

## **Comments on updated "Report on the Licensed Inspection of Trees and Two Culverts and Assessment of Habitats for bats" by ERAP Ltd, dated January 2013**

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**Commissioned by: Fulford Parish Council**

1. The updated report (ERAP2013) has been revised in content, primarily in wording and interpretation, but also in the nature and scope of mitigation.
2. The ERAP 2013 report does not include any additional survey data other than that supplied by MAB Environment & Ecology Ltd at the end of 2012.
3. Due to the absence of additional survey data many of our criticisms of the original report (ERAP 2012) are unchanged.
4. Comments specifically relating to the ERAP 2013 report are listed below, along with a summary of upheld comments relating to the ERAP 2012 report.
5. This document was written by Giles Manners MIEEM CEnv. I am a full time ecologist and Director of MAB Environment & Ecology Ltd. I have been a professional bat ecologist since 2004, and I have a Science and Education bat licence (number **20130149**). I also hold a Level Two Volunteer Bat Roost Visitor Licence, which permits me to train unlicensed volunteer bat roost visitors for the purposes of undertaking official duties under the Natural England Bat Advice Contract. I am a Chartered Environmentalist, a full member of the Institute of Ecology and Environmental Management, a committee member of the North Yorkshire Bat Group, and a zoologist with over 20 years' experience.

### **Summary**

6. In the summary of the ERAP 2013 report it is stated in paragraph (c) that "the scope of the survey undertaken was appropriate to enable the identification and accurate assessment of any bat related ecological constraints". My opinion, given in MAB Environment & Ecology's 2012 report (Bat Survey and Appraisal Germany Beck October 2012), was that this comment is highly subjective and I disagreed that the scope of the survey undertaken was anywhere near sufficient to meet these objectives. The scope of the surveying on which the ERAP 2013

report is based has not been increased beyond that in the 2012 report, and therefore I make the same criticism of the 2013 report.

7. In the summary of the ERAP 2013 report it is stated in paragraph (h) that 'trees identified as having features suitable for use by bats will be retained'. However, it remains the case that **usage of trees by bats has not yet been comprehensively assessed**; and retention of trees is not the same as saying that these trees will not be affected by the development. A comprehensive assessment of the trees still remains to be done, as well as a proper unbiased assessment of how potential roost sites will be affected by disturbance (such as lighting, isolation, noise).
8. Paragraph 1.3.1 of the ERAP 2013 reports repeats the position that the limited surveys that have been carried out are "sufficient to enable potential effects..on bats...to be reliably assessed". I maintain that **the survey information provided within the ERAP reports is not sufficient to inform any reliable assessment of bat usage of the site and the impact of the development.**

#### **Methodology**

9. Paragraph 2.3.3 of the ERAP 2013 report identifies that their surveys concentrated on trees recommended for removal or remedial works, and two culverts; this leaves in doubt the status of trees which are not to be removed, and the value of the site as commuting, foraging, and connective habitat for bats.
10. Table 2.3 is a new addition to the report, inserted in order to redress the concern that surveyors used should be identified. The primary reason for identifying surveyors is to permit those assessing the report to identify the skills of the surveyors and possible shortfalls in coverage. There is, for example, no reason why less qualified surveyors should not be used alongside more qualified staff, as long as their position is not critical to the survey or assessment. However, we would normally want to know if the surveyors were biologists or ecologists, whether they have any qualifications or training, or are licensed by Natural England, None of this information is provided, making this table of very limited value. However, it is possible to judge from Table 2.3 that three of the surveyors used had no experience of surveys prior to 2012 (i.e. "one active season's experience"), and that three others had experience of only one season prior to 2012. Referring to Figure 2, it is now possible to see, for an example, that a surveyor with no prior experience ("KT") was responsible for covering a huge area of potential bat habitat, identifying roost locations and bat species in an area where there are numerous well-spaced mature trees. This would be

extremely hard even for a very well trained bat ecologist with the very best equipment; inexperienced "KT" with a bottom-of-the-range Magenta 2 detector would have little or no chance of detecting usage by bats of various trees in the dark, especially more cryptic bats that emerge when fully dark such as many myotis bats and brown long-eared bats. A Magenta 2 is not sufficient to permit any ultrasound analysis of bat calls. In fact, none of the surveyors used modern equipment that captures time expansion or full spectrum recordings, which are essential for all but the most basic ultrasound call analysis. There is no mention in the report of recording equipment or call analysis (other than the unattended Anabat unit), which is surprising, as use of these methods is now standard in the ecological consultancy industry. An absence of ultrasound analysis calls into question the quality of the survey and the ability of the survey to accurately identify bat species. In conclusion, far from offering reassurance, this table plus the maps reinforces our position that ***the survey input has, thus far, been insufficient in terms of quantity and quality.***

11. Paragraphs 2.7.3 and 2.7.4 of the ERAP 2012 report have been removed. Paragraphs 2.7.3 of the 2012 report stated "that sufficient survey effort has been conducted at the Site to assess adequately bat usage of the Site". Paragraph 2.7.4 of the 2012 report stated that "no significant survey limitations have been experienced". ***The removal of these statements from the 2013 report is in accordance with our assessment that not enough survey input has yet been made, and that significant survey limitations have indeed been encountered in respect of timing of surveys, numbers, locations, and expertise of surveyors.***

### **Survey results**

12. Paragraph 3.1.11 of the ERAP 2013 report is new, and states that "wherever possible all reasonable effort must be made to ensure that the proposed development does not impact negatively on the maternity colony by removing foraging habitat or severing commuting routes". In our opinion it is not sufficient to state that "wherever possible all reasonable effort must be made"; the main objective of the bat survey and mitigation proposals is to ensure that negative impacts are avoided or mitigated.
13. Paragraph 3.2.9 of the 2013 report provides a list of trees with bat roost potential. Five trees are listed as category 1 ("highly suitable"), and four of these are to be felled. The report then states that "Recommendations are made within this report for the preservation of trees identified as being highly suitable for roosting bats". All trees that are category 1 and to be felled should be subjected to a full bat survey using visual examination and targeted emergence surveys using professional qualified and experienced surveyors and the surveys

should be repeated to cover the main types of potential bat usage including hibernation and maternity roosting. It is not sufficient simply to provide recommendations without knowing whether bat roosts are present or not, because impacts are not restricted to tree removal.

14. There are three additional entries of bat activity in the 2013 report: in paragraph 3.3.3 it has been added that pipistrelle activity was “associated with tree lines, Germany Lane and Germany Beck”; paragraphs 3.3.6 and 3.4.2 add that a brown long-eared bat was detected foraging along Germany Beck. It is unclear why these observations have been added in the absence of additional surveying between the two reports.
15. Paragraph 3.4.2 in the 2012 report has been deleted from the 2013 report. This paragraph was highly significant as it states that “It was concluded that sufficient survey effort had been conducted at the trees that their possible use by bats could be reliably assessed”. I find it impossible to understand in what capacity the authors make this statement repeatedly in the report. The use of the passive in the phrase “it was concluded” gives the impression of objective assessment of this survey effort. However, it is only the author’s *opinion* that sufficient survey effort has been carried out. In this case it is evident that this option is at best heavily biased, and at worst simply represents the interests of the developer to avoid the costs and delays involved in carrying out a thorough survey. It remains for others (particularly the LPA ecologists) to make the judgment of whether sufficient survey effort has been made. My opinion is that a “reliable” assessment of the use of trees by bats requires a good deal more survey input than has been provided in the ERAP report. It is unlikely that a survey will ever be 100% reliable, not least because some species of bats move roosts quite often, and bats are genuinely hard to survey for, but for the reasons bulleted below, my opinion is that ***the surveying of the high risk trees is inadequate and their assessment is, consequently, unreliable:***

- ***sparse coverage of area***
- ***low levels of experience and qualifications of the surveyors of the ERAP survey***
- ***poor equipment***
- ***absence of ultrasound recording and analysis***
- ***surveying covering only one part the bat year (late summer 2012)***
- ***absence of tree climbing / cherry picker assessments (esp for hibernation roosts)***

## Evaluation and Assessment

16. The evaluation of the bat usage of the trees has been considerably expanded in paragraph 4.1.1, in which the authors give “one explanation for this activity” (namely a common pipistrelle settling on a high potential tree and then flying off again), which is that the bat was “seeking rest”. The paragraph ends by stating that because the bat was not seen to “investigate” the hole in the tree “it seems reasonable to conclude” that the activity is not connected with a bat investigating a possible roost site. In my opinion it is not reasonable to conclude anything; there may be many other explanations for this activity (as noted by the author’s use of the phrase “one explanation”), and that other explanations may include, for example, that the bat has used the hole in the tree at other times of year or in other seasons, as a roost. This is a behaviour I have observed, where bats land near a roost not currently in use, and fly off again without any apparent “investigation” of the actual roost entrance. I have observed this several times on a wall below a roost, and the reason behind the behaviour is completely unknown.
17. Further evaluation of the observed bat usage is given in paragraph 4.1.3, in which the author states that “it is concluded” that the observed five species of bats use the site for foraging and commuting but not for roosting. Again, this apparent “conclusion” is the opinion of the author and not based on evidence. No assessment has been made of roosting at other times of year, including hibernation, and the surveying of the trees that has been carried out is less than adequate in quality and coverage, for reasons already given.
18. The authors accept in paragraph 4.2.5 that bats may use tree roosts throughout the year (and, therefore, by extension that their surveys are neither comprehensive nor their assessments reliable). However, the authors then go on to state that the species detected are “most commonly associated with roosts in buildings” in order to justify the low level of survey input. However, ***all of these species are known to roost in trees***. In *British Bats* (Altringham 2003) it is stated that Whiskered and Brandt’s bats “roost in trees and buildings” and that for brown long-eared bats “nursery roosts are found in trees”. It is true that pipistrelle nursery roosts are rarely found in trees, but non-breeding pipistrelle roosts often are found in trees, and these roosts are also protected by the relevant UK and EU legislation.
19. In the same paragraph (4.2.5) the author states in defence of the low survey input that surveys “must be pragmatic and reasonable”. What is normally accepted is that ecology surveys should be proportionate to the scale of the development and its potential for impact. Given the very large scale of the development (acknowledged by the authors of the ERAP report in paragraph 1.1.5 as a “major infrastructure development”) and its direct and

indirect impact on these high risk trees, I would say in contrast that ***the very highest level of survey input would be expected in this case.***

20. The impact of the housing as a whole on foraging, commuting or roosting bats is defined in Paragraph 4.3.7 of the 2013 report as “negligible”. There is no justification whatsoever provided for this assessment.
21. In paragraph 4.3.8 the report accepts that “inappropriate lighting...could have a constant permanent long-term minor negative effect with certain/near certain (95%) confidence”. There is no justification for the terms used to define the impact nor for the confidence assessment. What constitutes ‘constant permanent long-term minor negative impact’? Is there a difference between permanent and long-term? Why is the impact minor and what does that mean in terms of actual impact on bats?
22. The assessment of impact of lighting refers only to “inappropriate lighting”. The impact assessment should address all forms of lighting, not just “inappropriate lighting”. The fact is that the roads and pavements will need to be lit; given the large scale of the development, this is clearly going to illuminate a large area of currently un-lit habitat. The bulk of the impact will be from indirect and reflected light, as well as from the lights of cars, houses, and security lights, which is mostly unavoidable, and none of which has been considered.
23. Paragraph 4.3.10 states that all trees identified as supporting features suitable for roosting by bats will be retained; however, Table 3.4 describes 4 high potential trees as recommended for felling. No explanation is given for how these trees will be retained despite the recommendations of the Tree Report 2012, and how the liability resulting from retaining trees (identified in a tree report as requiring removal) will be handled. In Section 5 (recommendations) it is proposed that a high risk dead tree is retained by installing fencing around the tree. This seems impractical for a location proposed for development into a housing estate; the removal of the tree is likely to be necessary, and therefore it should be properly assessed for bat roosts. Simply saying that a tree will now be retained is no excuse for a substandard survey input, because the tree will still be affected by disturbance, retention is unlikely to be genuinely achievable, so the presence of bat roosts should be determined beyond reasonable doubt.
24. One of the main areas of impact identified by MAB Ecology (other than potential for tree roost loss) was a loss of connectivity for bats along Germany Beck: we identified a busy bat commuting route, but we did not study the site for long enough to get an idea of where the bats are going to or coming from. We did however record both myotis species and pipistrelles as using the route. Paragraph 4.3.18 of the 2013 report assesses this impact by

- stating that roads are not a “significant barrier” to pipistrelles, but that the road could be “minor barrier”, this statement is not backed up by any evidence or clarification (what, for example, is a “minor barrier”). The impact is only assessed in terms of pipistrelles, despite other bat species being recorded as using the route. The paragraph goes on to state that they are unable to predict the impact with certainty, but that it “*could be* minor negative and permanent”. The impact on pipistrelles could also just as well be major and short-term, if for example, the bats abandon their roost and set up home somewhere else. However, the impact on other rarer species such as myotis bats, is not considered at all; these bats are generally not so well adapted to the urban environment and the impact may well be severe.
25. Paragraph 4.3.19 assesses the impact of “inappropriate lighting” of Germany beck as “minor, negative, permanent, and long-term”, again with no justification of these terms and what they mean: what is the difference between permanent and long-term, and can they coexist?
  26. Road deaths are considered in paragraph 4.3.20, and are then dismissed as “negligible” on account of the fact that bats are not flying around during “the busiest periods of traffic”. However, published articles (e.g. Lezinski 2007) show the highest levels of impact during dispersal (August / September), which is when dusk coincides with high levels of traffic.
  27. In conclusion (paragraph 4.3.21) the overall level of impact is assessed as “minor”, without any genuine analysis of impact or consideration of the range of species involved.
  28. After outlining some recommendations, the authors go on to state (paragraph 4.3.26) that the mitigated impact is “negligible”, and they say that “this can be predicted with a 50% to 95% confidence”. Even taken at its word, there is a 50% chance of the assessment being wrong. However, throughout this assessment, these figures and terms seem to me to have been pulled out of a hat, rather than being derived from any kind of scientific analysis. Impact assessments should be evidence-based, not subjective speculation. In my opinion this use of confidence percentages and impact definitions falls under the definition of “pseudoscience”.
  29. Further to the above, the authors then state that once the planting scheme has grown “the proposed development of the new junction and road will have a major positive impact upon bats at the district or parish level predicted with a probable (50% to 95%) confidence”. There is absolutely nothing given in support of this statement. Taken at face value it seems absurd to “predict” that the developed site will be much better for bats than the undeveloped site, when the development involves creating an access road to a 700 home housing estate with shops and facilities on what is at the moment largely undeveloped land of high value to wildlife. An ecologist making a statement such as this surely needs to offer some evidence in

support. How are these levels of confidence calculated? What is the “district or parish level”? What constitutes a “major positive impact” on bats when it results from road building? The apparently biased approach of the ecologist in this case not only undermines the entire ecological impact assessment of this development (not just bats), it also casts doubt on the integrity of environmental impact assessments as a whole. The reason behind membership of professional bodies such as IEEM is so that high professional standards are maintained. The impact assessment provided by ERAP in this case in my opinion falls below the standards expected by the industry as a whole.

### **Recommendations**

30. Paragraph 5.2.3 states effectively that all tree lines will be retained other than those that are being removed; this is not exactly informative. It would be useful to know , for example, what proportion of the total area of tree lines and shrub areas are being removed.
31. Section 5.4 introduces ‘hop-overs’ for bats to “encourage movement to the area of proposed ecological enhancement”. It has recently been demonstrated in research by Anna Berthinussen (a student of Prof J Altringham at Leeds University) that ‘hop-overs’ have no such effect; bats continue to use their original route, even when that brings them into direct conflict with cars and degraded habitat. Nine years after installing a gantry ‘hop-over’ only 15m from the original route, the bats show no signs of using the gantry (Berthinussen 2012). There are few details provided for the ‘hop-overs’ and why the authors think they will work.
32. Paragraph 5.4.7 looks at proposed thinning of a shrub layer “once sufficient tree canopy has established”. How will this management planning be enforced, given that a woodland canopy will take at least 40 years to develop? It is outside of the scope of the bat survey mitigation plan to be looking at potential management so far into the future.
33. The ERAP report proposes that the “raised section of the proposed new road presents an opportunity to create suitable habitat for bats.....which will help to maintain and enhance the Beck’s suitability for foraging and commuting bats” (paragraph 5.4.11). It is not credible to propose a new raised road on a site which is currently almost entirely natural (wet grassland, scrub and trees) as “an opportunity for enhancement”. By downplaying the impact of the development, the authors are categorizing this habitat creation as ‘enhancement’; if the actual impact was properly assessed, it is more likely that the habitat creation would be seen as mitigation of impact rather than ‘and opportunity for enhancement’.

34. Tree planting is presented in paragraph 5.5.6 as a means of creating “natural cavities for roosting bats”, and it is recommended that these are heavily fertilised to create fast growth. Again the authors are looking into the distant future (100+ years?) for signs of ecological enhancement.
35. Enhancement proposals in section 5.8 (bat boxes etc) are always welcome as additional measures, but considering that the retained lines of trees will be largely surrounded by housing and roads, it is unlikely to have any success in take-up by bats.
36. The conclusion of the report (5.9.1 and 5.9.2) is that by following the recommendations of the ERAP report there will be no adverse impact on bats, and that the development as a whole should be seen as an “opportunity”. In my opinion the authors are confusing absence of impact with mitigation, and have structured the whole report to this end (i.e. to deny there is any impact and then to propose mitigation as “enhancement”). In my opinion it remains to make a thorough assessment of impact (which cannot yet be done due to poor quality and coverage of surveys) and then to look at evidence-based mitigation of the impact on roosts, commuting routes, and potential roost sites.

#### Conclusion

37. The ERAP report is fundamentally flawed in all three main areas: survey input, impact assessment, and recommendations.
38. As identified in our appraisal of 2012, what is required is year-round surveying of the affected area for bat usage and roosts, using techniques such as full-spectrum ultrasound analysis, wide scale deployment of professional experienced bat ecologists, remote bat recording throughout the site (using full spectrum recorders if possible, or Anabat units), tree climbing and / or use of cherry pickers on all trees with potential bat roost habitat.

## **References**

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Read more at: <http://phys.org/news/2012-06-bridges-dont.html#jCp>

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