Abbey Sanders Ecology



BUCKLAND HALL, BWLCH, BRECON BEACONS NATIONAL PARK

MANSION HOUSE ALTERATIONS

BAT IMPACT ASSESSMENT JUNE 2020

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For

Mr & Mrs Filmer-Wilson

Issue Details:

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SUMMARY

- Buckland Hall, located on the outskirts of Bwlch is a Grade II Listed Victorian mansion house with outbuildings set within a Grade II Listed park and gardens. The house is situated in a rural area overlooking the Usk valley within the Brecon Beacons National Park (BBNP).
- Alteration works are proposed internally and externally to the mansion house under a current scheme which is subject to a listed building consent application to the BBNP Authority in early 2020. This forms part of a wider initiative to upgrade the full site.
- The mansion house is known to historically support a range of bat roosts, confirmed through daytime inspection and dusk emergence surveys carried out by Just Mammals ecological consultancy in August 2019. The current document comprises an impact assessment of the proposed works to the house and mitigation strategy carried out by Abbey Sanders Ecology in early 2020. This has included update site visits and desk study.
- Within the grounds of Buckland Hall lie outbuildings that comprise the Buckland Coach House and Ice House Site of Special Scientific Interest (SSSI) and a key site of the Usk Bat Sites Special Area of Conservation (SAC), an internationally important maternity and hibernation site of lesser horseshoe bats.
- The cellar of the mansion house is used by lesser horseshoe bats, apparently in varying numbers throughout the year with recent counts indicating up to 33 bats. This includes summer potential maternity use and is likely to be associated with the coach house and ice house bat population(s). Works including internal partitions, a new staircase, removal of boiler equipment and external alterations close to the emergence point from the cellar have the potential to affect these bats and therefore a bat development licence and Habitats Regulations Assessment for the SAC site will be required. It is proposed to relocate the cellar bats to the coach house with mitigation including making improvements to the coach house to accommodate additional maternity capacity. This has been agreed in principle with Natural

Resources Wales (NRW) and the Vincent Wildlife Trust (VWT) which manages and monitors the designated site and its bats.

- The maternity roost of brown-long eared bats (recent counts indicating up to 26 bats) in the roof voids of the mansion house will be affected by proposals to install dormer windows, roof lights and re-roofing works as well as replacement of second floor ceilings. They may also be affected indirectly through works at second floor level or any works such as electrics that need to take place within the roof space. This roost and the range of individual and low numbers of common and soprano pipistrelle and Myotis bats within external crevices may be affected by external works including removing fixtures and making good stone walls and altering windows and doors. Avoidance, protection and mitigation measures include timing of works and ecological supervision will be put in place to protect these bats. At least one bat box will be installed on site to provide biodiversity enhancement
- Details of external lighting designed to avoid spill onto bat roost entrances and flight lines will need to be provided either before or as a condition of the planning permission.
- No other impacts to protected species, important habitats or designated sites are considered likely.

1.0 INTRODUCTION

The survey site at **Buckland Hall, Bwlch, LD3 7JJ** is a Grade II Listed Victorian mansion house with Grade II Listed parks and gardens. The main house is situated in a rural area overlooking the Usk valley (Grid Ref SO 13104 21374) within the Brecon Beacons National Park.

Site Plan

1	Buckland Hall
2	Coach House
	Stable Block
	Lakeview Cottage
	Smoke House
	Ice House
3	Buckland Farm

Extract from Design & Access Statement, Scott Brownrigg

Hall in context of landscaped gardens and adjacent woodland (from Just Mammals report)

Hall viewed from the south-east, Feburary 2020

Hall viewed from the north, February 2020

North facing part of house showing valley to west, February 2020

Within the grounds lies a coach house and ice house that are used by an important lesser horseshoe bat population, these are designated as a Site of Special Scientific Interest and a key part of a Special Area of Conservation due to the bat interest (Buckland Coach House and Ice House SSSI and Usk Bat Sites SAC).

The new owners of Buckland Hall are proposing a range of works and new management to the mansion and wider site, which will be subject to planning and listed building consent as required.

The current proposal for the initial set of works comprises alterations to the mansion itself. Future potential works to other buildings including the Stable block opposite the Coach House would be detailed under separate application(s). A Landscape Management Plan is also being prepared for the wider site.

Detailed baseline ecological and phase 2 bat surveys have been carried out in late summer 2019 by Just Mammals ecological consultancy. A bat licence application for small scale works to the cellar has been made by Abbey Sanders Ecology in spring 2019. These surveys and other information are here reviewed in an ecological impact assessment of the proposed works to the mansion house to inform the initial planning application.

Abbey Sanders is a qualified professional consultant ecologist (BSc and MSc degrees), Chartered Ecologist, full Member of the Chartered Institute of Ecology and Environmental Management and Chartered Environmentalist. Abbey Sanders is trained and experienced in ecological surveying with over 15 years' experience, including for bats (NRW bat licence number SO87953/1).and has coordinated this survey and report, with assistance from other ecologists and assistants, as detailed further below in the relevant sections of the report

This report should be read in conjunction with the full Just Mammals report 'Buckland Hall: A Bat Survey Report' September 2019 extracts of which are provided and discussed below.

2.0 SPECIES ECOLOGY AND LEGISLATION

2.1 Bats

UK bat species are nocturnal, roosting by day and foraging during the night, particularly at dusk and dawn during the main active months, March to October. Summer roost sites include cavities and crevices within buildings or trees with bats

relocating to winter roosts to hibernate, during which they can wake and emerge to feed for short periods. Winter roost sites are in more sheltered sites with relatively constant cool temperatures, such as disused mines or caves. When commuting to feeding sites or foraging, bats tend to follow linear features within the landscape such as hedgerows or rivers and feed on insects where these are readily found. Some bats commute through open areas and some feed over open habitat such as water bodies.

All bat species occurring in the UK are afforded full legal protection under the Wildlife and Countryside Act 1981 (as amended) and are included in Schedule 2 of the Conservation (Natural Habitats, &c.) Regulations 1994, amendments to which have been consolidated by the Conservation of Habitats and Species Regulations 2017, which gives them protection under European law. Through this protection it is illegal, among other offences to;

- Capture, kill or injure a bat
- Disturb bats
- Obstruct, damage or destroy the places where they breed or rest

unless a licence has been obtained to do so, for reasons of conservation, scientific research or through development (licences from Natural Resources Wales). Licences are only granted for these purposes where works are necessary and measures to adequately protect the bats are in place.

A number of species are also listed under Section 7 of the Environment Wales Act 2016 as being species of principal importance for the conservation of biological diversity and many species are also Priority BAP species on the UKBAP (United Kingdom Biodiversity Action Plan).

2.2 Nesting Birds

The main bird breeding season is between March and August inclusive although breeding activity can also often take place in February and September. Whilst the specific requirements of different bird species are varied, any buildings and areas of vegetative cover including trees, hedgerow, scrub and tussocky grassland can provide potential nesting areas for birds. Under the Wildlife and Countryside Act, 1981, as amended, it is an offence to kill injure or take any wild bird, to take, damage or destroy the nest of a bird whilst it is being built or in use and to take or destroy eggs,

or to possess or control a bird or eggs (unless done so legally). Some species have further protection including Barn Owls *Tyto alba* which are also listed on Schedule 1 the Wildlife and Countryside Act, which gives them further special protection.

3.0 METHODOLOGY

The surveys by Just Mammals in 2019 included an initial daytime internal and external bat roost inspection, including a search for nesting birds, followed by two dusk/ dawn emergence surveys, all taking place in August 2019 as follows;

Table 2: Summary of Survey Activity and Weather Conditions

Date	Survey Type	Timing	Weather Conditions
14/08/2019	Internal and external daytime inspection (AR)	10.00 – 17.30 hours British Summer Time (BST)	Air temperature: 16.5°C Cloud cover: 8/8 oktas Wind speed: F1 – 2, light air/light breeze Conditions: Light drizzle
14/08/2019	Dusk emergence/activity observation (PM, DM, AR, NI, JH, MW, PS)	20.22 – 22.12 hours BST (Sunset 20.42 hours)	Air temperature: 17°C Cloud cover: 1/8 oktas Wind speed: F1, light air Conditions: Dry
29/08/2019	Dusk emergence/activity observation (PM, DM, RM, AR, BG, JH, MW, PW)	19.48 – 21.38 hours BST (Sunset 20.08 hours)	Air temperature: 17°C Cloud cover: 8/8 oktas Wind speed: F1, light air Conditions: Dry
Surveyors	Phillip Morgan (PM); Diane Morgan (DM); Rob Morgan (RM); Andrew Ross (AR); Phoebe Williams (PW); Nigel Isaksson (NI); Ben Gibson (BG); Phil Sutton (PS); Myriam Waring (MW); James Hoskins (JH)		

4.5 A team of seven/eight experienced surveyors (see Table 1) were positioned at strategic vantage points to obtain maximum coverage of the building (see Figure 3). Surveyors recorded all bat activity but particularly focussed their attention on whether bats emerged from the hall whilst documenting the time, bat species and behaviour. An additional eighth surveyor was also positioned on the roof level during the second survey to cover parts of the upper roof level that could not be viewed from the ground. Sunset times were established on site using a hand-held geo positioning system (GPS) and observers were able to communicate with each other using walkie talkie radio sets.

4.6 Surveyors were equipped with Pettersson D-240X machines. These devices are particularly sensitive and excellent at separating species which employ the middle range frequencies for foraging (45 – 55 kHz). They are therefore very good at identifying the different pipistrelle species (*Pipistrellus* sp.), and the different myotid bats* (*Myotis* sp.) (*myotid bat is a collective term used where the species could not be specifically identified beyond this broad group). The myotid group encompasses seven species of British bat including Alcathoe's (*Myotis alcathoe*); Bechstein's (*M. bechsteinii*); Brandt's (*M. brandtii*); Daubenton's (*M. daubentonii*); Mouse-eared (*M. myotis*); Natterer's (*M. nattereri*); and the whiskered bat (*M. mystacinus*).

4.9 In addition to the standard survey techniques described above, a Sony video camera with infra-red light beam was also positioned outside the cellar entrance. This was coupled with a Skye SBR2100 heterodyne bat detector to record and detect the number lesser horseshoe (*Rhinolophus hipposideros*) bats emerging from Roost 2 during the first observation on the 14th of August. The camera was re-positioned during the second survey on the 29th of August, to identify whether bats were also using an alternative access point at the base of the external stairwell.

6.1 The Hall has been assessed as having a 'high' level of suitability for day-roosting bats in accordance with BCT's Bat Surveys Good Practice Guidelines (Collins 2016). However, due to the late season instruction, it was not feasible to schedule a third dusk or dawn observation within the active season. Nevertheless, a detailed internal and external assessment was followed by two comprehensive dusk emergence counts, the first of which was completed in mid-August and therefore within the peak maternity season for bats. This is considered a sufficient level of survey effort to collect baseline information for informing design proposals and outline mitigation options.

6.2 Given the height and complexity of the building, the surveyors had difficulty observing certain parts of the roof structure, particularly features associated with the inner valleys of the roof. Furthermore, since the crevice-roosting species identified during emergence surveys are likely to regularly 'switch' their roost locations and access points, it is possible that additional crevice-roosts are present in well-hidden parts of the roof. However, as most parts of the roof hosted roosts of numerous bat species anyway, it is unlikely that any additional bat roosts which may be recorded during subsequent surveys would make a tangible difference to a site-wide mitigation strategy. Therefore, this constraint does not make a notable difference to the ecological assessment or broad recommendations outlined in the report in this instance.

Extracts from Just Mammals Buckland Hall report, September 2019 – refer to full report for details.

A desk study to inform these surveys was also carried out and included;

- A MAGIC online map records search
- A County Mammals Records search
- A search of the BBNPA planning portal.

Abbey Sanders of Abbey Sanders Ecology has visited the site on 25th February 2020 to carry out a general walkover appraisal of the full site and detailed inspection of the cellar with the aid of high luminance torch, close focusing binoculars and EM3+ bat detector. A second visit and inspection was made on 15th April 2020 to supervise the licensed works to install a suitable bat access opening in the cellar door, so that this could be closed for security reasons (the door having been previously open to allow continued bat access). Works were carried out in accordance with current best practice including the BCT Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd Edition 2016) and under Natural Resources Wales licence number SO37953/1. No significant constraints were experienced during the 2020 surveys. A review of pre-existing survey information has taken place, as well as liaison with Natural Resources Wales officers and the Vincent Wildlife Trust which manages the designated SAC and SSSI site at Buckland Coach House and Ice House. The proposals for works have also been reviewed in discussion with the owners and their agents.

4.0 RESULTS

4.1. Desk Study

A range of historical information on the site was obtained and reviewed within the Just Mammals study;

7.2 Within a 2km radius there are five designated sites. Three of these relate to the River Usk, being the River Usk SAC; River Usk Tributaries SSSI; and Upper Usk SSSI. This watercourse is located approximately 330m west of Buckland Hall. As a SAC, the River Usk is primarily designated on the basis of its value to otters and Annex II fish species including sea lamprey (*Petromyzon marinus*), and twaite shad (*Alosa fallax*). In addition, the SSSI citation for the River Usk indicates that this 'upper' section has been designated as such because of the rich and diverse plant communities. Although wider development proposals to the grounds could potentially impact the River Usk, renovation work associated with the main hall is not reasonably likely to impact this designated feature. These protected sites are therefore not considered further in this assessment.

7.3 Of more relevance is the Hall's proximity to the Coach House and associated Ice House, approximately 120m to the north-east. Buckland Coach House and Ice House SSSI is one of four components of the internationally recognised Usk Bat Sites SAC. Both buildings and associated habitat are primarily designated because of their value to the rare lesser horseshoe bat. The Coach House in particular provides the focus for this species in the National Park. Indeed, the Coach House hosts the largest lesser horseshoe breeding colony using a man-made structure in Britain, with over 1,100 animals in 2015, and regular counts in excess of 1,000 animals in the past decade. Together with the Ice House used by hibernating bats, the site is one of the most important sites for this species in Europe.

7.4 A search of the County Mammal Records for Vice County 42 (Brecknockshire), revealed a number of historic records of bats in the area, and at the Hall in particular. The first known survey of the Hall for the presence of bats was undertaken on the 24th of August 1985, when Phil Morgan and John Messenger undertook an inspection of all loft spaces in the building. At that time they recorded 38 brown long-eared bats in the loft voids. A pipistrelle bat maternity was also recorded in a second floor window frame on the northern elevation, but at that time the species of pipistrelle bats in Britain had not been separated to the now accepted common and soprano types. Other visits to the Hall in 1986 and 1988 continued to confirm the presence of pipistrelle and brown long-eared bats.

7.5 Over the past 35 years a total of twelve bat species have been recorded within a 1km radius to the Hall. These include the aforementioned lesser horseshoe, and brown long-eared bats, but also common pipistrelle bat (*Pipistrellus pipistrellus*), soprano pipistrelle bat (*P. pygmaeus*), Bechstein's bat, Brandt's bat, Daubenton's bat, Natterer's bat, whiskered bat, noctule bat (*Nyctalus noctula*), Western barbastelle bat (*Barbastella barbastellus*), and greater horseshoe bat (*Rhinolophus ferrumequinum*). This represents two thirds of the British bat species, a significant fact in itself.

7.6 In terms of planning history, BBNP's Planning Portal indicates that the most recent proposal for the Hall relates to "replacement lift and alterations to existing lift shaft to form storage cupboards" (16/13281/LBC) which was completed in February 2019. This work was informed by an ecological report by Ecology Planning dated August 2016. Since the proposed work was restricted to the existing lift, it was concluded there would be no material impacts to either the brown long-eared roost in the loft void above (referred to as Roost 1 in this document), or the lesser horseshoe roost in the cellar below (Roost 2).

from the population that use it and could reasonably increase their chances of survival in the following winter"

7.8 It is understood that an EPS licence was granted for the work, which included mitigation in the form of a lesser horseshoe hot box, on the ceiling of the cellar.

7.9 Buckland Hall has also submitted proposals to "repair and extend mansion house, convert outbuildings, replace dwelling and construct new residential accommodation buildings together with provision of car parking, improvements to access to enable use for residential and non-residential health spa and study/retreat centre". An application for this work was permitted in 2005 (P18743), but with a subsequent application to vary conditions refused in 2010 (10/05374/CON). This work had not commenced at the time of this assessment.

7.10 The brown long-eared and lesser horseshoe maternity colonies in the main hall roof and cellar respectively (referred to throughout this report as Roosts 1 and 2) are both well-established. It is understood that Mr Bill Toye, a previous owner of Buckland Hall, recorded at least 18 lesser horseshoe bats in the boiler room of the cellar in October 1990 (Smith 2009). Likewise, Peter Smith, John Messenger, and Sheelagh Kerry recorded a breeding colony of at least 20 brown long-eared bats in the main roof of Buckland Hall in July 1987 (Smith 2009).

7.11 Smith Ecology Ltd completed an ecological assessment of Buckland Hall in 2008 to inform the proposed renovation work (10/05374/CON), and new biomass boiler (12/08110/FUL) (Smith 2009). Dr Smith recorded a maximum of 48 lesser horseshoe bats in the cellar on 30th September 2008. During a single dusk emergence survey on 12th October 2008, 18 bats emerged and dispersed south and east via a dark and sheltered flight path over the single-storey wing next to the three-storey section. A maximum of 29 brown long-eared bats were also recorded in Voids 2 – 5, on 31st October 2008, and with the largest cluster of 22 bats recorded in Void 4.

7.12 Ecology Planning Ltd completed dawn re-entry and dusk emergence surveys on 24th May 2016 and 11th June 2016, to inform the lift shaft replacement (Brooks 2016). The single surveyor recorded two brown long-eared bats emerge from separate locations under the gable soffit and ridge of the three-storey section to the south of the deep courtyard (Void 1 in Figure 5). Single pipistrelle bats were also recorded emerging from three separate gaps under overhanging gable soffits around the fire escape in the deep courtyard. During their internal inspection of the cellar on 11th June 2016, Ecology Planning Ltd. recorded a maximum of 11 lesser horseshoe bats inside and immediately adjacent to the 'hot box'. During their hibernation survey on 21st January 2016, they recorded two single lesser horseshoe bats in undisturbed and dark corners of the cellar.

Extracts from Just Mammals Buckland Hall report, September 2019 – refer to full report for details.

Abbey Sanders Ecology desk study information 2020;

The Just Mammals report of the stable block, which faces the coach house main lesser horseshoe summer maternity roost within the same courtyard, describes a daytime inspection and two dusk emergence surveys in September 2019. This found two non-breeding roosts of low numbers of common pipistrelle bats within crevices in the walls/ window/ roof surrounds and concluded that lesser horseshoe bats were likely to use the upper floor of the stable block as an occasional day/ night roost. The building was in a dilapidated state limiting the access that could be safely made for the survey.

Jonathan Saville, the NRW officer responsible for the SAC site at Buckland, advised that he recalled seeing circa 50 lesser horseshoe bats in the Hall cellar a couple of

times around 2011 in winter/early spring, when they clustered near the old oil boiler that was removed a year or two later. No exact count was made. He observed much lower numbers in October 2019, circa 10, on the only visit he had made to the cellar since the large old oil boiler was removed.

4.2 Internal and external inspection of the buildings

5 The **Just Mammals report** identified a range of bat roost evidence as detailed below;

8.2 Although no bats or evidence of bats was recorded on the building exteriors, the surveyor noted numerous Potential Roosting Features (PRFs), and possible access points into voids and other cryptic structures (see Figure 4) around the Hall. These included the following:

- frequent gaps underneath overhanging gable soffits;
- gaps around discrete sections of raised lead flashing (Hall only and single-storey wing);
- occasional gaps at ridge (Hall only and single-storey wing);
- occasional gaps associated with lifted or broken roof slate (Hall only and single-storey wing);
- occasional gaps in elevation stonework near eaves and gable wall tops (Hall and single-storey wing);
- gaps under bargeboards (Hall, single-storey wing and adjacent Office building).

8.3 Internally, Voids 1 to 5 of the Hall (see building layout in Figure 5), were all considered suitable for day-roosting bats – being dark, well-protected from the elements and with numerous internal crevices and potential access points. For the purposes of this report, these voids have been listed separately according to accessibility and loft hatch locations. However, although chimney stacks and brick fire-breaks prevented uninhibited access by human surveyors, there are adequate crawl spaces and open-flight access points between these obstructions for bats to use all voids interchangeably. Furthermore, each void is very similar in structure, design, dimensions, materials and condition. They are therefore assessed holistically in this assessment, but with Void reference numbers used where necessary for clarity.

8.4 All voids were approximately 1.5m from ceiling level to roof apex with multiple compartments divided by occasional brick fire-breaks and chimney stacks. Although mostly completely dark, some void sections near projecting gables are partially lit by sunlight from small glass windows. Although old un-rolled fibreglass insulation is present throughout, none had been laid at the time of survey. Internal temperatures ranged from 20.1 to 24°C at the time of survey (3.6 to 7.5°C above the ambient temperature respectively). The roof is lined with a bituminised roofing felt and covered in most parts by timber sarking and occasionally lath-and-plaster. Internal PRFs for crevice-roosting bats were frequent throughout and included:

- gaps between timber sarking;
- stonework gaps associated with chimney stacks and fire-breaks;
- internal crawl spaces leading to eaves and gable wall plates; and
- gaps behind exposed ridge boards and other timbers.

8.5 A maximum of 26 live brown long-eared bats were recorded in discrete locations of Voids 2, 3, 4 and 5 (referred to throughout this report as Roost 1). All bats were recorded between roof timbers or tucked up at the roof apex between exposed ridge boards and purlins. Most animals (22) were recorded in Void 2. Occasional 'squeaking' and 'scratching' was also heard behind the timber sarking. Fresh and old bat droppings were recorded throughout the loft floor along the ridge lines of Voids 1 – 5. Although scattered reasonably evenly throughout with no obvious 'hot-spots', densest scatterings were recorded in Void 2. Droppings were all attributed to brown long-eared bats on the basis of close-up inspection of live animals. Where live animals were not present, the size and shape of droppings were generally consistent with long-eared bats.

8.6 The single Void 7 above the single-storey wing is considered suitable for day-roosting bats – being dark, well-protected and with numerous internal crevices and potential access points. The void ranged from 2.8m in the main section, with a lower 1.5m section at the western end above the pool room. No loft insulation was present and the internal temperature was 20.2°C at the time of survey (3.7°C above the ambient temperature). Void 7 is lined with a bituminised roofing felt covered by timber sarking. Internal PRFs for crevice-roosting bats were frequent throughout and included gaps associated with exposed timbers, gable wall tops and roof lining.

8.7 Although no live bats were recorded in Void 7, several clusters of lesser horseshoe droppings were recorded in the lower 1.5m section at its eastern end. These droppings were considered to be several years old, being dry and grey in colour, and no evidence of fresh use was recorded. However, a single access point considered large enough for lesser horseshoe flight access was recorded at the northern eaves (see Figures 5 and 10). This was located behind one of the green fuel units and partially blocked by cabling. It is therefore feasible that Void 7 represents a historical roosting site for this species.

8.8 Void 6 (not listed in Figure 5) was also inspected from a loft hatch in the downstairs disabled toilet. This was more of an internal duct without direct access to the roof, although a crawl-space did connect this void to Void 7 above the above the single-storey wing. Nevertheless, although suitable, no bats or evidence of bats was recorded.

8.9 The single Void 8 above the adjacent office building, is also considered suitable for day-roosting bats – being dark and well-protected. The void is approximately 1.8m high. A form of insulation powder had been laid on the loft floor and the internal temperature was 23°C at the time of survey (6.5°C above the ambient temperature). The void is partially lined with a bituminised roofing on one side, but no timber sarking is present.

8.10 Although no live bats were recorded, three small bat droppings recorded throughout the loft. This was not considered a roost at this stage unless accompanied by emergence or re-entry activity during subsequent night-time surveys.

8.11 The cellar is actively used as a boiler room, workshop, and water tank storage area. Lights are permanently on in these rooms, although of the rooms around the external entrance remained dark. Internal temperatures ranged from 14.8°C in the darker cooler areas to 18.3°C in the main boiler room (-1.7 to +1.8°C above the ambient temperature).

8.12 Although no bats were recorded in the 'hot-box', 12 lesser horseshoe bats (some carrying pups) were recorded between the hot-box and boiler flue pipe. A maximum temperature of 24.8°C was recorded directly beneath this roost location (see Figure 9). Two of the bats took flight during the inspection and were subsequently recorded flying in the darker rooms near the entrance. A follow-up internal inspection recorded a maximum of 33 animals prior to the second emergence observation on 29th August 2019.

Figure 5: Internal inspection results for roof voids in Hall

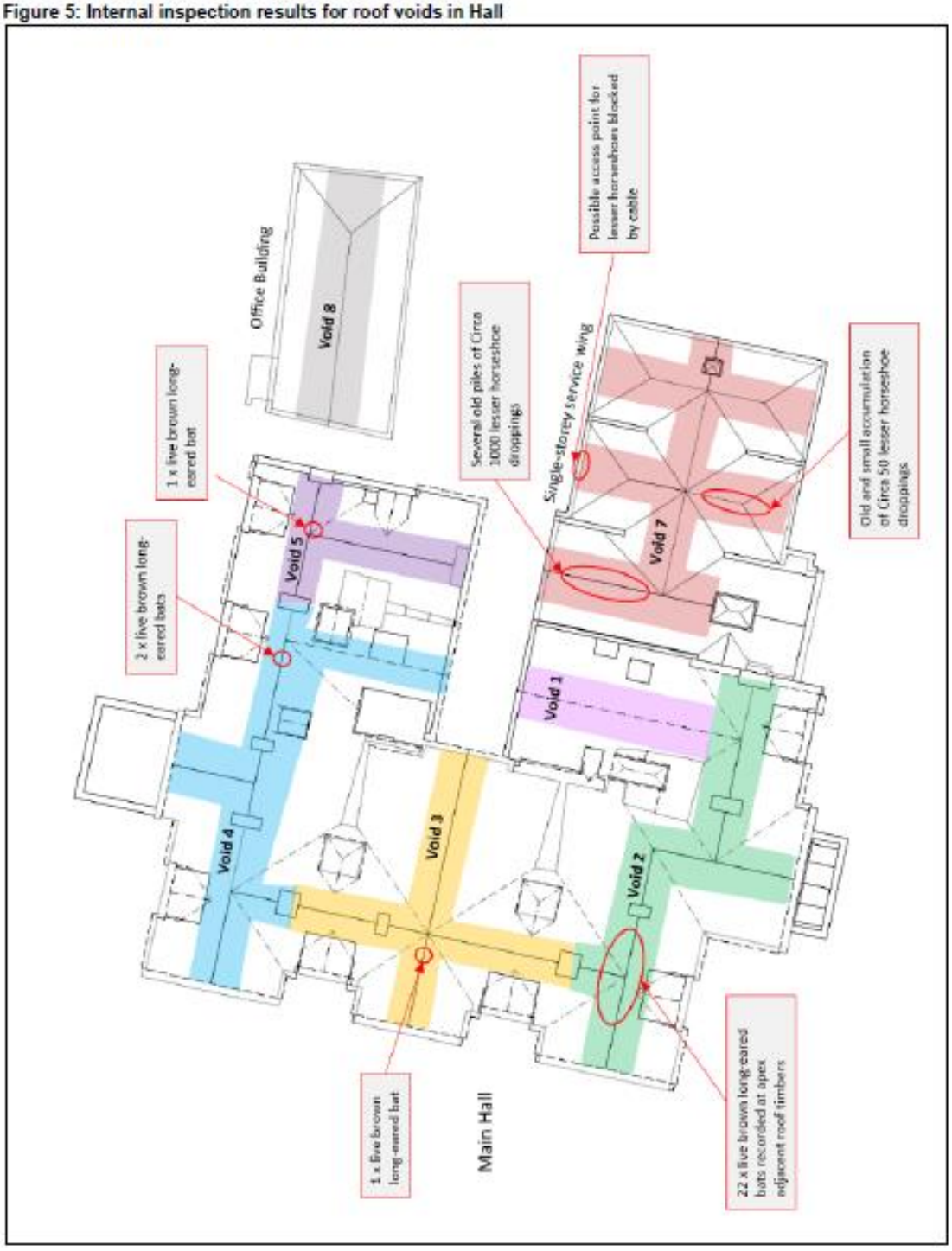
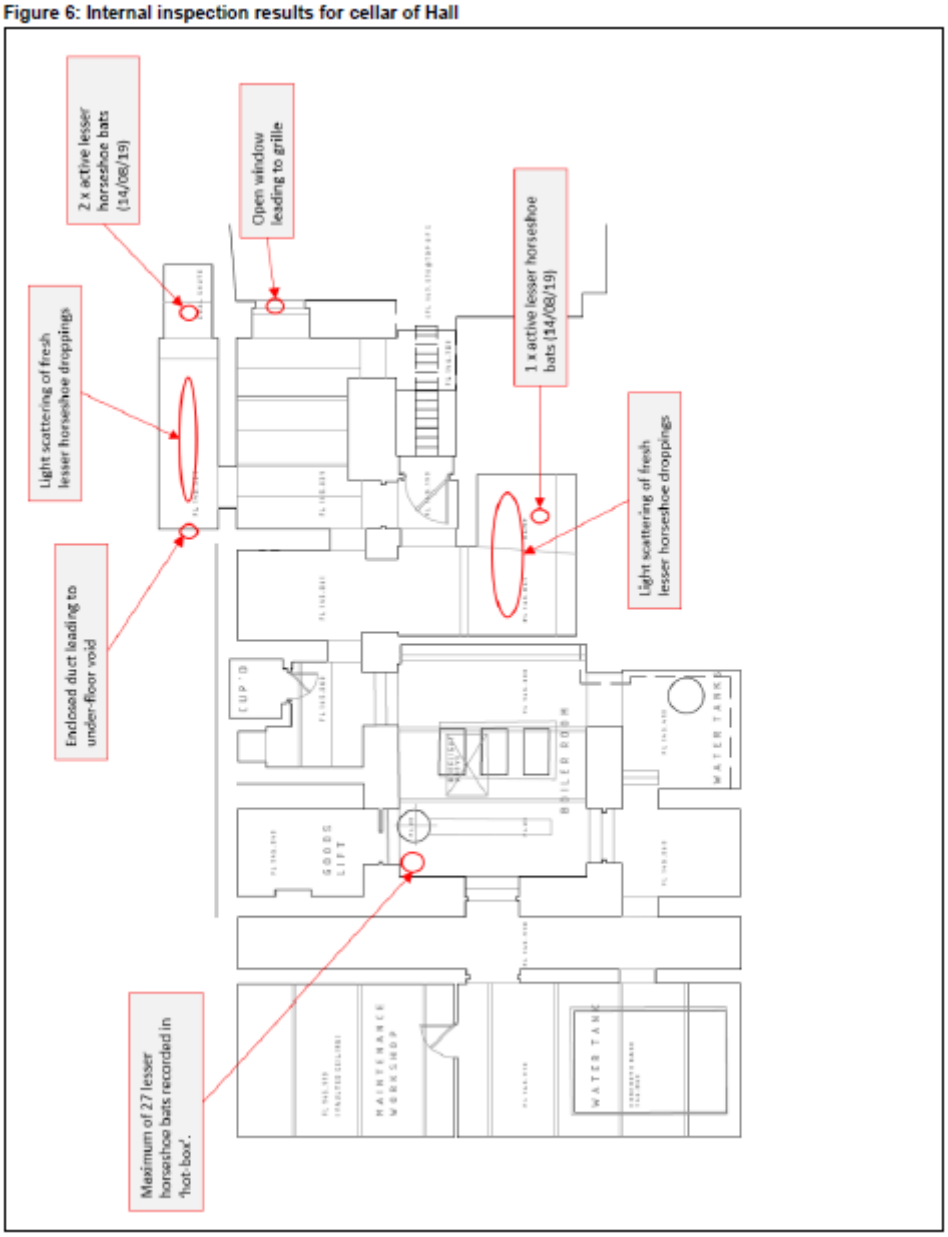


Figure 6: Internal inspection results for cellar of Hall



Extracts from Just Mammals Buckland Hall report, September 2019 – refer to full report for details.

Abbey Sanders Ecology information 2020;

The **February 2020 survey visit** found no bats present although the site remained suitable, this being in winter with different seasonal conditions to the 2019 surveys.

Recent bat droppings were present in the chamber to the immediate left of the cellar entrance (S corner). Notable accumulations of recent to older droppings (100 approx. plus) were noted below the hot box in the main central part of the cellar over the

boiler and in the far immediate right chamber of the cellar from the entrance (E corner).

A small number (30 approx.) of recent to older scattered droppings were also observed in an outbuilding to the rear of the house. This suggests exploration / light sampling rather than necessarily indicating a roost.

The April 2020 survey visit found two individual Lesser Horseshoe bats roosting within the cellar, one within the boiler room in the opposite corner from the hot box and one within the room to the far right of the cellar entrance (when facing into the cellar) close to the closed door hatch there. The bats remained inactive during the inspection and were considered to be using the cellar as part of typical 'transitory' spring behaviour where conditions are in between those typical of winter hibernation and summer maternity roosting use.

Rear of Buckland Hall with cellar entrance in centra of image between slate roofed buildings

View of outbuildings to north of cellar at rear of house showing connectivity with woodland and towards Coach House and Ice House.

Entrance to cellar via stairway

Cellar doorway from inside cellar, showing timber door since altered with a bat access slot added.

Cellar door following installation of bat access slot spring 2020

Inside main boiler room of cellar showing roof lantern and bejind vertical pipe at rear RHS of the photo, the location of the bat hot box.

Bat hot box

Droppings on wall and caught in cobwebs below the hot box

4.3 Emergence/ re-entry surveys

The Just Mammals survey report provides the following summary information;

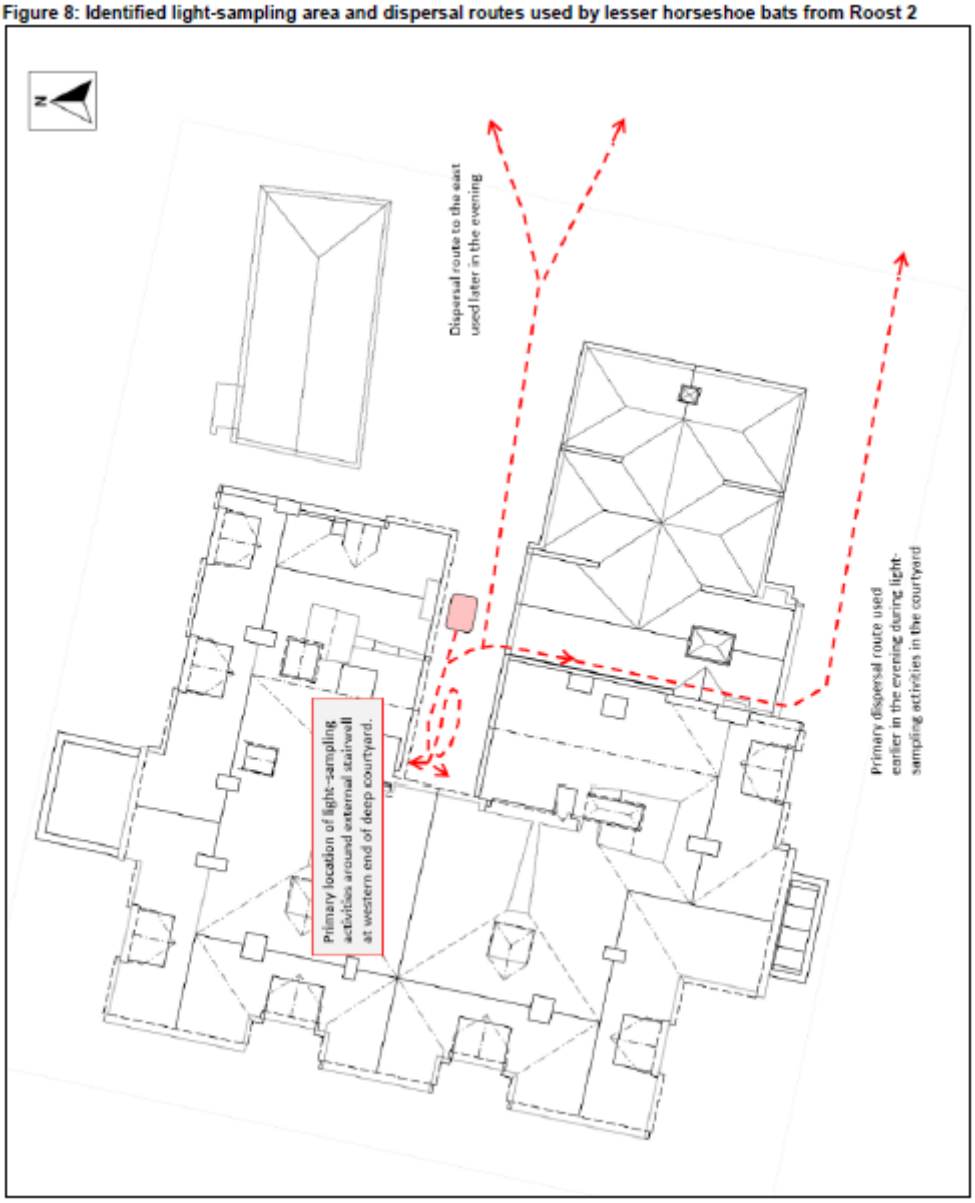
Table 3: Survey Results from Dusk Observations

Date	Findings
14/08/2019	Diane Morgan (Vantage Point 7) and Andrew Ross (VP 1) recorded individual pipistrelle bats (Roosts 3, 4 and 6) emerge from cryptic features on the main hall roof. These were recorded between 20.45 and 20.54 hours (3 and 12 mins after sunset), with bats generally dispersing east. The infra-red video camera (Vantage Point 8) recorded 14 lesser horseshoe bats emerge from the cellar entrance (Roost 1) between 20.47 and 21.13 hours (5 and 31 mins after sunset). Bats continued to display light-sampling behaviour in proximity to the cellar entrance and fire escape in the deep courtyard, before dispersing off-site to the east and via another unknown route. Andrew Ross (VP 1) recorded 2 *Myotis* sp bats (Roost 5) emerge from a cryptic roof feature on the main hall's north elevation. These were recorded between 20.54 to 21.00 hours (12 to 18 mins after sunset), with bats dispersing north and east. Myriam Waring (VP 4) and Phil Sutton VP 5) both recorded brown long-eared single bats fly from cryptic roof locations on the hall's south-west elevation. These were recorded between 21.11 to 21.19 hours (29 to 37 mins after sunset). Although precise access points were not pinpointed, these were considered reasonably likely to have emerged from Roost 1. Most surveyors recorded frequent flight activity by pipistrelle bats for the first 20 minutes after sunset. However, this was generally replaced by occasional long-eared bat flight records from then onwards. Only surveyors at Vantage Points 4, 6 and 7 recorded occasional lesser horseshoe calls during the latter stages of the survey.
29/08/2019	Myriam Waring (Vantage Point 4), Andrew Ross (VP 9), Diane Morgan (VP 7), Phill Morgan (VP 6) and Ben Gibson (VP 1) together recorded ten roosts with small numbers of common / soprano pipistrelle bats (<2 animals). All bats emerged from discrete features of the three-storey main hall roof (Roosts 7 – 12, 14 – 16 and 18) between 19.58 to 20.30 hours (10 mins before sunset and 22 mins after sunset). Bats generally dispersed to the east, but some also dispersed along the woodland edge to the north and south. Rob Morgan (VP 8) recorded 20 lesser horseshoe bats emerge from the main cellar entrance into Roost 2 between 20.17 and 20.40 (9 minutes and 32 minutes after sunset). Bats continued to display light-sampling behaviour in proximity to the cellar entrance and fire escape in the deep courtyard before starting to disperse off-site. This was primarily over the single-storey service wing to the south before flying south-east towards the woodland, although some bats also flew directly across the courtyard to the east.

	Phoebe Williams (VP 5) recorded 2 bats of unknown species emerge from Roost 13 at the ridge area of the single-storey service wing. Since the bats were recorded at 20.20 (12 minutes after sunset), they were considered most likely to be *Pipistrellus* sp. Bats dispersed to the east. Diane Morgan (VP 7) recorded a single *Myotis* sp bat (Roost 17) emerge from an unknown location in the central part of the roof at 20.28 hours (20 mins after sunset). Bats generally dispersed to the east, but some also dispersed along the woodland edge to the north and south. Andrew Ross (VP 9) recorded a single brown long-eared bat re-enter then emerge from a small gap under the south-west projecting gable facing the deep courtyard. This occurred at 20.49 (41 mins after sunset). It was unclear whether this represented a genuine access point or not. However, since this location is reasonably likely to lead into a crawl space to Void 4 (where brown long-eared bats are known to roost), this was recorded as such. Most surveyors recorded frequent flight activity by pipistrelle bats for the first 30 minutes after sunset. This was generally replaced by occasional brown long-eared flight records in the latter stages of the
	survey. Only surveyors at Vantage Points 1, 5, 6 and 7 recorded occasional lesser horseshoe calls during the latter stages of the survey

Figure 7: Emergence survey results

Figure 8: Identified light-sampling area and dispersal routes used by lesser horseshoe bats from Roost 2



Eighteen distinct bat roosts were confirmed at Buckland Hall, as part of the ecological assessment. Table 4 briefly describes the form and ecological status of each roost. Locations of each roost are also displayed in Figures 5 – 9 (see Appendix II).

Table 4: Summary of Roosts Identified

Roost Ref	Species	Roost Status and Maximum Counts	Roost Description
Roost 1	Brown long-eared	Maternity roost (max of 26 bats recorded on 14 August 2019; historical record of 38 animals on 24 August 1985)	Bats likely to be using open sections of Voids 1 – 5 in association with cryptic internal crevices and crawl spaces leading to external access points
Roost 2	Lesser horseshoe	Maternity roost (max of 33 bats recorded on 29 August 2019; historical record of 48 bats on 30 September 2008)	Semi-compartmentalised hot-box at ceiling of actively used cellar near boiler. Accessed via open doorway at base of stairwell
Roost 3	Soprano pipistrelle	Day roost (2 bats)	Unconfirmed location on central roof area of Hall
Roost 4	Common pipistrelle	Day roost (1 bat)	Unconfirmed location on roof pitch of northern elevation
Roost 5	Myotid sp.	Day roost (2 bats)	Unconfirmed location on roof pitch of northern elevation
Roost 6	Common pipistrelle	Day roost (1 bat)	Unconfirmed location on secondary gable of northern elevation
Roost 7	Soprano pipistrelle	Day roost (1 bat)	Unconfirmed location at south-west roof area of Hall
Roost 8	Common pipistrelle	Day roost (1 bat)	Gap in broken roof slate – likely to be roosting between covering and timber sarking
Roost 9	Soprano pipistrelle	Day roost (2 bat)	Unconfirmed location on central roof area of Hall
Roost 10	Pipistrellus sp.	Day roost (2 bats)	Gap underneath projecting fascia panel – possibly roosting at wall plate
Roost 11	Common pipistrelle	Day roost (1 bat)	Gap in stonework at apex of north-east gable opposite Office building
Roost 12	Common pipistrelle	Day roost (1 bat)	Gap underneath projecting fascia panel – possibly roosting at wall plates
Roost 13	Pipistrellus sp.	Day roost (2 bats)	Ridge of single-storey service wing
Roost 14	Common pipistrelle	Day roost (1 bat)	Gap at eaves of north elevation – possibly roosting at wall plate
Roost 15	Soprano pipistrelle	Day roost (1 bat)	Unconfirmed location on central roof area of Hall
Roost 16	Soprano pipistrelle	Day roost (1 bat)	Gap at ridge
Roost 17	Myotid sp.	Day roost (1 bat)	Unconfirmed location on central roof area of Hall
Roost 18	Common pipistrelle	Day roost (1 bat)	Gap at ridge

Extracts from Just Mammals Buckland Hall report, September 2019 – refer to full report for details

5.0 ASSESSMENT

The proposals;

Whilst there are wider more long term proposals for the site as a whole to come forwards over time, the current proposals are understood to comprise the following;

Details of Hall plroposals from the heritage statement:

- Removal of verandah to west elevation (and making good stone work)
- Removal of wrought iron fire escape and redundant flue fixed to Hall elevations within eastern courtyard (and make good stonework)
- Removal of shipping container and flue (redundant boimass boiler) and it's concrete slab foundations.
- Modifications to single storey link between Hall and two storey Annexe building, replacement with new single storey contemporary link, demolition of 20th century single storey flat roofed extension and front lean-to extension to two storey annexe, introduction of new staircase access to upper floor to rear of annexe.
- Demolition of former morgue and replacement with purpose built energy centre
- Alterations to fenestrations and external doorways to Hall
- Works to basement and external doorway access; including removal of wall, addition of staircase, removal of plant and flue with replacement plant being installed..
- Works internally to ground floor
- Works to first and second floors to remove partitions – it is understood that these works will be complete after agreement with the heritage conservation officer by the time of submission of the application having taken place over late winter/ spring 2020.
- Works to the hall roof to include installation of dormer and roof light style windows, re-roofing in like-for-like materials (slate and traditoinal bitumen felt) and replacement of second floor ceilings immediatley below the roof void.

Potential impacts (in the absence of suitable mitigation)

Brown l-eared bat maternity roost in roof voids

- Works to the hall roof to include installation of dormer and roof light style windows, re-roofing in like-for-like materials (slate and traditoinal bitumen

felt) and replacement of second floor ceilings immediatley below the roof void have the potential to significantly affect the bat roost viability and to harm any bats present during works. Licensing of works under suitable detailed method statement will therefore be required for these works.

- The proposed internal works to the second floor, immediately below the roof voids, to remove partitions, are understood to have taken place in early 2020 when the bats were likely to be absent from and/ or not breeding in the roof space. This would have been a time of minimal risk of impacts of disturbance through noise and vibrations to the roosting bats.
- The removal of the flue and external fire escape staircase on the rear wall of the house as well as to a lesser degree the removal of the verandah and alterations to external doors and windows may have some risk of disturbance to the maternity roost, mostly through potential obstruction of access points by the scaffolding structure etc.
- Any further internal works including electrics that may require access to the roof void could cause potential disturbance or obstruction of access points to the maternity roost.

Lesser horseshoe roost in cellar

- Alterations to doors and walls internally have the potential to obstruct access to and from the bat roost areas, potentially trapping bats or preventing them carrying out their usual behaviour.
- Works to remove the boiler equipment, install replacement plant and install a new stairs could disturb bats through noise, dust and light as well as altering temperature and other conditions within the cellar.
- Removal of the external boiler cabin, flues, external fire escape, works to the link to the rear annexe and to remove the former mortuary and construct the new biomass centre could cause disturbance or obstruction of access points to bats using the cellar and reduce the suitability of the dark 'light sampling' areas they use on emergence from their roost at dusk.
- Any effects to these bats in the cellar roost which are likely to be functionally linked to the coach house and ice house bat populations could impact the same

population and therefore have a potential impact to the SAC and SSSI designated sites.

Individual and small roosts of various species within crevices on the building exterior

- Works to the hall roof to include installation of dormer and roof light style windows, re-roofing in like-for-like materials (slate and traditoinal bitumen felt) have the potential to significantly affect bat roost viability and to harm any bats present during works. Licensing of works under suitable detailed method statement will therefore be required for these works.
- Works to remove flues, external boiler house, alter windows and doors, remove the verandah and make good stonework could affect these smaller bat roosts through disturbance during works, obstruction of access points such as by scaffolding during works and potential loss of roost points and direct harm to bats where repointing / other alterations to stonework is carried out. Note that no known bat roost areas are thought likely to be directly affected by proposed alterations.

All bat roosts and foraging / commuting bats

Alterations to external lighting or increased level of light spill from windows could also affect all of the above bat roosts through disturbance, particularly as lesser horseshoe bat are a particularly light sensitive species.

Roost status and level of impacts

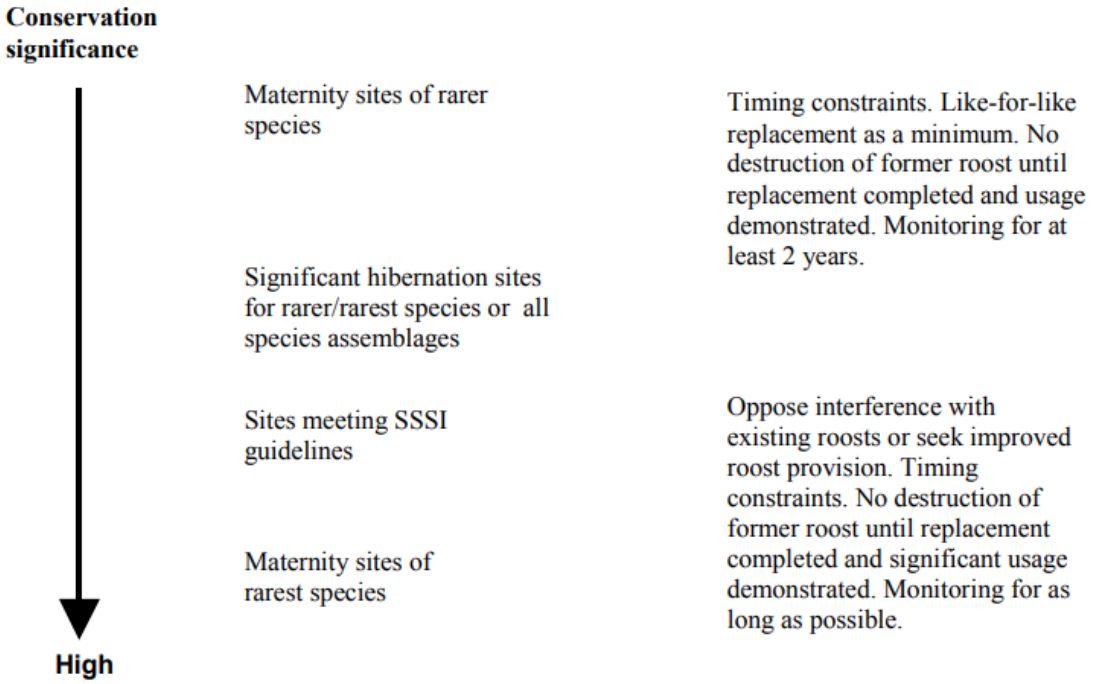
In line with the Bat Mitigation Guidelines (Mitchell-Jones, A.J. 2004), these bat roosts would be considered;

- high value roost - lesser horseshoe breeding roost of an Annexe II higher conservation status species,
- moderate value roost – brown long-eared breeding roost of a more common species)
- low to moderate value roosts – a range of minor day roosts and night roosts of common pipistrelle, soprano pipistrelle and myotis bat; more common species

The combination of high, moderate and an assemblage of low to moderate roosts within the Hall site provides a high value bat population assemblage, particularly due to the association with the coach house and ice house SAC and SSSI site.

Bat roost values table extract from Bat Mitigation Guidelines (Mitchell-Jones, A.J. 2004);

	Roost status	**Mitigation/compensation requirement (depending on impact)**
Low	Feeding perches of common/rarer species	Flexibility over provision of bat-boxes, access to new buildings etc. No conditions about timing or monitoring
	Individual bats of common species	
	Small numbers of common species. Not a maternity site	
	Feeding perches of Annex II species	Provision of new roost facilities where possible. Need not be exactly like-for-like, but should be suitable, based on species' requirements. Minimal timing constraints or monitoring requirements
	Small numbers of rarer species. Not a maternity site	
	Hibernation sites for small numbers of common/rarer species	Timing constraints. More or less like-for-like replacement. Bats not to be left without a roost and must be given time to find the replacement. Monitoring for 2 years preferred.
	Maternity sites of common species	



Requirements

Works will need to be carried out under suitable **ecological supervision and sensitive methods of working** to minimise impacts. Where impacts cannot be avoided, **mitigation and compensation measures** will be required and a **bat development licence** is likely to be required before works take place, as detailed below.

The planning application will require **details of external lighting**. This may be detailed within a planning application or as a condition to a permission.

Biodiversity enhancement is encouraged by the local authority in line with national planning policy with net gain for wildlife sought through planning decisions. This may be detailed within a planning application or as a condition to a permission.

Where there are any potential impacts, including to bats that are a likely part of the same population, to the Buckland Coach House and Ice House SSSI and Usk Bat Sites SAC lesser horseshoe bat roosts, a **Habitats Regulations Assessment** will need to be carried out by the local planning authority.

No other protected species are considered likely to be affected.

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6.0 CONCLUSIONS AND MITIGATION

The proposals to carry out alterations and improvements to the mansion house at Buckland Hall have the potential to directly and indirectly affect a valuable assemblage of bat roosts that include a maternity roost of brown long-eared bats in the roof voids, a potential maternity roost (although young may have been carried there rather than born there from available survey information) of lesser horseshoe bats in the cellar, likely to be functionally linked to the internationally important breeding and overwintering population of lesser horseshoe bats using the Buckland Coach House and Ice House SSSI, part of the Usk Bat Sites SAC, and a range of minor roosts of common pipistrelle, soprano pipistrelle and myotis bats using external crevices on the hall building.

Due to the impacts to lesser horseshoe bats, there is the potential for significant impacts to the Usk Valley Bat Sites SAC, in the absence of suitable mitigation. A Habitats Regulations Assessment will therefore be required.

Works to the hall roof to include installation of dormer and roof light style windows, re-roofing in like-for-like materials (slate and traditoinal bitumen felt) and replacement of second floor ceilings immediatley below the roof void have the potential to significantly affect the viability of the brown long-eared bat roost and to harm any bats present during works. Licensing of works under suitable detailed method statement will therefore be required for these works.

To avoid significant negative ecological impacts and legal offences and to provide suitable protection, mitigation and enhancement to bats and the SAC site, the following **bat protection and mitigation strategy** shall be put in place;

- **Timing of works and licensing** – due to the presence of maternity roosts at the site, including lesser horseshoe bats within the cellar and brown long-eared bats within the roof void of the hall, works will ideally take place between October and April inclusive, with December to March being the optimal

timing to be used where possible. Where possible, roof works will avoid the mid winter December to January period in case of disturbance to any hibernating bats.However, due to the complexity of the site, the works required and the bat roost use of the mansion house, works may need to be phased to include different times of year, whilst minimising impacts to bat roosts at the most sensitive peak breeding season.

- **A bat development licence will be obtained before works to the cellar or any works that may significantly impact the roof void bat roost (including re-roofing, installation of windows etc.) commence, following advice from the bat ecologist. The licence application** will include a fully detailed Method Statement, prepared by a bat ecologist. Planning permission / listed building consent will need to be in place before the licence application can be processed by Natural Resources Wales, which will take up to approximately 6 weeks.
- **At the start of any works to the cellar or roof voids, or any other internal or external works advised by the ecologist to potentially impact the bats, an induction or 'tool-box talk'** will be provided to construction/clearance workers by a suitably qualified ecologist appointed to oversee works. This will include details to be taken to protect bats, and other protected species during works to include their legislative protection, appearance, potential habitat on site and the procedure to be followed should any of these species be found during works.
- A **suitably qualified ecologist** will attend site to inspect bat roost areas immediately before work impacting on these areas begins.
- The **brown long-eared maternity roost** in the roof voids is proposed to be retained following re-roofing, with reinstatement of the roost (except for small areas lost to dormer and roof light installation) and of roost access points.
- It is proposed to relocate the **lesser horseshoe bats from the cellar roost**, as the conditions within the cellar will change considerably, including with the removal of the existing heating system. This will take place under a licence from Natural Resources Wales as required. It has been agreed in principle with Natural Resources Wales (Jonathan Saville and Annina Kortesniemi) and the Vincent Wildlife Trust (Anita Glover) that the bats can be encouraged to

use the main Coach House roost by improvements to the coach house to enable this to accommodate additional / alternative areas inside the coach house for maternity use. This is by VWT to comprise of a hot box and/ or false ceiling type enhancements within the main roof space / first floor of the coach house, where maternity use is currently largely focused on a mezzanine area at one end of the roof space. VWT have advised that this is likely to be successful as this would provide similar conditions to the mezzanine area currently used by bats (without the need for artificial heating). A cool tower can be included within the existing ground floor access space of the coach house if considered appropriate although initial advice from NRW and VWT are that the maternity improvements rather than the winter use improvements would be most appropriate.

The outline proposal is shown below, the exact details of the coach house and the requirements to be met, in terms of suitability and establishment of these and bat use of the cellar, will be agreed with NRW and the VWT in advance through the bat licence process and can be finalised at the planning application stage through discussions with NRW as required. Works to the coach house would take place between October and April when bats are likely to be absent and least impacted.

NRW officer Annina Kortesniemi has advised in June 2020 that the proposed removal of the lesser horseshoe bats from the cellar to the coach house should include an option for introducing artificial heating to the mitigation roost area within the coach house if a hot box design alone is not successful (subject to negotiation with relevant parties particularly the VWT) Additional advice was given as follows;

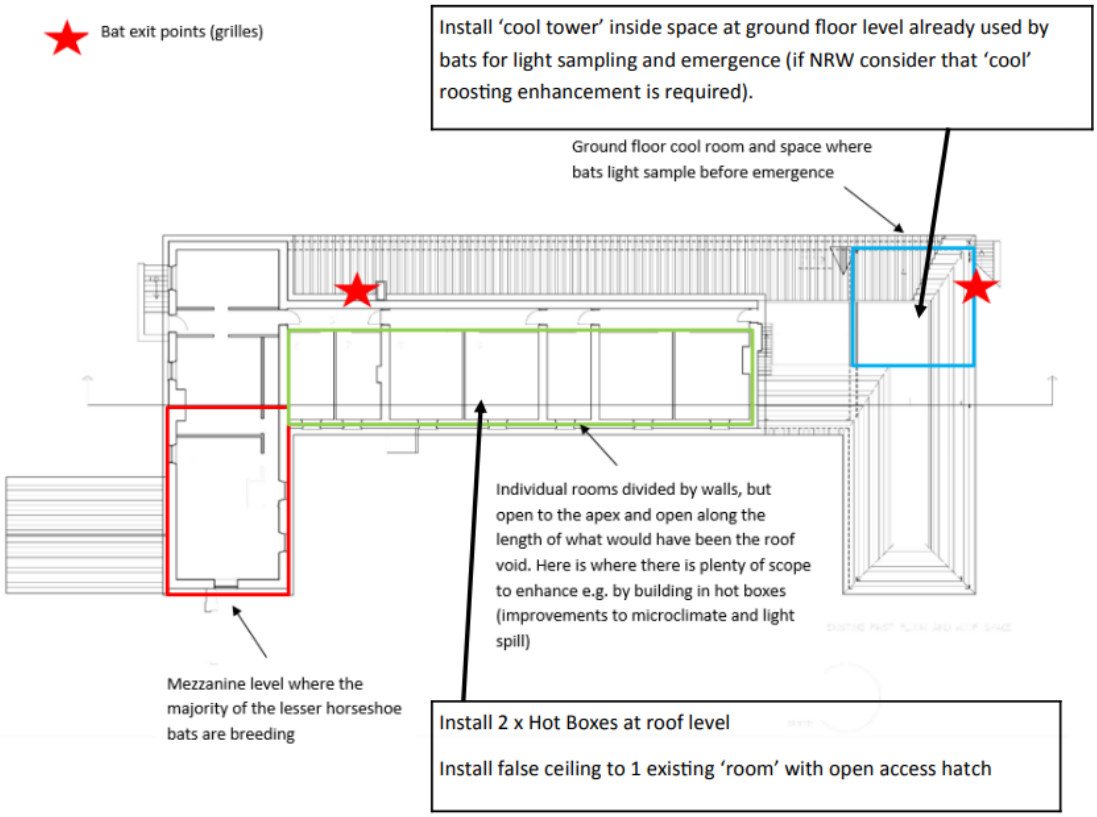
- *We advise the licence application is accompanied by surveys spanning the seasons to show how the LHB use the basement*
- *The survey techniques may need to be modified in the light of any firm advice on Covid-19 and batwork from CIEEM, animal health, NRW*
- *Unless the surveys indicate significant use of the basement during cooler periods of the year, a new cool box within the coach house will not need to be a mitigation requirement*

- *Any works within the coach house loft will need to be undertaken outwith the pregnancy/ maternity seasons to avoid abortion/ pup abandonment*
- *Exclusion to be undertaken when few animals present, most likely in the autumn following maternity season but before animals go into torpor*
- *We advise that a limit is imposed on the numbers of LHB present in the basement that can be excluded (expert judgement based on info gained through surveys)*

NOTE: We understand this to mean that during the licensing process, it will be agreed as to what level of take up of the new bat roost and/ or decrease in use of the cellar roost by bats is to be used to determine when the cellar can be closed off to bats under suitable method.

- *Exclusion either following an ecologist's inspection & no bats being found, or at night following small numbers emerging (demonstrating all animals left via inspection)*
- *It will be impossible to demonstrate use of the new warm space by the same animals as currently roost in the basement; therefore, alternative monitoring methods, such as quantity of droppings, could be used to demonstrate increased use of the improved area*

Coach house proposed improvements to mitigate for impacts to hall cellar bat roost;



Hot Box illustrations (extracts from VWT Lesser Horseshoe Bat Conservation Handbook);

The next stage is to build a 'hot-box' structure into the roof. This is based on the triangular panels but incorporating a floor, and complete with an appropriate bat access opening of 50cm x 50cm. Given enough space these can be fairly large, with an internal volume of up to 1m³. They are of greatest value in buildings such as barns, that are open to the roof. The absence of a ceiling increases air movement and cools the roof down. In these situations, the floor of the hot-box can be built on joists fitted on top of the wall plates. All joints can be sealed using a non-toxic sealant to eliminate warm air seepage. The external parts of the hot-box should be painted matt black to increase heat absorption.

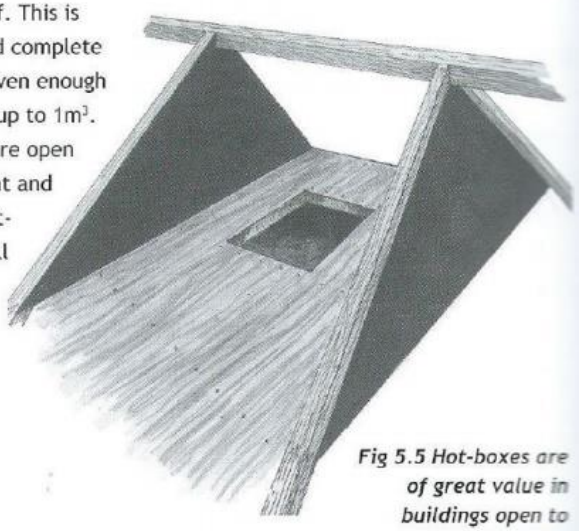
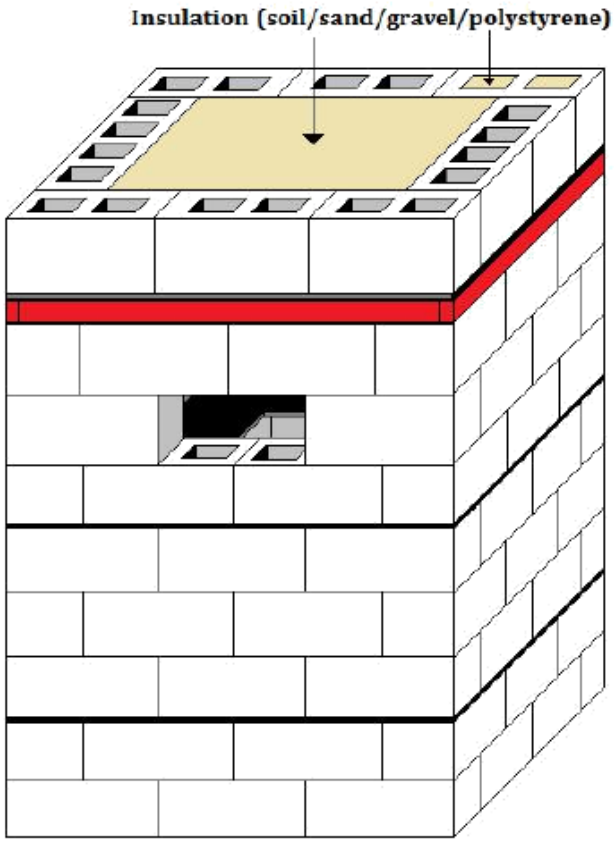


Fig 5.5 Hot-boxes are of great value in buildings open to the roof.

Cool Tower illustration (VWT);



Tower with timber supported ceiling/roof and insulation

- Before **works to external stone work, windows, doors** or other potential crevice areas take place, the ecologist shall inspect these areas and check for the presence of any roosting bats. This can potentially take place with the ecologists' tool box talk, where suitable timing of works is planned. Where

necessary, exclusion of bats shall take place before any such areas are worked or sealed up.

- Care will be taken to ensure that no **bat roost accesses** are obstructed by scaffolding or other equipment, under supervision of the ecologist.
- Should any **bats** be found during works, works will stop and the ecologist will be contacted for advice before works to the relevant area recommence. If necessary, the ecologist will remove the bat by hand and place it in a suitable container to recover and released when their health and weather conditions are suitable. Horseshoe bats will not be handled unless in rare, essential circumstances by specially qualified bat workers.
- At least one **bat box** of the type Schwegler 2F or suitable alternative as approved by the ecologist, shall be available on site on a suitable wall or tree, before works start and shall be retained as a biodiversity enhancement in the longer term. If necessary, any bats found during works and in good health following inspection by the ecologist, can be relocated to the box(es).
- Should any **nesting birds** or other protected species, be found during works, works to the relevant area will need to be delayed until the young birds have left the nest, as nesting birds are protected under the Wildlife and Countryside Act, 1981 (as amended).
- There will be **no artificial lighting onto bat roost entrances,** and in order to protect **bat foraging/ commuting routes** (flight lines) there should be no additional artificial lighting that spills into areas where it is not needed for access or security purposes. This can be achieved by use of targeted and/ or low-level lighting being used.
- Following the works affecting bats, **monitoring surveys** of the bats at the site will need to be carried out as a condition of a successful bat licence, the timescale of this will be agreed with NRW during the licence application process. It is likely that at least 3 years in succession or spread over a longer period, of summer internal / external inspection and dusk emergence survey will be required.

Although it is understood that works are proposed to take place in the near future, it should be noted that if works were to be delayed until during or after the summer of

2022, it is generally recommended good practice that an update bat survey and ecology assessment take place before works continue.

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