

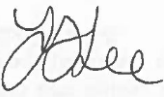
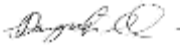
DAVID CLEMENTS ECOLOGY LTD

**COWBRIDGE SHEEP MARKET,
VALE OF GLAMORGAN**

**BAT SURVEY REPORT
(DRAFT)**

September 2020

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SUMMARY

This report has been prepared by David Clements Ecology Ltd (DCE) on the instructions of Mr M. Lyn Roberts of The Vale of Glamorgan Council and refers to four buildings at 'The Butts' within Cowbridge town centre. The buildings comprise a steel framed enclosed sheep market building, with an adjacent roofed pen area (counted as two separate buildings for the purpose of this report), as well as a detached building used as an office for the sheep market and a disused public toilet block.

The four buildings within the survey areas are proposed for demolition. The future plans for the site are not known at the time of writing.

The site does not fall within 10km of any SAC or other statutory sites that have been designated for bats in Wales. Forty-one records relating to bats within 2km of the site were returned in the data search, the closest of which is documented within 350m of the site, for an unknown bat roost underneath fascia boards in a residential property. There are also records of a number of other bat roosts nearby, including a lesser horseshoe bat roost (5 individuals) within 700m and a lesser horseshoe bat maternity roost within 1.1km of the site.

During the initial site inspection, approximately seven bat droppings characteristic of lesser horseshoe bat were found inside the enclosed sheep market building (B1). An active wood pigeon nest was found near the east entrance to the adjacent open market building (B2). House sparrows were observed entering behind broken a fascia board at the rear of B1 (west elevation). Several old bird nests were found within B1, B2 and the former toilet block (B4). Three of the buildings on the site have at least low potential to support roosting bats.

Two dusk emergence surveys were also carried out. No bats were seen to emerge from any of the buildings. Moderate levels of bat activity by noctule, common pipistrelle and soprano pipistrelle were observed during the surveys. Pipistrelle bats were recorded flying through B2 and appeared to be foraging just inside B1. No lesser horseshoe bats were recorded during the flight surveys.

B1 is not suitable for day roosting or hibernating lesser horseshoe bats due to the very light and drafty conditions. Although there is some potential for this building to be used as a night/ feeding roost, the droppings found within the building were scattered at four different locations. It is considered more likely that bats, including lesser horseshoe, fly through the open building on occasion while foraging, as common pipistrelles were observed doing this during the flight surveys.

It is concluded that the demolition of the four buildings on the site will not have a detrimental effect on protected species, provided that a method statement involving a precautionary approach is followed, as set out in the following section. Post-development enhancement measures should be put in place to provide new roosting opportunities for bats and nest sites for a range of bird species.

Further recommendations are included within the report.

1.0 INTRODUCTION

- 1.1 This report has been prepared by David Clements Ecology Ltd (DCE) on the instructions of Mr M. Lyn Roberts of The Vale of Glamorgan Council and refers to four buildings at ‘The Butts’ within Cowbridge town centre. The buildings comprise a steel framed enclosed sheep market building, with an adjacent roofed pen area (counted as two separate buildings for the purpose of this report), as well as a detached building used as an office for the sheep market and a disused public toilet block. The main sheep market building is located at Ordnance Survey grid reference SS 99165 74690 and lies at approximately 30m AOD.
- 1.2 The site is situated within the centre of the town of Cowbridge a small market town in The Vale of Glamorgan, South Wales. There is a line of trees at the southern end of the site, close to the office building and public toilets. Immediately adjacent to the site, there is a residential area to the north and commercial/ civic properties to the east with Cowbridge Physic garden also 100m to the east. There are playing fields to the south and west and extensive areas of countryside beyond the limits of the town.
- 1.3 The four buildings within the survey areas are proposed for demolition. The future plans for the site are not known at the time of writing.
- 1.4 The remainder of this report sets out the results of bat survey work undertaken at the site. It also assesses the likely impact of the proposed works on bats and nesting birds and makes recommendations regarding the mitigation of any potentially adverse biodiversity impacts.

1.5 Statutory Position and Background Information

- 1.5.1 Bats are flying insectivorous mammals. There are about 17 species resident in Britain which vary from comparatively common and widespread species (eg the pipistrelles¹, brown long-eared bat) to internationally rare and endangered species (eg the horseshoe bats). Bats do not make nests but have ‘roosts’, which may be solitary or gregarious. Individual bats require a range of different roosting sites for differing purposes: in the summer, for example, daytime roosts in buildings and trees may be used, whilst for winter hibernation roosts in locations such as humid caves, basements or deep within the fabric of stonebuilt structures are preferred. Other roosts may be used at various times for the rearing of young, mating and as temporary feeding perches etc.
- 1.5.2 All bats and their roosts require strict protection under the EU Directive on the Conservation of Natural Habitats and of Wild Flora and Fauna (92/43/EEC; the ‘Habitats Directive’), which is implemented in the UK via the Conservation of Habitats

¹ ‘Pipistrelle bats’ are now known to comprise an aggregate of two distinct species which can be distinguished in the field by their echolocation calls. These species are identified as ‘common pipistrelle’ and ‘soprano pipistrelle’ respectively. Both species are comparatively common and widespread in the UK.

& Species Regulations 2017 (the ‘Habitats Regulations’)². Some additional protection against disturbance is also conferred under the amended Wildlife & Countryside Act 1981. Bats are listed under the Bern Convention on the Conservation of European Wildlife and Natural Habitats and also under the Agreement on the Conservation of European Bats 1992 (the ‘Eurobats Agreement’), signed within the framework of the Bonn Convention on the Conservation of Migratory Species of Wild Animals 1979.

- 1.5.3 All bats are listed in Annex IV of the EC Habitats Directive, and the British species are listed on Schedule 2 of the Habitats Regulations 2017 and are therefore designated ‘European Protected Species’ by the latter. Such species are subject to enhanced protection and more stringent licensing provisions than those which are protected under the Wildlife & Countryside Act alone.
- 1.5.4 Both the animals themselves and any structures or places used for breeding or shelter are fully protected against both intentional or unintended but ‘reckless’ disturbance or harm, the latter irrespective of whether or not bats are present in them at the time. Where works are allowed to affect such places there is a legal requirement to obtain a licence (or ‘derogation’) in advance and to ensure that the works do not result in any avoidable harm to bats. The bats should also enjoy continued ‘favourable conservation status’ once the works are completed, through the incorporation of suitable mitigation and enhancement measures.
- 1.5.5 The issuing of licences which allow the disturbance of European Protected Species by development, or for any other reason, is the responsibility of Natural Resources Wales (NRW). The licensing restrictions are considerably more onerous than those of the Wildlife & Countryside Act and could potentially have significant impact on the viability of a given development proposal, irrespective of whether or not a valid planning consent has been obtained. Further details on the procedures are set out in TAN 5 (WAG 2009).
- 1.5.6 All species of bat in Britain are believed to be declining in range and numbers, with about half of the resident species classed as ‘rare’ and three classed as ‘endangered’ (Morris 1993; Richardson 2000). Several species of bat are listed as priorities for conservation under Section 7 of the Environment (Wales) Act 2016³.
- 1.5.7 Some of the rarest bat species in Europe, including the horseshoe bats, barbastelle, Bechstein’s bat and greater mouse-eared bat, are additionally listed on Annex II of the Habitats Directive. This requires the EU nation states to designate key areas of habitat used by these species as Special Areas of Conservation (SACs), and to implement

² The European legislation cited herewith is that which was applicable at the time of survey, but it should be noted that new arrangements have become applicable after 31 Jan 2020 as a result of ‘Brexit’. At the time of writing these comprise a continuance of the current legal and protection arrangements by means of Statutory Instrument No. 579 (*The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations*, 2019) but the longer term arrangements which will apply after the end of the Brexit ‘Transition Period’ are still to be confirmed and may differ in detail from those which previously applied.

³ In Wales the s.7 list of the EWA 2016 supersedes the s.42 list of the Natural Environment & Rural Communities Act 2006, which in turn replaced the ‘Priority Species’ lists of the UK Biodiversity Action Plan.

policies to conserve and enhance their populations through appropriate management etc. These species are accorded enhanced conservation significance in the UK, although they are not subject to any additional protection measures.

Derogations

1.5.8 Amongst other things, the Habitats Regulations make it an offence to:

- capture or kill;
- disturb;
- take or destroy eggs or young, or;
- damage or destroy a breeding site or resting place of;

a European Protected Species, except under certain narrowly defined circumstances. New developments which would contravene the protection afforded to such species require derogation, in the form of a licence, from the Habitats Directive which must be issued by NRW.

1.5.9 Before such a licence can be issued, NRW must be satisfied that:

- the derogation would not be detrimental to the ‘favourable conservation status’ of populations of the species concerned within its natural range.
- the derogation is in the interests of public health and public safety, or for other imperative reasons of over-riding public interest, including those of a social or economic nature, or will have beneficial consequences of primary importance to the environment.
- there is no satisfactory alternative to the derogation which would allow the development to proceed but which would avoid, or reduce, the need for adverse impact to the species.

1.5.10 Failure to obtain a derogation would render any actions which cause harm or disturbance to bats illegal, including any activities which might be undertaken under a valid planning consent. The possession of planning consent in no way alleviates or over-rides the requirements of the Habitats Regulations, and neither does it automatically ensure that a derogation may be obtained.

1.5.11 Current planning guidance in Wales requires that local planning authorities are in possession of all of the survey information which is necessary in order to determine the probability of impact to European Protected Species, and the likely viability and success of any required mitigation measures, before determining any given planning application. As of 1 October 2008, planning authorities cannot register a new planning application until all of the necessary survey information has been made available. NRW will not consider any application for licences in relation to a proposed development until after it has received notice of the planning consent.

Nesting Birds

- 1.5.12 Almost all species of birds native to the British Isles are afforded at least some level of statutory protection under the Wildlife & Countryside Act 1981, the only exceptions being a handful of pest and game species which may be killed under certain specified and licensed conditions. In the great majority of cases, birds are protected against injury or killing, and this protection extends to their nests, eggs and young. Certain rare species, which include barn owl, are subject to enhanced protection against disturbance whilst nesting, by virtue of their listing on Schedule 1 of the Act.
- 1.5.13 The protection of common nesting birds (ie those not listed on Schedule 1) typically applies only to the animals themselves and to the site of their nests *whilst they are in use*. The nesting site *per se* is not protected once nesting has ceased and the nest is no longer occupied by the adults, eggs or young. More stringent regulations may apply to the nesting sites of Schedule 1 species, however.

1.6 **Designated Sites of Biodiversity Interest**

Statutory Sites

- 1.6.1 The search area does not fall within 10km of any SAC or other statutory sites that have been designated for bats in Wales.

Non-Statutory Sites

- 1.6.2 A data search for non-statutory sites was not undertaken, as these are not considered relevant to the survey.

2.0 APPROACH AND METHODS

2.1 Survey Methodology

Bats

2.1.1 A daytime building inspection was conducted in accordance with current best practise guidance provided by BCT (2016). The site inspection was carried out in dry, mild weather conditions during daylight hours on 10th July and 20th August 2020 by an experienced and licenced bat ecologist. All accessible areas of the buildings were entered and searched using high-powered lanterns (Clulite FAN1). Other equipment was available as required, including a digital endoscope (Rigid See snake CA350) for the examination of any crevices in the fill of stone walls etc, and ladders to inspect high areas. Interior and exterior searches were made especially for evidence such as bat droppings and feeding remains, as well as for sightings of actual bats (in cracks and crevices etc) and secondary signs such as fur-oil and urine stains, scratch marks etc.

2.1.2 The layout and construction of the buildings were recorded, briefly described and characterised, with an estimate being made of the potential attractiveness and suitability for bats with reference to a range of factors including human disturbance, light levels, air movement, exposure, thermal stability and cobwebbing of access points etc.

2.1.3 Following the initial site inspection two dusk emergence surveys were carried out on the following dates: 24th August 2020 and 8th September 2020. Six surveyors and two IR camera set ups (Infrared Panasonic hc-w850 camera supplemented by two IR lamps) were stationed around the buildings. All surveyors were equipped with Anabat SD1, SD 2 frequency-division bat detectors or Peersonic RPA3 full spectrum detectors, supplemented by a mixture of Petterson D200 and BatBox duet heterodyne detectors. Bat calls were logged and recorded to SD cards for subsequent analysis using the AnalookW software (Corben, 2006) and Kaleidoscope software. Infrared footage was recorded to SD card and later analysed using VLC player software.

Other Flora & Fauna

2.1.4 Other potential ecological interests including the potential for the buildings to support nesting birds were also noted during the survey of the site.

2.2 Data Trawl

2.2.1 In addition to original survey, a data trawl was carried out with the South East Wales Biodiversity Record Centre (SEWBReC) in order to obtain access to any existing ecological information or records from the site. SEWBReC is the main repository for biodiversity and wildlife records in the south-east Wales region. Relevant records are referred to in the text.

2.3 **Survey Constraints**

- 2.3.1 Owing to concerns around stability, the roof voids in Buildings B3 and B4 were not extensively searched however the surveyor did view the interior of B3 from the loft hatch access using a high-powered torch. Access to one section of Building B4 (the ladies toilet block) was not possible.

3.0 SURVEY RESULTS

3.1 *Data Trawl*

- 3.1.1 No records for bats or birds were returned in the data trawl for the site itself.
- 3.1.2 Forty-one records relating to bats within 2km of the site were returned in the data search. the closest of which is documented within 350m of the site, for an unknown bat roost underneath fascia boards in a residential property. There are also records of a common pipistrelle roost (one individual) within 450m, a brown long-eared bat roost within 650m, a lesser horseshoe bat roost (5 individuals) within 700m and a lesser horseshoe bat maternity roost within 1.1km of the site. There are an additional 4 roost records for lesser horseshoe bat and roost records for soprano pipistrelle, whiskered/ Brandt's bat and an unknown Myotis species within 2km. Commuting/ foraging serotine, noctule and Daubenton's bats have also been recorded within 2km of the site (LERC Reference: 0201-194).
- 3.1.3 There were no records for roof nesting birds for the site itself, but there is one record for house sparrow within 150m. Six other records were returned in the desk study, within 400m of the site. The species recorded were barn owl, jackdaw, house martin, swift, wren and blue tit (LERC Reference: 0201-194).

3.2 *Building Inspections*

- 3.2.1 For detailed descriptions of the buildings and an assessment of their potential to support bats and nesting birds, see Table 1 below.
- 3.2.2 Approximately seven bat droppings characteristic of lesser horseshoe bat were found inside building B1, in four separate locations: on top of wooden benches to the centre of the building, close to the partition walls and adjacent to the entrance (east side of building).
- 3.2.3 A second internal inspection of B1 was carried out, prior to the flight survey on 8th September 2020. The building was now open and no longer in use as a livestock market. No bats were seen or droppings found on this occasion.
- 3.2.4 An active wood pigeon nest was found near the east entrance to building B2. House sparrows were observed entering behind broken a fascia board at the rear of B1 (west elevation). Several old bird nests were found within B1, B2 and B4.

3.3 *Flight Surveys*

- 3.3.1 A dusk emergence survey was completed on the 24th August 2020. Six surveyors and two Infrared camera set ups were positioned around the buildings.

- 3.3.2 No bats were seen to emerge from the buildings. Moderate levels of bat activity by noctule, common pipistrelle and soprano pipistrelle were observed during the survey. Bats were seen commuting around and over the buildings, especially B1 and B2.
- 3.3.3 A second dusk emergence survey was completed on the 8th September 2020. Six surveyors and two Infrared camera set ups were positioned around the buildings.
- 3.3.4 Pipistrelle bats were recorded flying through B2 and appeared to be foraging just inside B1. Moderate levels of bat activity by common pipistrelle and soprano pipistrelle were observed throughout the survey. Bats were seen commuting around and over the buildings.

Table 1: Building descriptions

Building	Description	Evidence of Bats & Nesting Birds	Bat Roosting Potential
B1 (Enclosed Sheep Market Building)	<i>Exterior:</i> Breezeblock built with steel frame and wood panelled upper walls on south aspect. Roof and upper panels at front (east aspect) consist of asbestos-based corrugated sheeting. Some holes in the roof. Dual-pitched roof. Wooden beam at top of walls. West aspect open; East aspect normally closed with metal doors	No visible signs of roosting by bats observed on the exterior structure on the day of the survey. House sparrows observed entering behind broken fascia board at rear of building (west elevation).	Broken fascia board used by house sparrows and large holes in roof. External features of building have low potential for roosting bats. Not considered likely to support hibernating bats owing to construction materials used.
	<i>Interior:</i> Enclosed section of building divided in two by single-skin breezeblock partition wall. Concrete floor. The interior is very light, as the sun shines through the wooden panelled wall and through holes and skylights present in the roof. Gap along top of wall shared with B2. Building still in weekly use as livestock market, at time of survey. Floor covered with sheep droppings. Metal livestock pens on both sides. There is a small amount of equipment and some items of furniture.	Small numbers of fairly old bat droppings found at four locations within east section of B1. Seven old bird nests (possibly jackdaw or wood pigeon) on metal roof supports, just below roof.	Some possible gaps between wooden beams, otherwise very little potential for crevice roosting species. Very light inside so unsuitable for day roosting by horseshoe bats. Potential for night roosting. Low potential for roosting bats. Not considered likely to support hibernating bats owing to construction materials used.
B2 (Open Sheep Market Building)	<i>Exterior:</i> The building has a similar structure to B1, but the north, west and east aspects are entirely open.	No visible signs of roosting by bats or nesting birds observed on the exterior structure on the day of the survey.	No features of note in external structure. Negligible potential for roosting bats/hibernating bats.
	<i>Interior:</i> The interior is similar to B1, with larger livestock pens. No furniture or other items present.	No visible signs of roosting by bats observed within the interior on the day of the survey. Numerous old bird nests under metal roof supports and at both entrances to building. Wood pigeon sitting on nest under roof at east entrance to B2.	Gap along top of wall allowing access to adjacent B1. Negligible potential for roosting/hibernating bats, as three sides of building are open to the elements and there are no suitable crevices.
B3 (Sheep Market Office/ former cafe)	<i>Exterior:</i> The building is divided into two sections which are self-contained. The northern section is single storey, with a flat bitumen felt roof and a small porch. The southern section is two storey with a mono-pitched slate roof. The walls are constructed of breezeblock and brick with concrete render and wooden fascia.	No visible signs of roosting by bats or nesting birds observed on the exterior structure on the day of the survey	Some loose roof tiles and gaps in concrete underneath the tiles. Otherwise generally well-sealed.

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	The windows and some of the doorways have locked metal shutters.		Moderate potential for roosting bats. Not considered likely to support hibernating bats owing to construction materials used.
	<i>Interior:</i> The northern section is furnished and at the time of the survey, in use as an office for the sheep market. The southern section had not been used for some time. A large 2m by 2m hole in the plasterboard ceiling exposes the 1 st floor/ loft void above. A hatch also leads to the loft void. No gaps visible within the loft void (very dark inside), apart from a number of small air vents. Fibreglass insulation on ceiling.	No visible signs of roosting by bats or nesting birds observed on the exterior structure on the day of the survey	Possible access into the interior, through gaps in roof, but no obvious gaps seen. Low potential for roosting bats. Not considered likely to support hibernating bats owing to construction materials used.
B4 (Former Public toilet block)	<i>Exterior:</i> The single storey building is situated to the southeast of B1 and B2 adjacent to a hedge and bordering a playing field. The walls appear to be constructed mainly of brick with concrete render. The main roof is mono-pitched, with a lower mono-pitched section built on to the north aspect. There is also an intact stone wall on the north aspect. Both roofs are slate. The windows are boarded up and doorways sealed with metal panels.	No visible signs of roosting by bats or nesting birds observed on the exterior structure on the day of the survey.	Broken and missing tiles on 2 roofs. Lifted wooden fascia board under guttering on stone wall. Large circular hole in Perspex window. Moderate potential for roosting bats. Not considered likely to support hibernating bats due to lack of crevices in stone wall and unsuitability of other construction materials used.
	<i>Interior:</i> The interior is starting to deteriorate with holes in the plasterboard ceiling, presumably due to water ingress. The walls are brick and the floor tiled.	No visible signs of roosting by bats observed on the exterior structure on the day of the survey. Old bird nest in storage section between gents and ladies' blocks.	Crevices in brick wall and into void through holes in plasterboard ceiling. Moderate potential for roosting bats. Not considered likely to support hibernating bats owing to construction materials used

4.0 ASSESSMENT & CONCLUSIONS

- 4.1 Three of the buildings on the site have at least low potential to support roosting bats. However, there was no evidence of bats emerging from any of the buildings during the two dusk emergence surveys. Common pipistrelle bats were recorded flying through B2 and foraging around the entrance of B1. No lesser horseshoe bats were recorded during the flight surveys.
- 4.2 Small numbers of scattered fairly old bat droppings, characteristic of lesser horseshoe bat were found inside the enclosed sheep market building (B1). This building is not suitable for day roosting or hibernating lesser horseshoe bats due to the very light and drafty conditions. Although there is some potential for this building to be used as a night/ feeding roost, the droppings found within the building were scattered at four different locations. It is considered more likely that bats, including lesser horseshoe, fly through the open building on occasion while foraging, as common pipistrelles were observed doing this during the flight surveys.
- 4.3 There is evidence of nesting by birds such as wood pigeon and jackdaw within B1, B2 and B4.
- 4.4 It is concluded that the demolition of the four buildings on the site will not have a detrimental effect on protected species, provided that a method statement involving a precautionary approach is followed, as set out in the following section. Post-development enhancement measures should be put in place to provide new roosting opportunities for bats and nest sites for a range of bird species.

5.0 RECOMMENDATIONS

Statutory obligations

- 5.1 In the event that roosting bats, evidence of roosting bats or nesting birds are encountered at any time during works, all works in the immediate vicinity must cease immediately and appropriate expert advice sought as a matter of urgency. The ‘immediate vicinity’ would comprise any bat/ nesting bird occupied void in its entirety, plus an area of at least 5m radius around the find site. Bats and nesting birds must not be harmed or disturbed, and should be carefully covered over and wherever possible left in situ until expert assistance has been obtained. The confirmed presence of bats may impose a requirement to obtain a European Protected Species licence (EPSL) from the statutory authorities before any further works are undertaken. **This is a statutory requirement.**

5.2 Bats

- 5.2.1 The four buildings are proposed for demolition. Although no evidence of day roosting bats was found during the surveys all of the buildings, apart from B2, were assessed as having at least low potential to support roosting bats.

- 5.2.2 As it is not possible to entirely rule out the possibility that individual bats may occasionally use the buildings for day roosting, a precautionary approach to the demolition of the buildings is recommended. Works should be undertaken during the autumn and winter months (September to February) when bats are less likely to be present. External features on the walls, such as wooden cladding, fascia and metal panels should be carefully removed by hand with constant vigilance and checking to make sure that no bats are present concealed under or behind such features. The rear or underneath of any materials which are removed will be checked visually for bats before the item is dumped or smashed.

- 5.2.3 As an enhancement, the provision of new bat roosting opportunities should be provided, through a bat box scheme, using suitable trees nearby. Consideration should also be given to providing further opportunities for bats to roost through the provision of appropriate bat-boxes on the exterior walls of any new buildings planned for the site. These should ideally be incorporated into the wall structures in suitable locations, and should be of woodcrete or ABS plastic construction, rather than timber. Suitable examples of bat boxes are shown at Appendix 1. In order to provide night roosting opportunities for lesser horseshoe and other bat species, a covered porch area or other suitable provision should be incorporated into any new development.

5.3 Nesting Birds

- 5.3.1 Evidence of nesting birds such as jackdaw and wood pigeon using three of the buildings was noted during the surveys. Works affecting the buildings and any other habitats on the site must have regard to the possible presence of nesting birds. The bird nesting season runs approximately between March and August inclusive, and therefore it is recommended that any building or clearance works are undertaken outside of this period. Undertaking works outside the bird nesting season minimises the risk of causing avoidable harm or

disturbance to nesting birds, which is a statutory obligation. If this timing is not possible, however, then the works must be preceded by a survey by an appropriately qualified person to ascertain that no nesting birds are present.

5.3.2 As with bats (above) a bird box scheme using nearby trees should be implemented as mitigation for the loss of nesting sites. As an enhancement, consideration should also be given to the incorporation of bird-boxes on any new buildings within the site. Suitable examples are shown at Appendix 1.

5.4 *Additional recommendations*

5.4.1 The services of an appropriately qualified ecologist should be available on an ‘on-call’ basis throughout the development in order to deal promptly with any protected species or other ecological matters which may arise during the clearance and construction works.

5.4.2 Careful consideration should be given to the use of lighting within the developed site, as this can adversely affect activity by a variety of fauna, particularly foraging bats, nesting birds and invertebrates. See BCT (2018) for further guidance.

6.0 REFERENCES

Bat Conservation Trust (BCT 2016) *Bat Surveys for Professional Ecologists. Good Practice Guidelines, 3rd Edition.* Bat Conservation Trust, London.

Bat Conservation Trust (BCT 2018) *Bats and Artificial Lighting in the UK Guidance Note. Bats and the built environment series.* Bat Conservation Trust, London.

Chartered Institute of Ecology and Environmental Management (2013) *Guidelines for Preliminary Ecological Appraisal.* CIEEM, Winchester.

APPENDIX 1: BAT AND BIRD BOX DESIGNS

Suitable for rendering over, leaving just the entrance exposed



Schwegler 1FR



Schwegler 1FE



Schwegler 1WI
(Hibernation box)



ACO Integrated

Brick or custom-faced boxes



Habibat Custom Face
(Can have any facing)



BirdBrickHouse
Brick-faced bat box



Wall cavity boxes



Ibstock Type B



Ibstock Type B
(Small)



Wildex Wall Cavity
(Large)



Wildex Wall Cavity
(Small)



Vivara Pro
Woodstone Built-in

Exposed at surface



Schwegler 27



Ibstock Type C

EXAMPLES OF SURFACE-MOUNTED BAT BOXES

Tree-mounted boxes



Schwegler 2F General Box



Schwegler 1FD Nursery Box



Schwegler 1FS Nursery Box (Large)



Schwegler 1FW Winter Box
(Very large box)



Schwegler 2FN
Noctule Box



Schwegler 2F DFP
Daubenton's Bat Box



Miramar General Box

Tree or building-mounted boxes



Schwegler 1FF General Box



Schwegler 1FQ Decorative Box



Schwegler 1FFH General Box



Vivara Woodstone Low Profile Box



NHBS Cavity Box
(Brown Long-Eared Bat Box)



NHBS Crevice Box

EXAMPLES OF BOXES FOR SYNANTHROPIC BIRD SPECIES



Schwegler 1SP House Sparrow Terrace



Schwegler 1BFN Integrated Starling Box



Vivara Woodstone House Martin Cups



Vivara Woodstone Swallow Cup



Schwegler 11 House Martin Cups



Ibstock 2 Integrated Swift Box



Ecosurv Integrated Swift Box



Vivara Woodstone Integrated House Sparrow Box



Vivara Woodstone Integrated Swift Box



Vivara Woodstone Under-Eave Swift Box