. (2008) *The Journal of Experimental Biology* 211: 3174-3180

<sup>9</sup> Bat Conservation Trust (2007) *BCT Mitigation Conference Proceedings*  
[http://www.snh.gov.uk/docs/B297797.pdf?bcsi\\_scan\\_ab11caa0e2721250=0&bcsi\\_scan\\_filename=B297797.pdf](http://www.snh.gov.uk/docs/B297797.pdf?bcsi_scan_ab11caa0e2721250=0&bcsi_scan_filename=B297797.pdf) [accessed November 2015]

If further assurance was required by NCC, then the applicant would be willing to consider precautionary mitigation in the form of timing restrictions on the undertaking of works at Borehole 1. Such timing restrictions would provide further confidence in the assessment of no impact, by timing works to avoid the season when bats might be more sensitive to disturbance i.e. the period when they are engaged in breeding and rearing young (June to August inclusive). Accordingly, works could be timed for the period September to May inclusive to avoid this potential period of heightened sensitivity.

On the basis of the above considerations, it is considered unlikely that roosting bats would be adversely affected and therefore they are not considered material to determination of the planning application.