



**Bat Survey - Land East of Bemersley Road,
Bemersley Green, Staffordshire**

Report reference: R-1368-03.1
July 2014

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Report Reference:	R-1368-03.1
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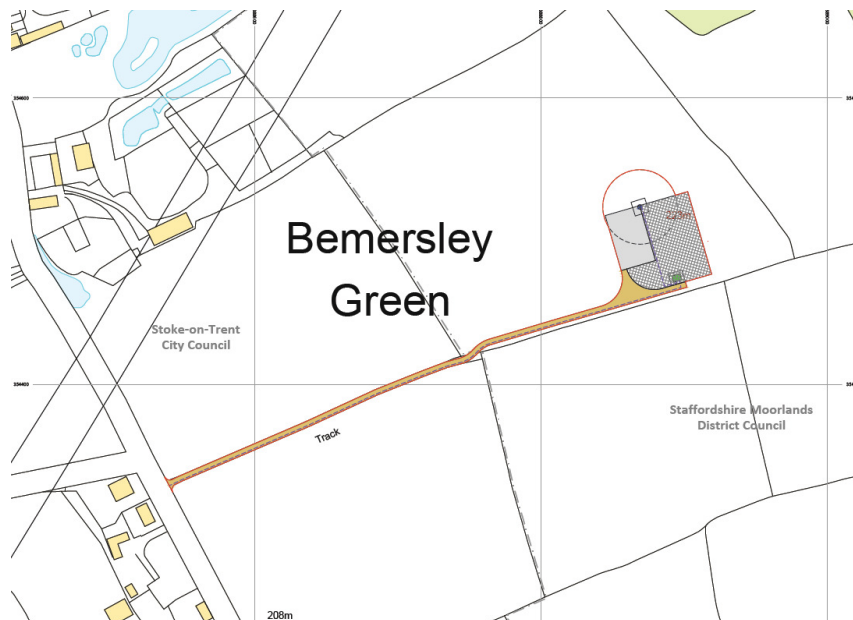
Summary Statement

The proposals would not be expected to impact significantly on local bat populations.

Introduction

1. Brooks Ecological Ltd was commissioned by Empirica Investments to carry out a Bat Survey at the location of a proposed wind turbine at Land East of Bemersley Road, Bemersley Green, Staffordshire (SJ 889 545). In making our assessment we refer to the proposed turbine location supplied by the client and illustrated in Figure 1 below.

Figure 1 Site location



2. It is proposed to erect a single wind turbine which is 45 m to hub and 67 m to tip. The proposed location of the turbine is shown in Figure 1 above.
3. In line with current guidance produced by the Bat Conservation Trust (2012) and Natural England (2012) the bat survey started with a thorough study of the site and the context of the local landscape. This study is presented in our previous scoping report for the site R-1368-02 and has been used to determine the aims and scope of further study directed at the site.
4. In this instance scoping concluded that the general landscape is likely to be used by bats in reasonable numbers and the advisory stand-off distances provided by Natural England in their Technical Information Note (TIN051) were applied to the turbine location. Following re-siting the location exceeds the

required stand-off of 56 m - the nearest habitat feature likely to be used by bats is c.60 m from the proposed turbine location.

5. Bats' general use of the local landscape being accepted, and measures (following current guidance) having been put in place to avoid significant impacts to these bats, the current surveys do not seek to monitor the use of local features, but rather to provide assurance that conflicts at the turbine location are not likely.
6. A potential issue, on which decisive guidance (such as TIN 051) is not available, is the presence of high risk species such as noctules, Leisler's and Nathusius' pipistrelle bats in the wider landscape. These bats are at more risk due to their high flight which is less associated with defined habitat features obvious on the ground. Noctules in particular are associated with roosts in trees and will commute between woodland blocks / copses - behaviour which can bring them into conflict with wind turbines in some locations. Discussion with Natural England on this point suggests that it is very much down to the consultants experience and judgment as to whether there is a risk to such species.
7. Study of the wider landscape and of the distribution of these higher risk species suggests that the presence of noctule bats in the wider landscape could be expected and that there is *potential* for them to regularly commute through the turbine site. For this reason further survey has been recommended in order to provide evidence as to whether the proposed turbine conflicts with any regularly used commuting routes.
8. The following scope has therefore been applied to the site:
 - Walked transect of the site carried out by an experienced surveyor during Autumn, Spring and Summer periods
 - Static monitoring carried out during Autumn, Spring and Summer periods
9. The aim of this scope being to:
 1. Identify any use of the turbine site by higher risk species

Static Monitoring

Static monitoring

10. A Wildlife Acoustics SM2+ bat detector was left on the site between the 13th and 16th of September 2012, 7th and 11th May 2014 and 11th and 14th July 2014.
11. This detector was fitted with two long range multidirectional microphones which were positioned as shown in Plan D-1368-03.1 provided as an appendix. The microphones were positioned to monitor the levels of bat activity at the turbine location.
12. Analysis was overseen by Rob Weston BSc (Hons) MSc MIEEM. Rob is a licensed bat surveyor (20120500), has received advanced level training in call analysis, has several years experience in and has delivered training courses to other bat workers in remote recording.
13. Data gathered from the period of static monitoring is presented below. The following species were identified at the site during static monitoring surveys:

Table 1 Bat species recorded

Species	Risk	Autumn	Spring	Summer
Common pipistrelle	Low	Yes	Yes	Yes
Noctule	High	Yes	Yes	Yes
Leislars	High			Yes
Myotis sp.	Low	Yes		Yes
Soprano pipistrelle	Low	Yes	Yes	Yes
Brown long eared	Low			Yes

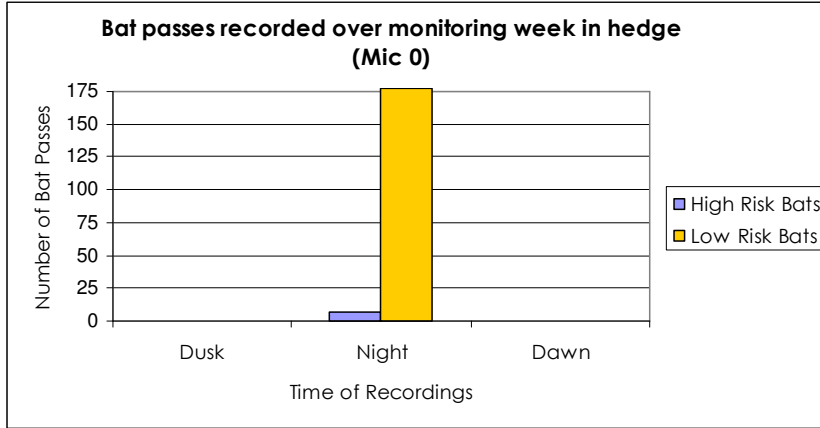
14. Information presented in the tables below represents the total number of bat passes recorded over the monitoring period and draws comparisons between the number of high risk and low risks bats using the area. The graph quantifies this difference and presents information on activity periods which could indicate the presence of local roosts.

September static Monitoring – Hedge line

Table 2: Bat passes recorded at hedge line

	Time	13/09	14/09	15/09	16/09
Passes Recorded at Hedge Line	Low Risk bats	43	32	34	63
	High Risk Bats	0	1	1	10

Figure 2: Time of recordings

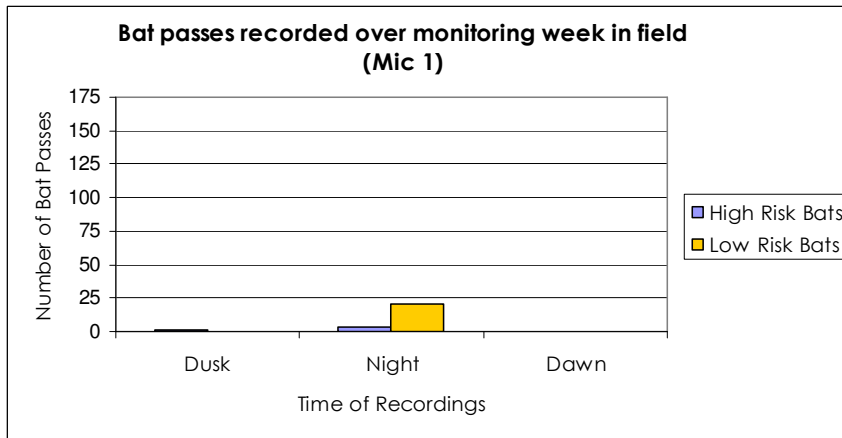


September Static Monitoring – Turbine location

Table 3: Bat passes recorded in open field

Passes Recorded in open field	Time	13/09	14/09	15/09	16/09
	Low Risk bats	6	10	3	2
High Risk Bats	0	0	3	2	

Figure 3: Time of recordings

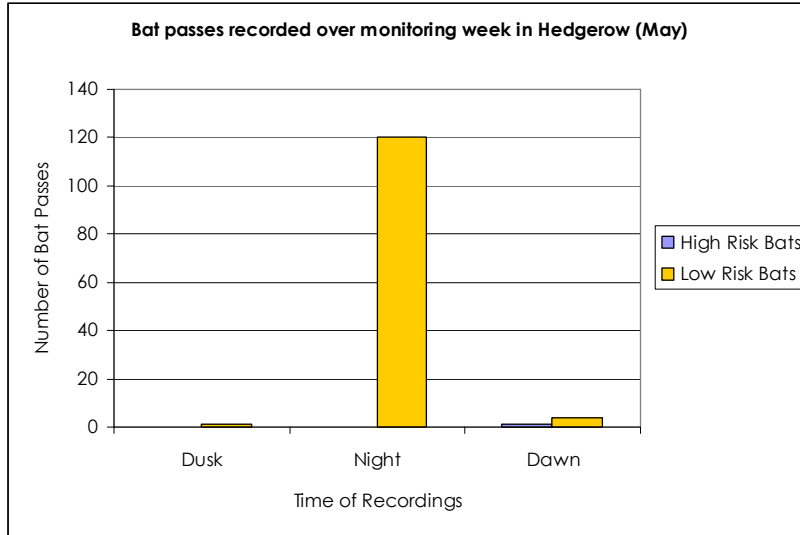


May Static Monitoring – Hedge line

Table 4: Bat passes recorded at hedge line

Passes Recorded at Hedge Line	Time	07/05	08/05	09/05	10/05	11/05
	Low Risk bats	7	107	4	0	6
High Risk Bats	1	0	0	0	0	

Figure 4: Time of recordings

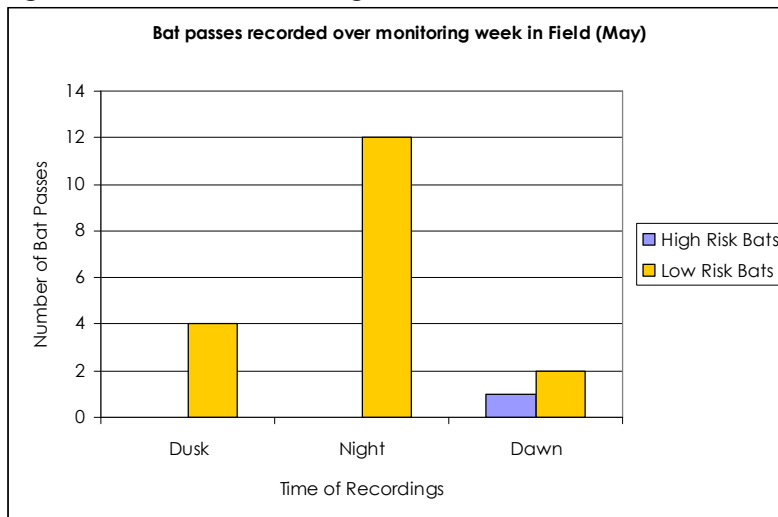


May Static Monitoring – Turbine location

Table 5: Bat passes recorded in open field

Passes Recorded in open field	Time	07/05	08/05	09/05	10/05	11/05
	Low Risk bats	3	4	2	1	2
High Risk Bats	1	0	0	0	0	

Figure 5: Time of recordings

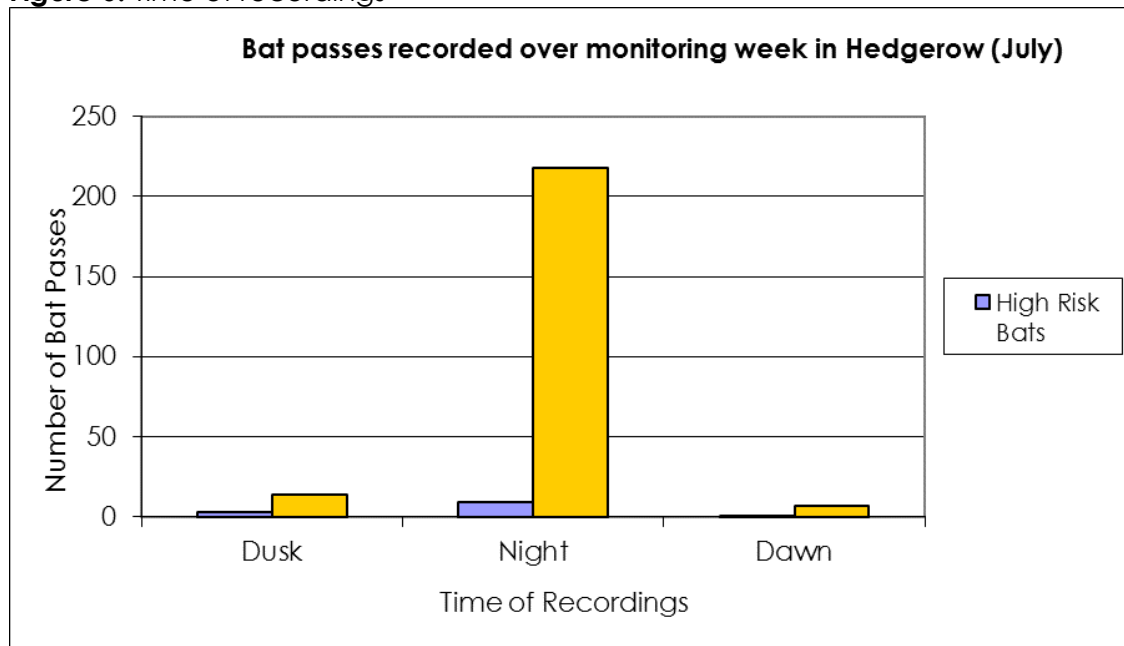


July Static Monitoring – Hedge Line

Table 6: Bat passes recorded at hedge line

	Time	11/07	12/07	13/07	14/07
Passes Recorded at Hedge Line	Low Risk bats	94	57	17	77
	High Risk Bats	2	4	0	5

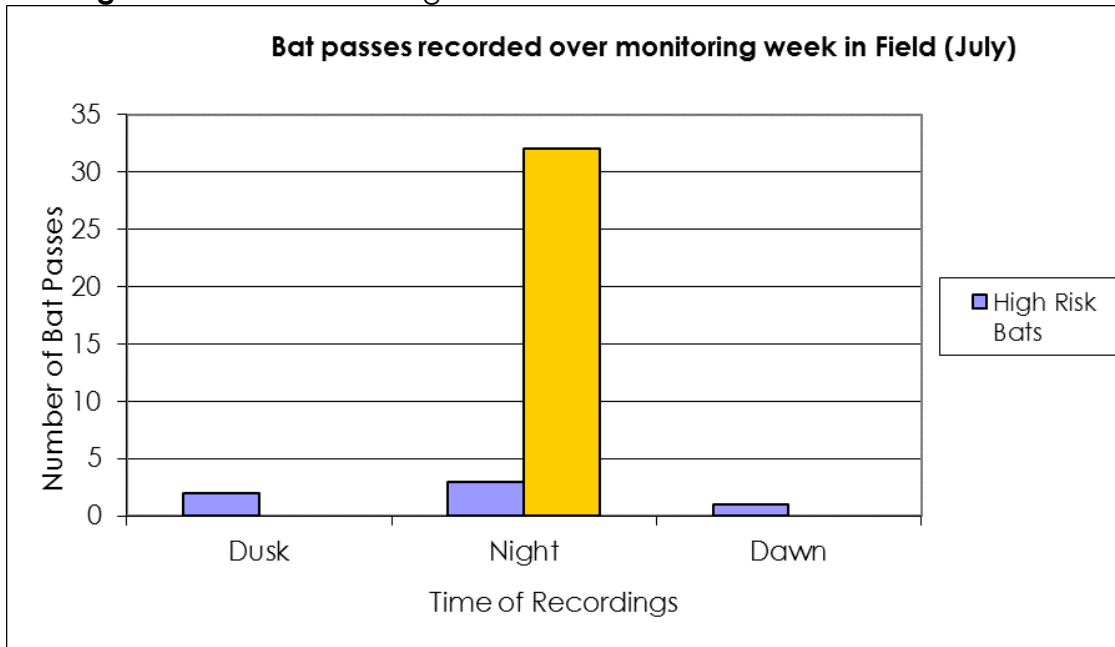
Figure 6: Time of recordings



July Static Monitoring – Turbine location

Table 7: Bat passes recorded in open field

	Time	13/09	14/09	15/09	16/09
Passes Recorded in open field	Low Risk bats	9	9	4	6
	High Risk Bats	1	3	0	3

Figure 7: Time of recordings

15. The periods of monitoring returned low numbers of recordings of six bat species, four of which fall into the low risk category – common and soprano pipistrelle, brown long eared and an indeterminate *Myotis* species. Noctule bat and Leislars bats, represents the only high risk species recorded on site, but were present in very low numbers.
16. Positioning microphones in the open field, indicative of the turbines location, allows assessments of possible conflicts between bats and the proposed turbine. The results show very few bats venturing into the open field when compared to the numbers recorded at the nearby hedgerows.
17. The very low numbers of high risk species passes recorded throughout the survey (between 0 and 5 passes on any one night) are most likely representative of single bats occasionally passing close to the turbine site. These bats were recorded at similar times on both microphones, calls being clearer and slightly more numerous on the hedge line microphone suggests that movement was along the hedgerow or to the south or east of the site, reducing possible conflicts. Only on the night of the 16th September was this figure of 5 passes exceeded, although most of these 10 passes were only detected at the hedgerow microphone suggesting that the bats actually passed to the south of the site by some distance.

18. The general lack of recordings at dusk and dawn, the period when movement to and from local roosts would be expected, suggests bats are not roosting near by. The arrival of any species of bat at the site occurred between 30 minutes and 1 hour after sunset suggesting that whilst the hedgerows and trees around the site are part of a foraging route used by small numbers of bats - they do not depend on the route to access local roost sites.
19. To provide some context to these results, a similar site with good levels of bat activity monitored over a similar time period and with similar equipment can return thousands of bat registrations of varying species. At the Land East of Bemersley Road site there were far less than this logged of all species and never more than 17 passes by high risk species. It should also be noted that due to their low frequency long range calls, noctule bats are picked up disproportionately on bat detectors.

Walked Transects

20. This was designed primarily to provide context to the static monitoring results of the turbine site. The transect surveys would be used to identify any local features favoured by commuting / foraging bats and identify commuting routes in and around the application site and its environs. Transects were not used at this site to highlight local roosts or to assess the scale of use of features close to the site as the projects location already accounts for such use.

Table 8: Survey summary

Date of Survey	Temperature	Weather	Invertebrate activity
13.09.12	18°C	Fine and partially cloudy, light wind.	Moderate
12.05.14	12°C	Fine but cool 40% cloud, light wind.	Low
16.07.14	20°C	Fine and dry, 10% cloud cover. No wind.	High

21. The transect identified in Plan D-1368-03.1 was walked for a period of 1-2 hours on each occasion. The transect was designed to take in potential roost features (such as mature trees) and to visit areas of prime foraging and commuting habitat within the zone of influence of the turbine, as well as to sample poorer habitats associated with open field and the turbine location. Bats were identified using a heterodyne recorder and logged manually onto a plan of the site. Plan D-1368-03.1 has been produced to provide a summary of bat activity at the site. A heat map format has been used in this instance as it provides a clear summary avoiding the complexity of marking down individual passes
22. Surveys were directed by Rob Weston BSc (Hons) MSc MIEEM. Rob has many years experience of carrying out bat surveys in a professional capacity and is registered to use the new Class Survey Licence WML CL18 (Bat Survey Level 2). He is a member of the West Yorkshire Bat Group, the Bat Conservation Trust and runs training in bat surveys for student ecologists.

Transect Survey 1 - September

23. The transect began at sunset and started closest to woodland to the north. No bat activity was recorded for almost 1hr until a single common pipistrelle bat flew from the woodland edge, and passed southwards along the hedgerow. The next bat recorded was again a single common pipistrelle flying along a similar course - this time seen to leave the site to the south along a hedgerow. Shortly afterwards another common pipistrelle (probably the same bat) returned along this course and followed the hedgerow back towards the woodland to the north. No further activity was detected during the transect.
24. No higher risk bat species were detected throughout the survey.

Transect Survey 2 - May

25. Bat activity at the site was very low on this occasion with only a single registration of a common pipistrelle bat being logged along the hedgerow to the south west of the site.
26. No higher risk bat species were detected throughout the survey.

Transect Survey 3 - July

27. Again bat activity was very low with only registrations by occasional foraging or commuting single common pipistrelle bats being logged along hedgerows. The location of these logs being summarised in plan D-1368-03.1. A visit was made during this transect to the farm pond to the north east of the site - this felt to be the most likely feature in the are to attract bats, the pond was found to be used by a single foraging common pipistrelle - present continuously during the survey.
28. A single noctule bat was seen to fly over the site at 00.20 this appeared to be in a line crossing the north eastern corner of the application field - see plan D-1368-03.1

Evaluation

29. The information gathered during monitoring and transects during September, May and July illustrates that the site is used by low numbers of six different species of bat. Populations of four of these species are considered to be at low risk from wind turbines and the numbers of bats present at the site, coupled with their low risk status suggests that significant impacts on these populations can be reasonably ruled out.
30. Noctule bats are considered to be at a higher risk from the presence of wind turbines due to their flight paths. While noctule and leisler's bats were recorded on site, the extreme paucity of passes recorded combined with the very sporadic nature of the recordings suggests noctule bats are not regularly commuting past the proposed turbine location. Because of this a significant impact on populations of this species can be ruled out.
31. As would be expected the low levels of bat activity at the site appear to be focussed on the linear habitats around the site with bats foraging only occasionally into the peripheries of the application site field and based on results to date it is expected that adherence to the guidelines on stand-off distance in TIN051 (and presented in our report BE-R-1368-02.2) will be more than adequate to ensure that potential offences in relation to bats can be avoided.
32. Determining the location of the turbine at this site has been an iterative process and the location has been chosen to achieve the required stand-off distances.

Recommendations

33. The proposals would not be expected to impact significantly on local bat populations or result in offences relating to bats' legal protection.

Site enhancement

34. Due to their restricted planning boundaries it can be difficult to enhance wind turbine sites without creating potential conflicts. Enhancement associated with this development would be best focussed on off-site management for amphibians (this is discussed in our earlier report R-1368-02 - enhancement for bats is not proposed).

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 Typical transect

 Low level irregular foraging

 Low level regular foraging

 Medium level regular foraging

Bat activity heat map: areas without shading: no bat activity noted



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Project: Land east of Bemersley Lane

Title: Composite Bat Activity Survey Plan

Drawing Number: D-1368-03.1

Revision:
