



**73 Glyn Road, Lower Brynamman,
Ammanford, Neath Port Talbot, SA18 1SS**

Bat Survey Report for Mr & Mrs Davies



***A European Protected Species Licence will not be required
for this development to be undertaken***

Report type	Bat Survey Report
Report reference	IG201973GlynRoad
Site	73 Glyn Road, Lower Brynamman, Ammanford, Neath Port Talbot, SA18 1SS
Grid reference	SN 70450 13587
Client	Mr & Mrs Davies
Date(s)/time(s)/type(s) of survey(s)	Scoping survey: 20 th August 2019; Dusk activity survey: 20 th August 2019 between 20:20 and 22:30
Surveyor details	Scoping survey and activity survey: Mr Glyn Lloyd-Jones, Natural Resources Wales Licence number S085044/1 and Miss Ceri Daugherty, Natural Resources Wales Licence number S086102/1 Activity survey: as above with assistance from Sharon Doherty and Mike Jones
Architect	Mr C. Masters, Masters Architectural Ltd

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Executive summary

- ✧ 73 Glyn Road (the property) is subject to proposed plans for replacement of the roof. It is a south facing detached bungalow with an attached garage on its west elevation. It is constructed of block walls which have been rendered and dashed (with some brick facing) and has a bitumastic felt lined pitched tile roof – with the roof over the garage having rooflights within. The roofs are in very good condition with no slipped/damaged/missing tiles, and the walls have no cracks, crevices or missing render. The property has uPVC soffits/fasciae, rainwater goods, windows and doors. The soffits/fascias are tight to the walls and the windows and doors are intact and remain closed when not in use. The west gable end wall has no fascia boards but does have metal flashing that is tightly bonded to the wall. Internally, the bitumastic felt lining is in very good condition with no tears or other damage and the surfaces and items stored within have only dust on them. The roof section above the garage also has rooflights which means it is very light internally, meaning it's less suitable for day roosting.
- ✧ On the 20th August 2019, I&G Ecological Consulting Ltd undertook a daytime bat scoping survey of the property. To provide extra confidence, a dusk survey was undertaken on the 20th August 2019. The weather conditions present at the property were conducive to bat activity and access was available to all parts of the property.
- ✧ This report confirms the findings of these surveys, completed in accordance with current best practice (Collins, J. (Ed.) 2016) and conducted by experienced, licensed ecologists and an experienced assistant.
- ✧ The property is located adjacent within the village of Lower Brynamman, of Gwaun-Cae-Gurwen and approximately 16km north of the town of Neath. It is within a village but the immediate surroundings to the west and north are rural and is in **close proximity to favourable bat habitat, but it is not within 2km of any sites which are designated for their bat interest.**
- ✧ As part of the scoping survey undertaken by I&G Ecological Consulting Ltd, no bats or their signs were found at the property. It is considered to have **very low** potential to support roosting bats, and a **very low** risk of bats using the features present. During the activity survey, three species of bat; **Common pipistrelle, Soprano pipistrelle and Myotis species** were using the surrounding environment for foraging, commuting and socialising, but no bats were seen to leave or enter the property. **There are** therefore currently **no bats using the property**, it receives no ecological protection under wildlife legislation and there are no ecological constraints to the proposed works.
- ✧ **No evidence of nesting birds** was found and **no signs of owl activity** were discovered.
- ✧ Recommendations for enhancement have been made as follows, and are to be included in the final plans:
 - ✧ **Recommendation 1:** 1 x Schwegler 1WQ (or similar) is to be affixed to the west gable end wall of the property or to a tree within the ownership of the client and within the curtilage of their property. To be affixed in an elevated position away from artificial light and not directly above any windows or doors.

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1. Introduction

1.1 Scope and purpose of survey

1.1.1 Any sign of use of a site by bats is enough to confirm that the space has ‘bat interest’ and is enough to confirm the importance of the location to bat species. All species, as well as their resting places, are protected by law and the site is protected even when bats are not present. See appendix 1 for an introduction to bat surveys, including the aims of the scoping survey, appendix 2 for an overview of the legislation, and appendix 3 for information on roost types and survey timings. Appendix 4 lists all surveyors who undertake work for I&G Ecological Consulting Ltd and includes their experience.

1.1.2 This report confirms the results of, and conclusions and recommendations from, the surveys undertaken. It aims to provide the local planning authority with sufficient information to enable a full assessment of the potential ecological impacts of the proposed development. The CIEEM Guidelines for Ecological Report Writing (2017) state that it is important that the structure and content of a report should be proportionate to the predicted degree of risk to biodiversity and to the nature and scale of the proposed development. This report has therefore been written in line with these guidelines.

1.1.3 For the purposes of this survey report, the site boundary is defined as the building(s) and surfaces within the overall site footprint.

1.2 Site characteristics and proposed works

1.2.1 73 Glyn Road (the property) is located adjacent within the village of Lower Brynamman and approximately 16km north of the town of Neath. It is within a residential area but the property is on the western edge and it is therefore within close proximity to favourable habitat; adjacent to it on its west side are fields (predominantly unimproved) with some mature hedgerows. There are further unimproved grasslands to the south-west and south-east while 1km to the north are the uplands of the Black Mountains. There are some small woodlands – including ancient woodland – within 100m to the north and 1km to the east and south. In relation to watercourses, the partially wooded corridor of the Afon Aman is only 100m to the north.



1.2.2 The property is subject to proposed plans for replacement of the roof. Figure 1 shows an aerial view of the property and figure 2 on the following page shows the wider environment. Plan drawings were not available at the time of writing this report.

Figure 1: Aerial view of the property which is outlined in red (from Apple® Maps)

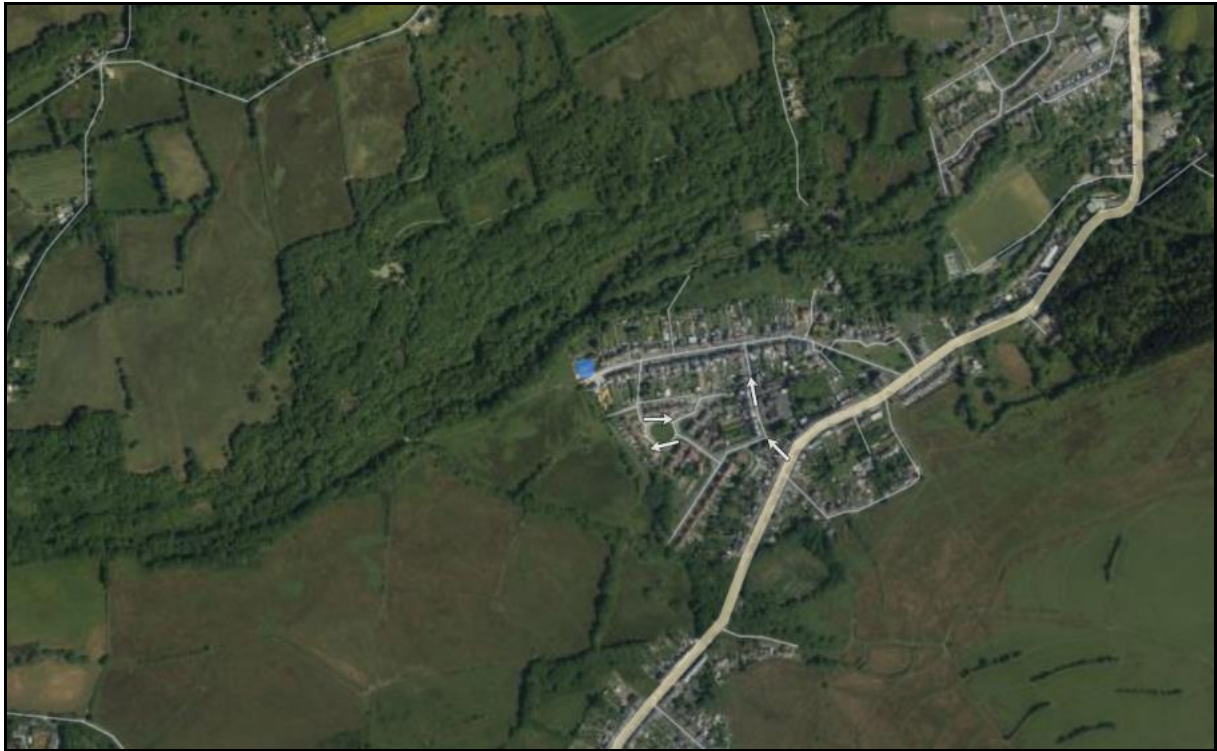


Figure 2: Map showing the wider environment.
The property is indicated by a blue circle. (from Apple® Maps)

2. Desk study methods and results

2.1 Methods

2.1.1 A 2km search area is used which covers the predicted zone of influence of the proposed development. Multi-Agency Geographic Information for the Countryside (MAGIC) and Lle are both used to establish the proximity of National and International Statutory Designations, particularly in relation to designations for bat interest. Species searches are also conducted through the Local Records Centre (LRC) where appropriate. An online search of planning applications at the property is undertaken to understand its planning history, especially relating to bats.

2.2 Results

2.2.1 The property is not within, adjacent to, nor within 2km of any sites which are designated for their ecological significance. Within 2km there are 22 Areas of Ancient Semi Natural Woodland (ASNW) and one Restored Ancient Woodland Site; the closest being an ASNW 160m to the north. Details of Sites of Importance for Nature Conservation are held by the LRC (see below).

2.2.2 An LRC data search was not undertaken due to the small size, low predicted impact, and nature of the development. The overall impact on biodiversity is likely to be localised and of low significance and current proposals suggest no land will be lost or linear features severed. It is considered very unlikely that the development will have any impact outside the footprint of the works. The data search results would be considered unlikely to impact

on the decision-making process. This approach is consistent with CIEEM Guidelines for Accessing and Using Biodiversity Data (2016).

2.2.3 An online search found the following previous planning application: L1985/0463 for a proposed garage utility room and study extension was approved on the 24th September 1985.

3. Field survey methods and results

3.1 Methods

3.1.1 A Preliminary Roost Assessment (PRA) was undertaken to identify Potential Roost Features (PRF). Details of the equipment used by I&G Ecological Consulting Ltd can be found in appendix 1. The survey was undertaken by Glyn Lloyd-Jones and Ceri Daugherty and deployment of an Anabat was not required.

3.1.2 In relation to survey limitations, many of the UK species of bat are crevice dwelling, and bats or signs of bats can be difficult to find within a building. In addition, there may be areas that are inaccessible to the surveyor. Externally, the property is a bungalow and sufficient access was available to enable a thorough survey from ground level while internally, access was available to all areas. Due to the adjacent countryside, one activity survey was undertaken to provide extra confidence in our results and to understand how bats are using the site. As a result, using the equipment available to them, all accessible areas were thoroughly surveyed to maximise effectiveness. In addition, weather conditions were very good.

3.1.3 The dusk activity survey was undertaken on the 20th August 2019 and the surveyors were Glyn Lloyd-Jones, Sharon Doherty, Mike Jones and Ceri Daugherty. Sunset was at 20:29, the survey started at 20:20 and ended at 22:30. The weather was cloudy with some sunny spells, there was a south-westerly wind of approximately 4mph, humidity was around 80% and the temperature started at 16.6°C and ended at 15.9°C.



3.1.4 Figure 3 shows the position of surveyors during the activity surveys. Each surveyor had a Magenta 5 or an Elekon Batscanner bat detector to assist in identification and detection of bats and their behaviour.

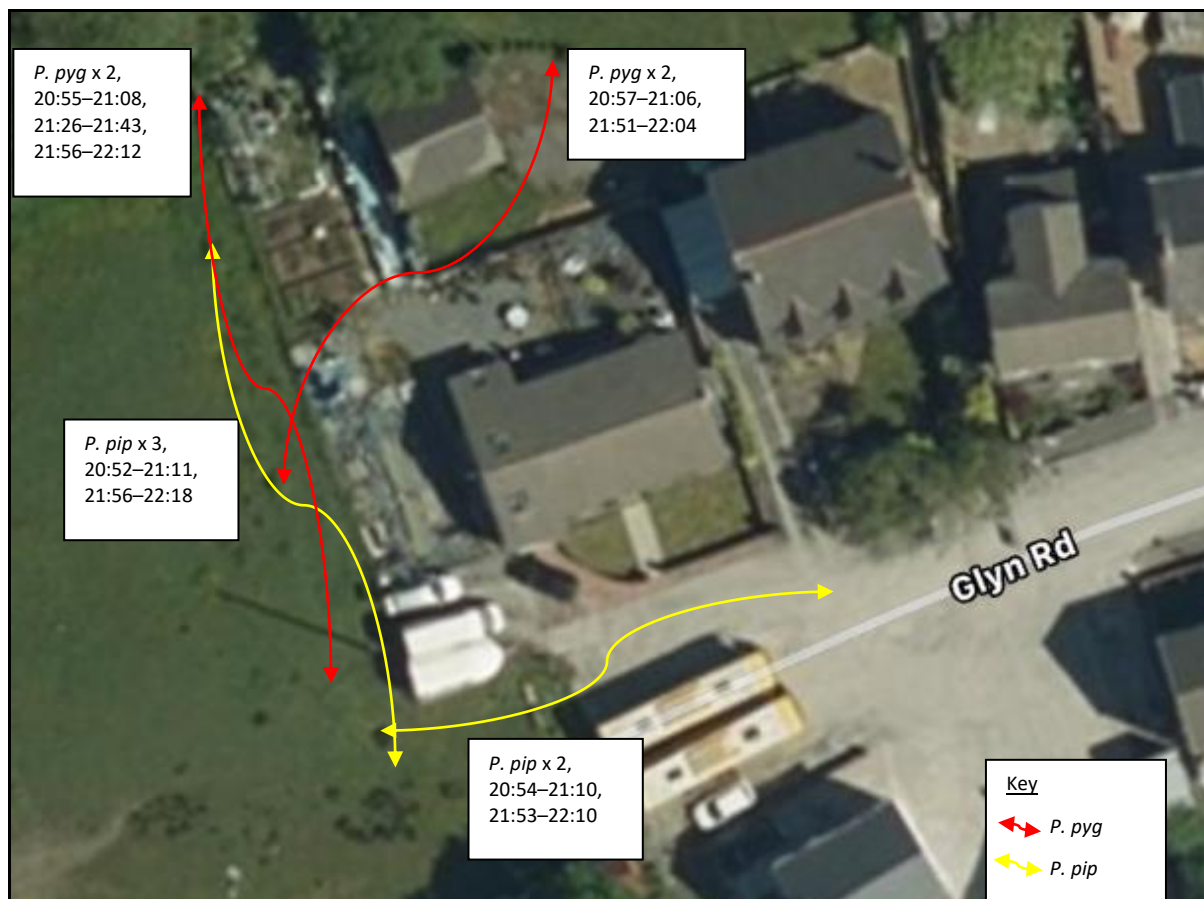
Figure 3: Surveyor positions during the activity surveys (from Apple® Maps)

3.2 Survey results

3.2.1 The PRA found that the property is a south facing detached bungalow with an attached garage on its west elevation. It is constructed of block walls which have been rendered and dashed (with some brick facing) and has a bitumastic felt lined pitched tile roof – with the roof over the garage having rooflights within. The roof is in very good condition with no slipped/damaged/missing tiles, and the walls have no cracks, crevices or missing render. The property has uPVC soffits/fasciae, rainwater goods, windows and doors. The soffits/fasciae are tightly bonded to the walls and the windows and doors are intact and remain closed when not in use. The west gable end wall has no fascia boards but does have metal flashing that is tight to the wall. Internally, the bitumastic felt lining is in very good condition with no tears or other damage and the surfaces and items stored within have only dust on them. The roof section above the garage also has rooflights which means it is very light internally. As a result of the findings, it is considered that the property has **very low** potential to support roosting bats and a **very low** risk of bats using the features present, and **no evidence of the presence of bats was found either externally or internally**. Site survey images are included in appendix 5.

3.2.2 Figure 4 shows the flight lines of bats detected and the times they were detected. The species of bats detected during the survey, and the nature of their activity was as follows:

Figure 4: Aerial map showing the flight lines of bats detected. (from Apple® Maps)



Sunset was at 20:29, the survey started at 20:20 and ended at 22:30

- **Common pipistrelle (*Pipistrellus pipistrellus*):** bats were using the road to the front (south) and the field to the west for foraging, socialising and commuting. The earliest activity was 23 minutes after sunset.

- **Soprano pipistrelle (*Pipistrellus pygmaeus*):** bats were using the garden/yard area to the rear and the road to the front (south) for foraging, socialising and commuting. The earliest activity was 26 minutes after sunset.
- **Myotis species:** calls were heard to the north late on in the survey, with the earliest calls being 52 minutes after sunset and calls (as well as partial calls) being heard up until about 96 minutes after sunset.

3.2.3 Activity summary: No bats were seen to leave or enter the property, nor fly across any part of the buildings but three species were using the surroundings for foraging and commuting.

3.2.4 No evidence of nesting birds was found and **no signs of owl activity** were discovered.

4. Conclusions and recommendations

4.1 Conclusions

4.1.1 Using the findings of the desk study and field surveys, it is **concluded that the property is located within close proximity to favourable bat habitat, but it is not within 2km of any sites which are designated for their bat interest and has very low potential to support roosting bats. Three species of bat (*P. pipistrellus*, *P. pygmaeus* and *Myotis* species) were using the surroundings for foraging and commuting, but bats are not currently using any part of the property. It is therefore considered that proposed development will not have a negative impact upon the bat species using the area.** The localised scale of the proposed development also suggests that the impact on the local ecology is likely to be low and the proposed enhancements detailed in 4.2 may result in a positive impact.

4.1.2 There are not considered to be any survey limitations which would impact upon the findings and recommendations of this report.

4.2 Recommendations

4.2.1 Enhancement measures will be required to help meet obligations within The Environment (Wales) Act 2016, as well as to compensate for the loss of roosting opportunity. Excellent long-term enhancement can be delivered by implementing measures outlined within appendix 6. Proposed enhancements are as follows:

Recommendation 1: 1 x Schwegler 1WQ (or similar) to be affixed to the west gable end wall of the property or to a tree within the ownership of the client. To be affixed in an elevated position away from artificial light and not directly above any windows or doors.

4.2.2 This ecological report will remain valid for a period of two years from the date of the last survey i.e. until 20/08/2021. A further scoping survey may be required to update the site information if planning is not obtained or works do not commence within that period, especially if the property to be developed has fallen into disrepair.

5. Outline method statement for planning

5.1 Outline method statement for planning

5.1.1 **No bats** were detected utilising the property and there are no restrictions on the timing of the work in relation to bats. The proposed plans involve works to the roof and therefore, extra care will be taken at wall tops and when stripping the roofs. All materials are to be lifted and not slid as – despite a negative survey – bats can be found in these areas. **If bats are found at any stage, all works will stop and a qualified ecologist called for advice and guidance.** As no bats or bat signs were detected at the property, no monitoring is proposed (Mitchell-Jones, 2004 – figure 4, p. 39).

5.1.2 Current lighting plans for the site are not known but should any be proposed they must ensure that exterior lighting is kept to a minimum to prevent any adverse impacts on bats. In particular, external lighting around the recommended enhancement must be carefully designed to avoid any impact upon bats. These must be included in the final plans.

5.1.3 Where external lighting is necessary, this should utilise a number of key design points to limit any impact, as follows:

- Low level lighting pointed towards the ground; LED bulbs to be used of 3000 Kelvin and below (Warm White light and not daylight);
- Use of light shields and hoods to direct the light downwards and prevent vertical and horizontal light spill; and
- Use of passive infrared (PIR) motion sensors on timers to ensure lights only come on when necessary.

Appendix 1: An introduction to bat surveys

A note on bat surveys

- ✧ All bats and their roosts, irrespective of the number of bats, species, and whether bats are present or not, are fully protected by the Conservation of Habitats and Species Regulations 2017 and the Wildlife and Countryside Act 1981 (as amended). Bats are the only mammal capable of true flight. They are notoriously difficult to survey for as they cannot be heard unaided and are difficult to see due to their nocturnal behaviour. They are also small and can live in the smallest of crevices, so may often be overlooked because of their size.
- ✧ Wales has relatively high numbers of most of the species that occur in Britain; the rural landscape with its abundance of wooded areas, river valleys and hedgerows means that buildings are commonly used as roosting sites by bats. This is particularly the case for older buildings (typically with stone walls and slate roofs) that are located close to good feeding areas, on the edge of settlements, or that are rarely disturbed.
- ✧ Bats may also change their resting and feeding places regularly throughout the year, depending on the time of year and weather conditions. Thus, other signs of use are also looked for such as their droppings or signs of feeding.
- ✧ To gain an understanding as to how bats are using a building, a survey may also involve dusk and/or dawn observations which may need to be repeated at different times throughout the year.
- ✧ The search buffers implemented as part of the survey are considered to more than adequately cover the predicted zone of influence of the proposed development. The reasons for the site designations have also been considered when discussing potential impacts on the biodiversity of these sites. If the sites are designated for their bat or bird interest, this will be mentioned.
- ✧ Survey methodologies are implemented as appropriate, based on the surveyors' assessment of the site features and with particular reference to the advice in Bat Surveys for Professional Ecologists: Good practice guidelines, 3rd edition (Collins, J. (Ed.), 2016) & The Bat Workers' Manual, 3rd edition. (Mitchell-Jones, A.J., & McLeish, A.P. (Ed.), 2004). Reports are written with reference to the CIEEM (2015) Guidelines as well as BS42020.
- ✧ A PRA visit (scoping survey) is used to identify all potential access and egress points for bats in the building, and to identify crevices and possible dwelling places. Internal and external inspections are aided using powerful binoculars and close-focussing monoculars, as well as ladders, high powered Cree flashlights and head-torches. We also have thermal imaging cameras and night vision devices at our disposal as well as full spectrum photographic cameras which can photograph a bat in complete darkness with an infrared flash. Exploitable crevices are also endoscoped with either a hand-held digital scope or a smart phone compatible scope. Digital thermometers and hygrometers are also at our disposal.
- ✧ The survey consists of a visual inspection of the interior and exterior of the building for evidence of bat use, including droppings, smells, feeding remains, staining, and scratching around roost exit and entry points. Potential features conducive (but not necessarily predictive) to bat presence include voids in the stonework, wooden beams, any associated rot holes, gaps behind soffits or within walls and fascia boards, raised tiles, any raised render, and any sufficiently large crevices. The general condition of the building is

examined, including the structure of the roof, condition of walls, the potential for disturbance, and the position of the building in relation to connectivity to good bat habitat.

✧ If positive bat signs are discovered, or the construction style suggests cryptic bats *may* be present, an Anabat SDII or Anabat Express is deployed within the space of the building surveyed. These commonly record all bats from within and to the exterior of a building as they have extremely sensitive microphones so clusters of calls or high frequency of calls over short periods that are repeated (not just a vocal (Chatty) bat passing the microphone once on a foraging /socialising expedition) may indicate a presence within the building. Supporting evidence is then needed to make a decision, such as bats seen during surveys, droppings and feeding signs as well as building suitability for a given species. For example, we have had clear sonograms for Serotine bats (*Eptesicus serotinus*) from a loft space deployed recorder where no gaps existed anywhere and no droppings from serotines were present. These large bats must have been present elsewhere on site or use the site for foraging.

✧ The outcomes have been used to specify whether further surveys are required, or to establish the need for, and extent of, any mitigation or compensation measures required as part of the proposed works.

✧ If positive signs of bat activity are found then it will be necessary to assess whether a licence is needed at all (damage and disturbance to the roost and harm to bats can be avoided through thoughtful and planned working practices), or whether a licence is recommended as damage, disturbance or harm are unlikely to be avoided.

Appendix 2: Overview of the legislation

- ✧ All bats and their roosts, irrespective of the number of bats, species, and whether bats are present or not, are fully protected by the Conservation of Habitats and Species Regulations 2017 and the Wildlife and Countryside Act 1981 (as amended).
- ✧ There is a risk that works could result in the damage or destruction of a bat roost or roosts, the disturbance of bats, and the potential killing or injury of bats, sufficient survey effort (where indicated) helps to minimise this risk.
- ✧ All wild birds, their nests, eggs and dependent young are afforded protection under the Wildlife and Countryside Act 1981 (as amended), with the bird nesting season generally from 1st March until 31st August.

Technical Advice Note (TAN) 5 (Welsh Government, 2009) specifically provides advice about how the land use planning system should contribute to protecting and enhancing biodiversity and geological conservation. The TAN provides advice for local planning authorities on the key principles of positive planning for nature conservation; nature conservation and Local Development Plans; nature conservation in development management procedures; development affecting protected internationally and nationally designated sites and habitats; and development affecting protected and priority habitats and species.

Under Section 2.4 within the TAN 5, 'when deciding planning applications that may affect nature conservation local planning authorities should':

- ✧ Pay particular attention to the principles of sustainable development, including respect for environmental limits, applying the precautionary principle, using scientific knowledge to aid decision making and taking account of the full range of costs and benefits in a long- term perspective;
- ✧ Contribute to the protection and improvement of the environment, so as to improve the quality of life and protect local and global ecosystems, seeking to avoid irreversible harmful effects on the natural environment;
- ✧ Promote the conservation and enhancement of statutorily designated areas and undeveloped coast;
- ✧ Ensure that appropriate weight is attached to designated sites of international, national and local importance;
- ✧ Protect wildlife and natural features in the wider environment, with appropriate weight attached to priority habitats and species in Biodiversity Action Plans;
- ✧ Ensure that all material considerations are taken into account, and decisions are informed by adequate information about the potential effects of development on nature conservation;
- ✧ Ensure that the range and population of protected species is sustained;
- ✧ Adopt a step-wise approach to avoid harm to nature conservation, minimise unavoidable harm by mitigation measures, offset residual harm by compensation measures and look for new opportunities to enhance nature conservation; where there may be significant harmful effects local planning authorities will need to be satisfied that any reasonable alternative sites that would result in less or no harm have been fully considered.

✧ Bats are listed under Schedule 5 and 6 of the Wildlife and Countryside Act 1981 and protected under sections 9 and 11 (as amended by the Countryside and Rights of Way (CROW) Act 2000).

✧ The Environmental Damage (Prevention & Remediation) Regulations 2009 – A protected species and its habitat are protected under this legislation as well as others.

✧ The Conservation of Habitats and Species Regulations 2017 – (regulation 43) fully protects all bats and their roosts, making it **an offence to deliberately kill, injure or capture** (take) bats; *to deliberately disturb bats; damage or destroy bat roosts* or resting places (this is considered an ‘Absolute Offence’ as damage and destruction may detrimentally effect the Continuous Ecological Functionality of that roost/resting place); possess or transport a bat or any part of a bat; sell (or offer for sale) or exchange bats or parts of bats.

✧ For any offence to occur a derogation or **European Protected Species (EPS) licence** must be gained from Natural Resources Wales. To gain an EPS Licence, they must be satisfied that;

i. granting the licence would not be detrimental to the Favourable Conservation Status (FCS) of the populations of species concerned within its natural range;

ii. the derogation (licence) is in the public interest of Health and Safety or for other reasons of over-riding public interest, including those of a socio-economic nature or will have a benefit of primary importance to the environment; and

iii. there is no satisfactory alternative to the derogation which would allow the described development to proceed but which would avoid or reduce, the need for any adverse impact to the species.

Bats are also protected by;

✧ Appendix III of the Bern Convention.

✧ Appendix II of the Bonn Convention (including the Convention's Agreement on the conservation of Bats in Europe).

✧ Natural Environment and Rural Communities Act 2006 (in England).

✧ The Environment (Wales) Act 2016: specifically, Sections 6 (*places a duty upon Local Authorities to enhance biodiversity and the **resilience of ecosystems***) and 7 (*Creating local biodiversity lists and a duty to take steps to **maintain and enhance biodiversity***).

✧ All bats are listed in Annex IV of The Conservation of Habitats and Species Regulations 2012 and are therefore designated as *European Protected Species*. These *protected* species are afforded enhanced protection and more stringent licensing provisions than those protected by the Wildlife and Countryside Act (WACA) alone. There are also biodiversity obligations to be met within the Well-being of Future Generations (Wales) Act 2015 [WFG] and the seven Well-being goals which include an emphasis on socio-economic resilience as well as protecting culture, heritage and the Welsh language. One Act does not take precedence over the other.

Appendix 3: Types of bat roost and survey timings

As the mitigation guidelines state: The presence of a significant (important) bat roost... can normally be determined on a single visit at any time of year; providing that the entire structure is accessible and that any signs of bat activity have not been removed by others. The table below shows the applicability of survey methods. The table has been reproduced from Bat Mitigation Guidelines (table 5.2) (2004).

Season	Roost type	Inspection	Bat detectors and emergence counts
Spring (Mar – May)	Building	Suitable (signs, perhaps bats)	Limited, weather dependent
	Trees	Difficult (best for signs before leaves appear)	Very limited, weather dependent
	Underground	Suitable (signs only)	Static detectors may be useful
Summer (June – August)	Building	Suitable (signs and bats)	Suitable
	Trees	Difficult	Limited: use sunrise survey
	Underground	Suitable (signs only)	Rarely useful
Autumn (September – November)	Building	Suitable (signs and bats)	Limited, weather dependent
	Trees	Difficult	Rather limited, weather dependent; use sunrise survey?
	Underground	Suitable (signs, perhaps bats)	Static detectors may be useful
Winter (December – February)	Building	Suitable (signs, perhaps bats)	Rarely useful
	Trees	Difficult (best for signs after leaves have gone)	Rarely useful
	Underground	Suitable (signs and bats)	Static detectors may be useful

The table below shows the recommended survey timings and is reproduced from the Good Practice Guidelines (table 7.1) (3rd Edition, 2016). This is for presence/absence surveys to give confidence in a negative result for structures (also recommended for trees but unlikely to give confidence in a negative result).

Low roost suitability	Moderate roost suitability	High roost suitability
May to August (structures) No further surveys required (trees)	May to September ^a with at least one of the surveys between May and August ^b	May to September ^a with at least two of the surveys between May and August ^b

^a September surveys are both weather and location dependent. Conditions may become more unsuitable in these months, particularly in more northerly latitudes, which may reduce the length of the survey season.

^b Multiple survey visits should be spread out to sample as much of the recommended survey period as possible; it is recommended that surveys are spaced at least two weeks apart, preferably more, unless there are specific ecological reasons for the surveys to be closer together (for example, a more accurate count of a maternity colony is required but it is likely that the colony will soon disperse). If there is potential for a maternity colony then consideration should be given to detectability. A survey on 31 August followed by a mid-September survey is unlikely to pick up a maternity colony. An ecologist should use their professional judgement to design the most appropriate survey regime.

The table below shows the recommended minimum number of surveys to be carried out according to roost potential. It is reproduced from the Good Practice Guidelines (table 7.3) (3rd Edition, 2016).

Low roost suitability	Moderate roost suitability	High roost suitability
One survey visit. One dusk emergence or dawn re-entry ^a (structures). No further surveys required (trees)	Two separate survey visits. One dusk emergence and a separate dawn re-entry survey ^b	Three separate survey visits. At least one dusk emergence and a separate dawn re-entry survey. The third visit could be either dusk or dawn ^b

^aStructures that have been categorised as low potential can be problematic and the number of surveys required should be judged on a case-by-case basis (as noted in section 5.2.9 of the guidelines). If there is a possibility that quiet calling, late-emerging species are present then a dawn survey may be more appropriate, providing weather conditions are suitable. In some cases, more than one survey may be needed, particularly where there are several buildings in this category.

^b Multiple survey visits should be spread out to sample as much of the recommended survey period (see table 7.1 above) as possible; it is recommended that surveys are spaced at least two weeks apart, preferably more. A dawn survey immediately after a dusk one is considered only one visit.

Roosts required by bats

Hibernation sites (hibernacula). Sheltered areas with relatively stable winter temperatures.

Underground cavities, caves, mines, cellars, hollow trees and cavities and crevices in buildings or similar structures are examples.

Nursery roosts (maternity roosts). Places usually warm, where adult females of a colony gather to give birth and rear their young. These are often traditional sites with a history of such use and include roof voids, walls, soffit boxes, hollows and cracks/splits in trees and cavities in bridges and similar structures.

Night roosts/feeding perches. Places where bats may gather at night away from the day roost after initial feeding. These places are often quite exposed and may not be suitable for day roosting. They are often recognisable by deposits of droppings and insect remains.

Intermediate/dispersal roosts. Sites where small numbers of bats may gather after hibernation before taking up residence in the nursery roost. Bats may return to these sites after dispersal from the nursery roost and before entering hibernation.

Mating/male roosts. Places that an individual male may defend from other males and to which he will attempt to lure females. These will include small holes/cavities in trees, stonework, caves, mines and buildings.

Access, size of roost space and structure

- *Crevise-dwelling bats* (such as Soprano pipistrelles) can crawl into roosts via small gaps in the range of 15–20mm high by 20–50mm wide. The roost area should maintain a crevice of this approximate size gap that the bats can roost between. The area this roost provision covers can be small but about 1m² would be useful for summer nursery roosts. The height of entry can be from 2–7m.
- *Roof-void dwelling bats* require similar dimensions to access the roost but typically need timber joists or beams on which to roost. The height of entry can be from 2–7m.
- *Bats needing a flying area* require the same access dimension as mentioned above, 15–20mm (h) x 20–50mm (w) situated over 2m in height. The roosting area should not be trussed, to allow flight, and should ideally (wherever possible) be of similar dimensions to the roost being replaced.
- *Horseshoe bats* need a larger access so that they can fly (instead of crawl) directly into the roost. Lesser horseshoe bats need an access of 300mm (w) x 200mm (h), while greater horseshoe bats need 400mm (w) x 300mm (h). As above, the roosting area should not be trussed, to allow flight, and should again (where possible) be of similar dimensions to the roost being replaced.

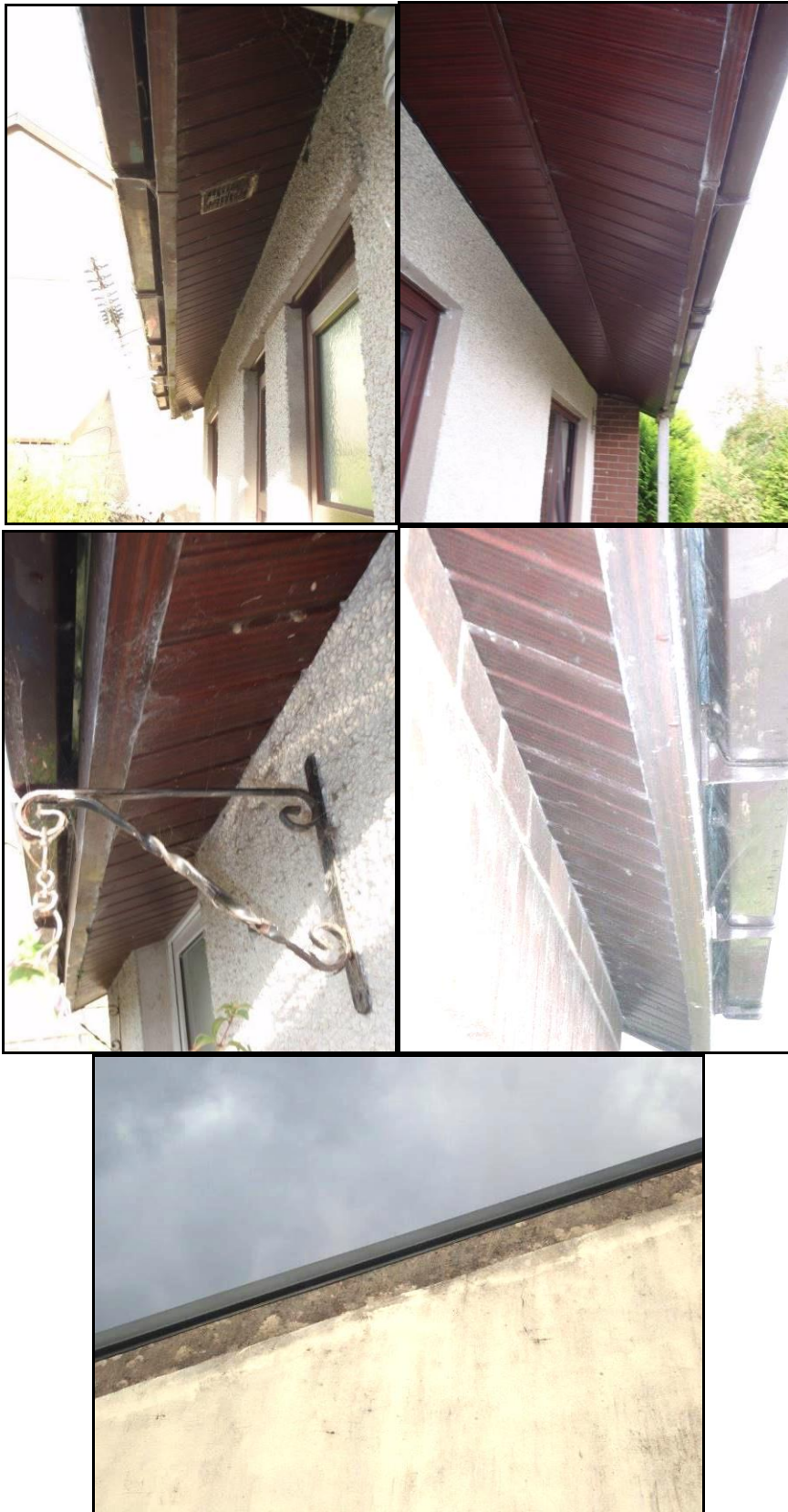
Appendix 4: List of surveyors

Surveyor	Licence	Experience/background
Mr Glyn Lloyd-Jones	Bats	Glyn has significant experience in survey and presentation skills and has also assisted/worked with many other licensed bat surveyors as well as local bat groups over the past years. He possesses both a Bachelor's degree (with honours) and Master's degree in the biological sciences and is a member of the Royal Society of Biology. He also holds a bat licence in England. He has also undertaken many badger, tree and herpetofaunal surveys. Natural Resources Wales Licence number S085044/1.
Mr Iestyn Evans	Bats	Iestyn has extensive experience in conservation, habitat improvement and management and has also worked with and assisted other licensed bat workers for many years. He has also helped with local bat group surveys and assisted in data gathering for the Beacon for Bats project undertaken by the Vincent Wildlife Trust. Iestyn has also assisted the Glamorgan Bat Group and will also help supervise and mentor members of the newly incarnated Carmarthenshire Bat Group. Natural Resources Wales Licence number S086081/1.
Miss Ceri Daugherty	Bats	Ceri worked at Team Leader level within the SNCO for Wales for many years, dealing with customers and negotiating with landowners. She also has practical conservation management experience as both a Countryside Ranger and a conservation volunteer. She possesses a Master's degree in Environmental Impact Assessment and a Bachelor's degree (with honours) in the natural sciences. She is a member of the Carmarthenshire Bat Group. Natural Resources Wales Licence number S086102/1.
Mr Pete Watts	Trainee	Peter provides survey support with his keen eye for detail and vigilance. He has accompanied I&G Ecological Consulting Ltd on many surveys and is becoming a valuable and experienced surveyor.
Mr Greg Evans	Trainee	Greg attends dusk and dawn surveys to provide extra monitoring for possible entry and exit points for bats. He is currently building his experience in this area and is a keen amateur natural historian with an enthusiasm and affinity for bats.
Mr Mike Jones	Assistant	Whenever we need extra assistance in observing and recording bat activity on buildings, Mike provides an excellent and reliable service
Ms Jody Evans	Assistant	Whenever we need extra assistance in observing and recording bat activity on buildings, Jody provides an excellent and reliable service.
Ms Sharon Doherty	Assistant	Whenever we need extra assistance in observing and recording bat activity on buildings, Sharon provides an excellent and reliable service.
Ms Wendy Larcombe	Assistant	Wendy has an Honours degree in Environmental Biology and over 17 years' experience working in the field of conservation, including as a Planning Ecologist and as a freelance Ecologist. She has a wide range of experience, both paid and voluntary which includes extended Phase 1 habitat surveys, building assessment for bats, bat/barn owl surveys, summer roost counts (Gower), and winter roost counts (Black Mountains). She has undertaken a range of training including bat ecology and surveying and is a valued member of the team.

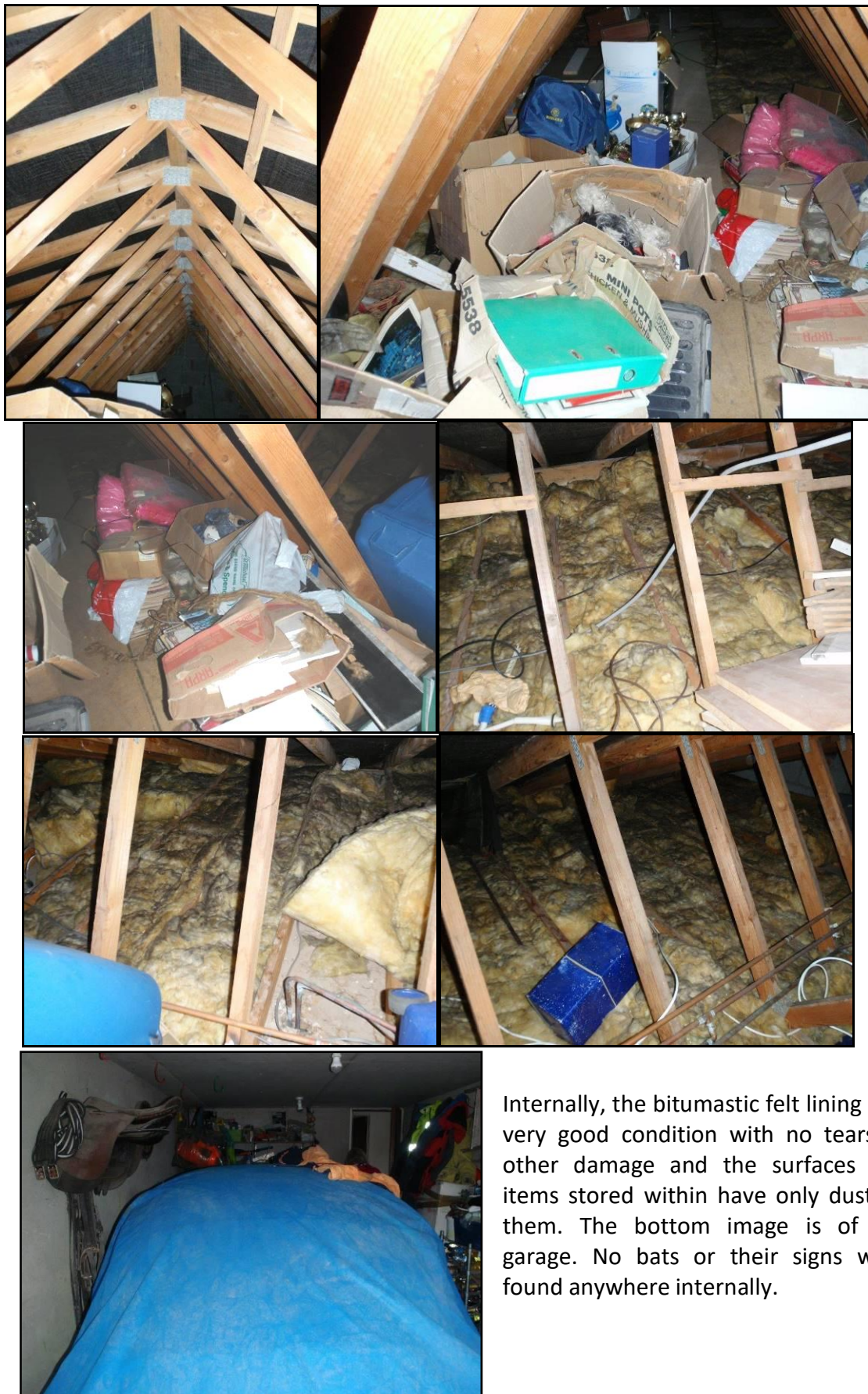
Appendix 5: Site survey images



The property is a south facing bungalow with an attached garage on its west elevation. It is constructed of block walls which have been rendered and dashed (with some brick facing) and has a bitumastic felt lined pitched tile roof – with the roof over the garage having rooflights within. The roof is in very good condition with no slipped/damaged/missing tiles and the walls have no cracks, crevices or missing render.



The property has uPVC soffits/fascias, rainwater goods, windows and doors. The soffits/fascias are bonded tightly to the walls and the windows and doors are intact and remain closed when not in use. The bottom image shows the west gable end wall which has no fascia boards but which has metal flashing that is tight to the wall where there is a moulded concrete verge. No bats or their signs were found externally.



Internally, the bitumastic felt lining is in very good condition with no tears or other damage and the surfaces and items stored within have only dust on them. The bottom image is of the garage. No bats or their signs were found anywhere internally.

Appendix 6: Roost compensation & enhancement measures

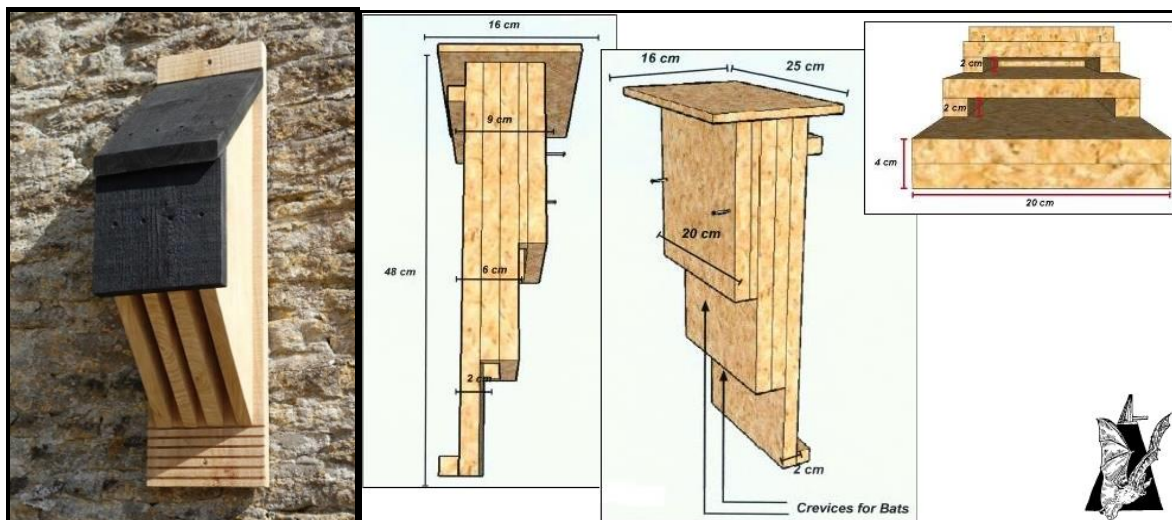


Top: From left to right, the in-wall Schwegler 1FR, the tree mounted 1FF and the multi season 1WQ. The bottom image shows the 1FR in situ.



Middle: The Beaumaris bat box is made entirely from Woodstone, a robust material comprising concrete and wood fibres. This means that, not only does the box have excellent insulating properties maintaining a more consistent temperature throughout the year, it also provides excellent protection from predators. The Beaumaris box has a single narrow cavity which makes it suitable for crevice roosting bats. The interior of the box has a rough surface for bats to cling to and the front of the box features a subtle but attractive imprint of a bat in flight. It is suitable for attaching to external walls and available in two sizes: Midi and Maxi.

Bottom: The Vincent Pro bat box (left) and the Kent Bat Box (right)



Appendix 7: I&G Ecological Consulting Ltd legal disclaimer

This report was prepared by I&G Ecological Consulting at the instruction of, and for use by, our client(s) named on the front of the report. It does not in any way constitute advice to any third party who is able to access it by any means. I&G Ecological Consulting excludes to the fullest extent lawfully permitted, all liability whatsoever for any loss or damage howsoever arising from reliance on the contents of this report. We do not however, exclude our liability (if any) for personal injury or death resulting from our negligence, for fraud or any other matter in relation to which we cannot legally exclude liability.

We confirm that in preparing this report, we have exercised reasonable skill and care, taking into account the project objectives, the agreed scope of the work, and prevailing site conditions.

Advice in this report is based on the judgement of I&G Ecological Consulting and the interpretation of data gathered during the course of their survey on the property named in this document. ***Until payment has been received, this report remains the intellectual property of I&G Ecological Consulting and can be withdrawn from the planning process at our request. You are also not covered by any of our indemnity or liability insurance until the report has been paid for in full.***

The findings and advice given during the course of this survey is provided by employees of I&G Ecological Consulting acting only on behalf of I&G Ecological Consulting.

The employees of I&G may hold other paid employment but none of their advice, nor work undertaken in respect of producing this report, refers to any roles or responsibilities held in any other employment other than that held at I&G Ecological Consulting.

All work undertaken in this report is the sole responsibility of I&G Ecological Consulting.

Appendix 8: References, bibliography and sources of information

- Bat Conservation Trust, 2010. Bats in Buildings. *Bats and the Built Environment Series: Volume 1*.
- British Standards Institute, BS42020:2013. *Biodiversity. Code of practice for planning and development*. London, UK.
- British Standards Institute, BS8596:2015. *Surveying for Bats in Trees and Woodland*. London, UK.
- Chartered Institute of Ecology and Environmental Management, 2015. *Guidelines on Ecological Report Writing*. Winchester, UK.
- CIEEM (2017) Guidelines on Ecological Report Writing. Chartered Institute of Ecology and Environmental Management, Winchester.
- Collins, J (ed.), 2016. *Bat Surveys for Professional Ecologists: Good Practice Guidelines, 3rd Ed*. The Bat Conservation Trust. London.
- Council of Europe, 1979. *Convention on the Conservation of European Wildlife and Natural Habitats (the Bern Convention)*. Strasbourg.
- Council of Europe, 1979. *The Convention on the Conservation of Migratory Species of Wild Animals (the Bonn Convention)*. Strasbourg.
- Dietz, C., von Helversen, O., Nill, D., 2009. *Bats of Britain, Europe and Northwest Africa*. A. & C. Black, London.
- HM Government, 2000. *Countryside and Rights of Way (CROW) Act*. HMSO. London.
- HM Government, 2009. *Environmental Damage (Prevention and Remediation) Regulations*. HMSO. London.
- HM Government, 2006. *Natural Environment and Rural Communities Act*. HMSO. London
- HM Government, 2010 (as amended 2017). *The Conservation of Habitats and Species Regulations*. HMSO. London.
- HM Government, 1981. *The Wildlife and Countryside Act 1981 (as Amended)*. HMSO. London.
- Institution of Lighting Professionals, 2018. *Bats and Artificial Lighting: Bats and the Built Environment Series. Guidance Note 08/18*. ILP, Rugby.
- Lle. Retrieved from <http://lle.gov.wales/home>
- MAGIC. Retrieved from <https://magic.defra.gov.uk/>
- Mitchell-Jones, A.J., 2004a. *Bat Mitigation Guidelines*. English Nature, Peterborough.
- Mitchell-Jones, A.J., & McLeish, A.P. Ed., 2004. *3rd Edition Bat Workers' Manual*. English Nature, Peterborough.
- Mitchell-Jones, A.J., Cooke, A.S., Boyd, I.L., Stebbings, R.E., 1989. Bats and remedial timber treatment chemicals a review. *Mammal Rev.* **19**, pp 93–110.
- Morris, P.A., 1993. *A Red Data Book for British Mammals*. The Mammal Society, London.
- Waring, S. D., Essah, E. A., Gunnell, K., Bonser, R. H. C., 2013. Double Jeopardy: The Potential for Problems when Bats Interact with Breathable Roofing Membranes in the United Kingdom. *Architecture and Environment*.
- Welsh Government, 2003. *List of Species and Habitats of Principal Importance for the Conservation of Biological Diversity*. Welsh Government. Cardiff.
- Welsh Government, 2016. *Environment (Wales) Act*. Welsh Government. Cardiff.
- Welsh Government, 2009. *Technical Advice Note (TAN) 5, Nature Conservation and Planning*. Welsh Government. Cardiff
- Williams, C., 2010. *Biodiversity for low and zero carbon buildings: a technical guide for new build*. RIBA Pub., London.