



Figure 1. Site Plan

Introduction

1.1 Ecologist and licensed bat worker Dr Garry Mortimer was commissioned to carry out bat roost and foraging surveys on site for the proposed construction of wooden holiday chalets in a woodland site adjacent to the B905 near Denovan House, FK66BJ. This survey is as required by Council in regards to a potential planning application.

1.2 Aims and Objectives

- To determine if any bat are present on site and whether two trees that are to be felled for safety reasons have roosting bats present.
- To recommend mitigation as required.

1.3 Bats Legal Status

Bats are protected under Annex IIa and IVa of the EC Habitats Directive (92/43/EC) as applied in Scotland under the Conservation (Natural Habitats &c.) Regulations 1994, as amended by the Conservation (Natural Habitats, &c.) Amendment (Scotland) Regulations of 2004, 2007 and 2009. This creates a series of criminal offences that can result in substantial fines and/or imprisonment. These offences are listed below and make it illegal;

- To deliberately or recklessly capture, injure or kill bats
- To deliberately or recklessly harass a bat or group of bats
- To deliberately or recklessly disturb a bat wherever they occur in a manner that is, or in circumstances which are, likely to impair its ability to survive, breed or reproduce, or rear or otherwise care for its young
- To deliberately or recklessly disturb a bat while it is hibernating or migrating
- To deliberately or recklessly disturb a bat in a manner that is, or is likely to significantly affect the local distribution or abundance of the species to which it belongs
- To deliberately or recklessly disturb a bat while it is rearing or otherwise caring for its young
- To deliberately or recklessly disturb a bat while it is occupying a structure or place which it used for shelter or protection
- To deliberately or recklessly obstruct access to a breeding site or resting place

of a bat, or otherwise deny the animal use of the breeding site or resting place (note that this protection exists even when the bat is not in occupation)

- To damage or destroy a breeding site or resting place (Note this is a strict liability offence and the prosecution do not have to prove deliberate or reckless intent, merely that the roost was damaged or destroyed)
- To possess or control or transport any live or dead bat which has been taken from the wild or anything derived from a bat or any such part of a bat
- In addition to the above offences it is an offence to knowingly cause or permit such offences to be committed.

Site Description

1.4 The proposed site at Denovan is in woodland and scrub adjacent to the B905. There is an access track at the top of the site and the ground drops sharply to the B905. Eight wooden holiday chalets are planned at the top of the site (Figure 1). A trees survey was carried out previously and two mature trees adjacent to the B905 will have to be felled for safety reasons (Figures 2-6).



Figure 2. Scrub area at top of site where chalets proposed (trees to remain).



Figure 3. Typical habitat on site.



Figure 3. Access track top of site.



Figure 4. Mature tree to be felled.



Figure 5. Mature tree to be felled.

1.5 Standards and Guidance Followed for Bat Surveys

In August a site survey looking at the potential of the site to contain bat roosts and suitability for foraging and two bat detector surveys by Dr. G Mortimer and field assistants was carried out in accordance with guidance from the BCT.

1.6 Tree Inspections

The two trees to be felled were surveyed utilizing ladders and 10 x 40 binoculars and an endoscope where appropriate. The trees were checked for any potential bat access points.

Results

1.7 Site Survey

It is known that deciduous woodland is a favored foraging and roosting habitat for bats. Given the location it would be expected that bats would frequent the site given that building and mature trees are present throughout the general area. The actual site has a paucity of potential roost sites. Areas of scrub are present and many of the trees are immature with very limited potential bat access points available (see Figures 2 & 3). Where the woodland chalets are proposed is within a scrub area and no mature trees are to be felled.

1.8 Trees to be Felled

There was one possible cavity present in the two mature trees to be felled that had the potential to hold a bat roost.

1.9 Dusk & Dawn Emergence Surveys

In August 2016 three bat surveyors in suitable conditions carried out dusk/dawn bat emergence/re-entry surveys concentrating on the two mature trees to be felled.

08/08/16 Dusk - Start 20.20 – End 23.10; Sunset 21.05; Weather: 1/8 Oktas cloud cover; Wind: Force 2 West, Temperature: 11° Celsius.

30/08/16 Dawn - Start 04.30 – End 06.40; Sunrise 06.15; Weather: 2/8 Oktas cloud cover; Wind: Force 2-3 West, Temperature: 16° Celsius.

1.10 BATBOX Duet Heterodyne / Frequency Division bat detectors and MP3 recording devices were used to enable bat detection and record any bat echolocations for subsequent analysis using Batsound software. Handheld GPS units were used to determine positions and radio receivers were used to communicate between surveyors. Information recorded included species, time seen, location, flight direction, habitat associations & behaviour.

1.11 Bat Detector Surveys on Trees

No bats were recorded leaving or entering any roosts in the two trees surveyed. In the general area of the site a maximum of two soprano pipistrelle bats were recorded feeding along the B905 during the dusk survey. A single soprano pipistrelle was recorded foraging on site during the dawn survey.

Discussion of Bat Survey Results

1.12 The bat surveys were undertaken to assess the suitability of the site for foraging bats and whether there were roosting bats present in the two trees to be felled.

1.12 No bats were recorded entering or leaving any potential roosts in the two trees during both dusk and dawn surveys.

1.13 Small numbers (< 3) of soprano pipistrelles were recorded foraging in the general vicinity of the site.

1.14 It can be said that the proposed development site has no bat roosts present in the two trees to be felled.

1.15 The proposed development would have a negligible impact on any bat species present on site for foraging. The footprint is extremely small and there is an abundance of suitable foraging habitat over the whole area.

1.16 If suitable mitigation is followed by erecting e.g. nine bat boxes on trees or chalets within the site boundary then this would enhance the sites suitability to bats by providing potential roosts within a good foraging area.

Conclusion

1.17 It is considered that the felling of the two trees at Denovan poses a negligible risk of death or disturbance to European Protected Species and it is safe to proceed.

1.18 Due to the very small footprint of the proposed chalets, that no trees are to be removed and the very small numbers of bats in the general area, it is considered that the development would have no risk of disturbance to foraging bats.

1.19 The site could easily be enhanced for bats by the erection of nine bat boxes on suitable trees or chalets. This would provide greater roost potential for bats within the woodland.

- **DISCLAIMER**

This report has been prepared by Dr Garry Mortimer of GLM Ecology, with all reasonable skill and care within the terms of the agreement with the client. Dr Mortimer disclaims any responsibility to any parties in respect of matters outside this scope.

Best efforts were made to meet the objectives of this study through desktop study and field survey.

Information supplied by the client or any other parties and used in this report is assumed to be correct and GLM Ecology accepts no responsibility for inaccuracies in the data supplied.

It should be noted, that whilst every endeavour is made to meet the client's brief, no site investigation can guarantee absolute assessment or prediction of the natural environment. Numerous species are extremely mobile or only evident at certain times of year and habitats are subject to seasonal and temporal change.

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DENOVAN TANK SIZING and SOAKAWAY SIZING

British Water					
Cabins and Wardens	Number of People	Total	Hydraulic flow/person	Sub Total Flow	
	8	5	40	150	6000

Pods
(Reception
as Toilet
Block)

10	2	20	100	2000
Total Flow				8000
PE Equivalent Septic Tank Volume				
8000/150				66.66667
Balancing effect				60.4

SOAKAWAY SIZE

Porosity test

results	Seconds per mm	P from above	At $V_p \times P \times 0.25$	
Vp	32	60	480	