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Ecological Impact Assessment

Stable & Barn, Pilgrims Farm
White Hill Road
Overton
RG25 3DS

April 2023

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QUALITY CONTROL		
The information which we have prepared and provided is true, and has been prepared and provided in accordance with the Chartered Institute of Ecology and Environmental Management's Code of Professional Conduct.		
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Approved by	Olatz Gartzia BSc MSc ACIEEM - Principal Ecologist	28th April 2023
<p>This report remains valid for 12 months from date of issue.</p> <p>Survey data are valid for 12-18 months from the date the survey was undertaken.</p>		

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Whilst every effort has been made to guarantee the accuracy of this report, it should be noted that living creatures are capable of migration and whilst protected species may not have been located during the survey duration, their presence may be found on site at a later date.

The views and opinions contained within the document are based on a reasonable timeframe between the completion of the survey and the commencement of any works. If there is any delay between the commencement of works that may conflict with timeframes laid out within this document, or have the potential to allow the ingress of protected species, a suitably qualified ecologist should be consulted.

It is the duty of care of the landowner/developer to act responsibly and comply with current environmental legislation if protected species are suspected or found prior to works.

1. EXECUTIVE SUMMARY

- 1.1. Darwin Ecology Ltd was commissioned by Lindsay Goodyear of Bell Cornwall on behalf of Harry Gill to undertake an Ecological Impact Assessment (EclA) of proposals for the buildings at Pilgrims Farm, White Hill Road, Overton, Hampshire, RG25 3DS. The assessment was required to support a planning application to convert the existing stables into a residential annex and the existing fodder barn into an indoor swimming pool with facilities. This assessment was informed by a desk study and an internal / external building inspection.
- 1.2. During the internal / external building inspection, the stables and fodder barn were assessed to offer negligible potential to support bat roosting. No further bat surveys have been recommended.
- 1.3. Both buildings were found to have disused bird nests within, including a single European swallow (*Hirundo rustica*) nest in the stables.
- 1.4. Works must take place outside of the bird nesting season to ensure no breeding birds are disturbed by the works.
- 1.5. Recommendations have been made to install one external bat box and one swallow nest bowl as part of the proposed development, to provide a new bat roosting opportunity and a replacement swallow nesting opportunity which will remain on the property in perpetuity.
- 1.6. A sensitive lighting scheme has been recommended. All new external lighting should be directed to avoid light spillage onto adjacent vegetation, particularly linear habitat features such as woodland edges or potential roosting sites within trees and buildings.

2. INTRODUCTION AND BACKGROUND

- 2.1. Darwin Ecology Ltd was commissioned by Lindsay Goodyear of Bell Cornwall on behalf of Harry Gill to undertake an EclA of proposals for the buildings at Pilgrims Farm, White Hill Road, Overton, Hampshire, RG25 3DS¹. The assessment was required to support a planning application to convert the existing stables into a residential annex and the existing fodder barn into an indoor swimming pool with facilities. This assessment was informed by a desk study and internal / external building inspection.
- 2.2. At the time of this report, no plans of the proposals had been produced.
- 2.3. The internal / external building inspection followed the Bat Conservation Trust (BCT) Good Practice Guidelines (2016).
- 2.4. The subsequent EclA follows the CIEEM Guidelines for EclA in the UK and Ireland (2018).

Site Overview

- 2.5. The site is a mixed residential and rural property situated approximately 2.4km south of the village of Overton, Hampshire. The site comprises a main dwelling, stable block (B1) and fodder barn (B2) with open pasture fields directly to the south and a woodland habitat to the north. Woodland borders the property to the north and northeast, and agricultural land use borders the site to the east, south and west (see **Figure 1**).
- 2.6. The wider landscape comprises further woodland habitats and agricultural land use, with some scattered residential and agricultural developments in all cardinal directions (see **Figure 2**). Test Valley Golf Club can be found approximately 210m south of the property. (see **Figure 2**).
- 2.7. The main dwelling was previously subject to a building inspection and further Phase 2 bat surveys undertaken by Darwin Ecology in 2021 and 2022, which found that the dwelling contained common pipistrelle (*Pipistrellus pipistrellus*) day roosts (Darwin Ecology, 2022).

Scope of Assessment

- 2.8. The process of EclA aims to identify, quantify and evaluate the potential effects of development-related or other proposed actions on habitats, species and ecosystems.
- 2.9. Potential effects on the following ecologically sensitive receptors have been considered during the EclA of the proposals at Pilgrims Farm:
 - Statutory and non-statutory designated sites; and
 - Features of potential importance (such as loft voids or external crevice features).

¹ Ordnance Survey (OS) grid reference: SU 51702 46269.



Figure 1: Site location within the local landscape (Copyright Google Earth, 2023). Buildings on site are highlighted in orange.



Figure 2: Site location within the wider landscape (Copyright Google Earth, 2023)

3. LEGISLATION & POLICY

General Wildlife Legislation

- 3.1. Wildlife in the United Kingdom (UK) is protected through European and national legislation, supported by national and local policy and guidance. Development can contribute to conservation and enhancement goals outlined by these various legislation and policy by retaining and protecting the most valuable ecological features within a site and incorporating enhancements to provide biodiversity net gain.
- 3.2. This section provides a brief summary of the principle legalisation and policy that triggers the requirement for preliminary and further ecological assessments in the UK. The presence of protected species within a site are a material consideration during the planning process. Preliminary and any necessary further ecological assessments provide an ecological baseline for a site and evaluation of the potential impact of proposals.
- 3.3. It is the responsibility of those involved with development works to ensure that the relevant legislation is complied with at every stage of a project. Such legislation applies even in the absence of related planning conditions or projects outside the scope of the usual planning process (i.e. permitted development projects or projects requiring Listed Building Consent only).

Bat Legislation

- 3.4. In England and Wales, all bat species and their roosts are legally protected under the European *Habitats Directive (1992)*; the *Conservation of Habitats and Species Regulations (2017)*; the *Wildlife and Countryside Act (1981) (as amended)*; the *Countryside and Rights of Way Act, 2000*; and the *Natural Environment and Rural Communities Act (NERC, 2006)*.
- 3.5. Barbastelle (*Barbastella barbastellus*), Bechstein's (*Myotis bechsteinii*), greater horseshoe (*Rhinolophus ferrumequinum*), lesser horseshoe (*Rhinolophus hipposideros*), brown long-eared (*Plecotus auritus*), soprano pipistrelle (*Pipistrellus pygmaeus*), and noctule (*Nyctalus noctula*) bats are all species of principal importance in England under *Section 41* of the *Natural Environment and Rural Communities Act 2006*.
- 3.6. You will be committing a criminal offence if you:
 - Deliberately capture, injure or kill a bat;
 - Intentionally or recklessly disturb a bat in its roost or deliberately disturb a group of bats;
 - Damage or destroy a bat roosting place (even if bats are not occupying the roost at the time);
 - Possess or advertise/sell/exchange a bat (dead or alive) or any part of a bat; or
 - Intentionally or recklessly obstruct access to a bat roost.

- 3.7. The government's statutory conservation advisory organisation, Natural England, is responsible for administering EPS licenses that permit activities that would otherwise lead to an offence.
- 3.8. A licence can be obtained if the following three tests have been met:
- Regulation 53(9)(a) - there is "no satisfactory alternative" to the derogation, and;
 - Regulation 53(9)(b) - the derogation "will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range" and;
 - Regulation 53(2)(e) - the derogation is for the purposes of "preserving public health or public safety or other imperative reasons of overriding public interest, including those of a social or economic nature and beneficial consequences of primary importance for the environment".

National Planning Policy

- 3.9. The *National Planning Policy Framework (2021)* aims to minimise impacts on biodiversity and provide net gains in biodiversity where possible, contributing to the Government's commitment to halt the overall decline in biodiversity. Chapter 15 'Conserving and enhancing the natural environment' details what local planning policies should seek to consider with regard to planning applications.
- 3.10. Planning policies and decisions should contribute to and enhance the natural and local environment by:
- 174 a) Protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);
 - 174 b) Recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland;
 - 174 d) Minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;
 - 175) Plans should: distinguish between the hierarchy of international, national and local designated sites; allocate land with the least environmental or amenity value, where consistent with other policies in this Framework; take a strategic approach to maintaining and enhancing networks of habitats and green infrastructure; and plan for the enhancement

of natural capital at a catchment or landscape scale across local authority boundaries;

176) Great weight should be given to conserving and enhancing landscape and scenic beauty in National Parks, the Broads and Areas of Outstanding Natural beauty which have the highest status of protection in relation to these issues. The conservation and enhancement of wildlife and cultural heritage are also important considerations in these areas, and should be given great weight in National Parks and Broads. The scale and extent of development within all these designated areas should be limited, while development within their settings should be sensitively located and designed to avoid or minimize adverse impacts on the designated area.

3.11. Specific policies regarding habitats and biodiversity comprise:

179) To protect and enhance biodiversity and geodiversity, plans should:

- a) identify, map and safeguard components of local wildlife-rich habitats and wider ecological networks, including the hierarchy of international, national and locally designated sites of importance for biodiversity, wildlife corridors and stepping stones that connect them; and areas identified by national and local partnerships for habitat management, enhancement, restoration or creation and
- b) promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species and identify and pursue opportunities for securing measurable net gains for biodiversity.

180) When determining planning applications, local planning authorities should apply the following principles:

- a) if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;
- b) development on land within or outside of Sites of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the feature of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;

c) development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists; and

d) development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to improve biodiversity in and around development should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate.

Local Planning Policy

3.12. The local planning policy for the site is the Hampshire & Isle of Wight Local Nature Partnership Strategy. As detailed on their website, the Hampshire & Isle of Wight Local Nature Partnership aims to facilitate “Nature’s Recovery” with the following strategy:

“The LNP will facilitate Nature’s Recovery by:

- *Promoting landscape-scale working, developing and implementing exemplar approaches with multiple benefits, such as nature-based solutions, and seeking to embed nature recovery in plans and strategies*
- *Providing scrutiny, support and challenge for developing Local Nature Recovery Strategies, to ensure that these are truly collaborative and reflect community aspirations, creating buy-in*
- *Championing adaptive land management to tackle key challenges such as climate change and environmental capacity*
- *Seeking to influence the use of new tools and levers (such as biodiversity net gain and Environmental Land Management) to deliver the Nature Recovery Network across Hampshire and the Isle of Wight*
- *Articulating how land use, land management and operational change can all contribute to nature recovery, and encouraging investment in nature*
- *Collaborating with other Local Nature Partnerships and the South East Nature Partnership to realise shared benefits across boundaries*
- *Collecting, collating and co-ordinating evidence to support and facilitate delivery of the Nature Recovery Network*

We will do this by:

- *Collaborating to secure appropriate spatial plans for nature’s recovery*
- *Working to facilitate and enable delivery of new or better managed semi-natural habitat in coherent networks*

- *Encouraging new woodland planting or regeneration, with the right tree in the right place*
- *Working to secure public access to these spaces wherever possible*
- *Aiming to return protected sites to favourable condition*
- *Leading by example, promoting land use, land management and operational change that contribute to delivery of this network”.*

4. METHODOLOGY

Desk Study

- 4.1. A desk study was undertaken for designated sites and bat species and habitat records within 2 km of the site:
- The MagicMap website was reviewed, to obtain information on any designated sites of nature conservation interest within 2 km of the site and details of any EPS licences issued within 1 km;
 - The Hampshire County Council Planning Portal was searched for past and pending planning applications that may have associated ecological documents detailing results of bat surveys; and
 - Google Maps and OS Leisure Maps was utilised to view aerial photographs and maps to assess the ecological context of the site within the wider landscape.

Building Inspection

- 4.2. Licensed Ecologist Joe Denny BSc (Hons) MSc² conducted building inspections at the site at Pilgrims Farm on 12th April 2023 in accordance with the following methodology:

External Survey

- 4.3. An investigation was carried out of external features with potential for use by roosting bats, such as gaps under roof and ridge tiles, gaps at soffit boxes or fascias. A search for bat droppings was made beneath each potential entry/exit point identified where accessible. The surveyor used binoculars and powerful, low-heat LED torch.

Internal Survey

- 4.4. An investigation was carried out of the roof voids (including the floor and walls) for signs of bats roosting and the access potential into roof voids for bats. The surveyor looked for bats, bat droppings, likely access points, signs of feeding, dead bats, scratch marks and staining, and made a suitability assessment of the structure of the roofs.

Limitations

- 4.5. The building inspection was undertaken in accordance with the best practice guidelines, and full access to the building was provided.
- 4.6. Nevertheless, bats may use roosting features intermittently throughout the year and may be present in larger or smaller numbers depending on their breeding cycle, weather conditions and in response to disturbance. Bats may be present at other times of the year and the results in this report should therefore be viewed in the context intended.

² Bat Class 1 Licence N° 2022-10460-CL17-BAT

5. SURVEY RESULTS

Desk Study

- 5.1. There is a single statutory designated site within 2 km of the site at Pilgrim's Farm: Micheldever Spoil Heaps Site of Special Scientific Interest (SSSI), which is situated approximately 1.1 km south of the site. This site was designated as a SSSI due to its range of colonising plant species and botanical importance.
- 5.2. MagicMap does not hold any records of EPS licences in regards to bats within 1 km of the site. An EPS licence was granted for the destruction of brown long-eared bat (*Plecotus auritus*), common pipistrelle (*Pipistrellus pipistrellus*) and serotine (*Eptesicus serotinus*) resting places at a site approximately 2 km north of the site near to Sapley Farm House.
- 5.3. The Hampshire County Council planning portal has a record of bat surveys being undertaken in 2022 for proposals at Thames Valley Golf Club approximately 210m south of the property (SLR, 2022). The surveys found low levels of foraging and commuting activity from "common bat" species, and concluded the particular works at the site would have a low risk of impacting bats.
- 5.4. The woodland area in the northernmost portion of the site is classified as priority deciduous woodland habitat, and it is also registered on the National Forest Inventory (Woodland - Broadleaved). Further areas of priority deciduous woodlands are present in all cardinal directions within 1 km of the site boundaries.
- 5.5. The priority deciduous woodland located on site and all areas of priority woodland in the 1 km area are all classified as ancient and semi-natural woodland.

Building Inspection: B1 Stables

External Assessment

- 5.6. The stables at Pilgrims Farm is a single storey timber-framed building sat on a foundation of concrete and brick (Image 1). The walls are constructed from horizontal timber boarding, and a total of six individual stalls are accessed through timber stable doors on the east side of the building (Image 1). The roof of the stables consists of a mix of gable and hipped roofs, and is constructed from corrugated felt sheeting with the ridge being capped with a mixture of sheet lead and felt (Image 2). Ancient and semi-mature woodland habitat can be found immediately north and east of the building, whereas the south and west aspects feature hardstanding habitat, leaving the building exposed (Images 3 & 4).
- 5.7. Externally B1 is in a mixed condition. The exterior timber boarding is largely sealed and in good condition, save for some aesthetic damage (scuffs, scratches, *et cetera*) and two areas of considerable damage on the east and south elevations (Images 5 & 6), which expose a cavity between the boarding and chipboard lining within the structure. These features are partially obstructed, with dense holly (*Ilex aquifolium*) on the east elevation and

stored material on the south elevation. Timber vents are present on each of the east-facing gable ends, but they are blocked on the inside with installed chicken wire (Image 7).

- 5.8. The roof structure of B1 is in poor condition. The roof is warped and raised in places, and signs of significant damp and calcification on the underside of the roof suggests it is not suitably watertight (Image 8). The soffit boxes around the exterior of the building are in poor condition, also, with areas of damage creating large gaps into the roof space within (Image 9). There is a large amount of moss growth on the roof.

Internal Assessment

- 5.9. The internal area of B1 is used for storage in each individual stall, featuring a mix of furniture, machinery and other tools. The internal areas are lined with chipboard including the interior stall walls and on the lining of the roof, where no contained void is present (Image 10). The apex of the roof is not completely covered by chipboard, instead the underside of the ridge is exposed (Image 11). The areas of chipboard lining are in various conditions, ranging from intact to rotting from damp and calcification (Images 8 & 10).
- 5.10. The individual stalls are not completely contained, and would be accessible through barred windows and through the timber roof frame between each stall (Image 10). There is a high level of light ingress within B1 due to there being multiple windows on the north, east and south elevations (Image 12) and due to the stable doors being poorly sealed or not shutting tightly to the frame. Internally the stable blocks are very dusty and there is high levels of cobwebbing throughout, and hanging fly paper was found hung from the apex of the roof in one of the central stalls (Image 13).
- 5.11. An abandoned swallow (*Hirundo rustica*) nest is present in the northwest-most stall on a purlin (Image 14). No signs of current or historic bat roosting was identified.

B1 Photographs



Image 1: The front (west) elevation of B1.



Image 2: A view of the roof structure on B1.



Image 3: A view of ancient and semi-natural mature woodland north of B1.



Image 4: A view of habitats to the west of B1.



Image 5: A view of the east elevation of B1.



Image 6: A closer look of a damaged section of wall on the south elevation of B1.



Image 7: Timber vents on the west-facing gable ends are blocked with chicken wire.



Image 8: An internal view of damp inside B1, indicating a leak in the roof above.



Image 9: An area of damaged soffit box on the west elevation of B1.



Image 10: An internal view of one of the central stalls within B1.



Image 11: The chipboard lining of the roof does not fully cover the ridge beam in B1.



Image 12: A view of the southwest-most stall in B1.



Image 13: Old flypaper hangs from near the ridge in one of the central stalls in B1.



Image 14: A European swallow nest was found in the northwest-most stall of B1.

Building Inspection: B2 Fodder Barn

External Assessment

- 5.12. The fodder barn is a single-storey building measuring approximately 5m in height, and is constructed from cement, breeze block and slotted metal on a metal and timber frame (Image 15). The building supports a shallow pitched corrugated metal roof that features two rows of corrugated plastic skylights, ten in total (Image 16). The structure is mostly open on the west elevation and does not feature a door (Image 15), resulting in a very high level of light ingress into the internal space.
- 5.13. The building is obstructed by dense vegetation on the east elevation (Image 17), and a mixture of bare ground, hardstanding and improved grassland habitats to the north, south and west (Image 15).

Internal Assessment

- 5.14. Internally B2 is bisected in two by a short cement wall that is approximately half the height of the space to the apex of the roof (Image 18). The internal area features a mixture of bare ground and gravel for flooring. The north half of the interior area contains cut and stacked timber around the periphery of the space and, at the time of survey, appeared to be being used as an exercise space (Image 19). The south half of the interior area was empty at the time of survey, and signs of dog, deer, fox (*Vulpes vulpes*) and rabbit (*Oryctolagus cuniculus*) activity were identified within the space (Images 18 & 20). Signs of bird nesting was identified in both sections of B2.
- 5.15. No signs of current or historic bat roosting was identified.

B2 Photographs



Image 15: The north and west elevations of B2, taken from the northwest.



Image 16: A view of the underside of the roof of B2.



Image 17: Dense vegetation obstructs the east elevation of B2.



Image 18: An internal view of B2, facing northwest.



Image 19: An internal view of the north portion of B2, facing south.



Image 20: Digging was found in the south portion of B2, and various animal droppings were found nearby.

6. IMPACT ASSESSMENT

Designated Sites

- 6.1. It is anticipated that the impacts of the proposed works on statutory designated sites will be negligible, due to the nature of the works and the distance of statutory designated sites from Pilgrims Farm. No additional footfall on statutory designated sites is anticipated as there will not be an increase in residential units or local population as a result of the proposals.

Habitats

- 6.2. It is not anticipated that there will be significant impacts on nearby habitats as a result of the works, due to the proposal being for renovation as opposed to new construction. The property already features significant hardstanding and gravel driveway areas, so it is not anticipated there will be an event where machinery and/or stored materials will damage habitats in the course of the works.

Status of Bats on Site

- 6.3. Both B1 and B2 have been assessed as offering **negligible** potential to support bat roosting due to varying factors. B1 is in a deteriorating condition and it is anticipated it lacks the thermal stability due to its state. It also features high levels of light ingress and damp.
- 6.4. B2 lacks suitable roosting features and is very exposed to the elements as well as high levels of light ingress, which would likely dissuade bat roosting.

Recommendations

- 6.5. *Nesting bird check:* Works to B1 and B2 should be undertaken outside of the breeding bird season (February to August, inclusive). If works are required during these months a pre-works check by a suitability qualified ecologist will be conducted to ensure that no active nests are present. If active nests are recorded, a suitable buffer will be retained around these until all chicks have fledged (to be confirmed by a suitably qualified ecologist).
- 6.6. *Ecological Supervision:* In the unlikely event bats are discovered during the development, all works must immediately stop and an ecologist contacted for further guidance. It may be necessary to acquire a protected species licence from Natural England to legally permit the works to continue.
- 6.7. *Lighting:* Any new external lighting should be directed to avoid light spillage onto vegetation, particularly linear habitat features such as woodland edges or potential roosting sites within trees and buildings. Bats are sensitive to light and could potentially avoid the area if access points or the surrounding areas become lit. Appropriate lighting options will prevent a negative impact on bats potentially using the habitats on site and should be approved by a suitably qualified and licensed bat ecologist. Lighting plans should be approved and signed

off by a licensed bat ecologist prior to submission, to ensure the scheme is suitable for bats. If appropriate measures are taken to reduce light spillage from the development, it is likely that there will be no negative impacts on local bat populations.

6.8. See **Appendix 3** for further information on designing lighting to minimise impacts on bats.

7. ENHANCEMENT RECOMMENDATIONS

- 7.1. National planning policy states that all developments should seek to enhance onsite biodiversity whether impacts on protected species are recorded or not. Incorporating enhancement features into new or renovated buildings should be carefully considered. These features can be simple and inexpensive, please see below for specific recommendations.

Bats

- 7.2. In order to provide a new roosting opportunity for bats post-development it is recommended that a minimum of one external bat box, such as a Vincent Pro or similar, is installed on the east elevation of the proposed poolhouse, close to the south corner. This bat box is suitable for a range of common bat species, such as common pipistrelle, that are confirmed roosting within the main house on the property.

Birds

- 7.3. In order to compensate for the loss of bird nesting opportunities within B1 and B2 it is recommended that a minimum of one swallow nest bowl is installed within an area of the renovated buildings. A swallow nest bowl needs to be installed in a sheltered area indoors with flight access. If a room in the buildings is not suitable for internal installation then a covered extension is recommended.

Wildlife Beneficial Landscaping Scheme

- 7.4. Any future landscape planting should seek to enhance biodiversity, improve connectivity to the surrounding habitats and provide food and shelter for a wide range of wildlife. All amenity planting and formally landscaped areas should be designed using a variety of plant species beneficial for wildlife. These do not necessarily have to be native but should be chosen for their ability to provide nectar or fruit and should be non-invasive species. There are a number of specialist seed mixes available specific to certain soil types, growing conditions and designed to benefit different groups of species such as bees or butterflies and moths.
- 7.5. All habitats should be managed in a suitable way to encourage a wide variety of insects and other wildlife to use the site.
- 7.6. Further information regarding habitat creation, enhancement and management can be provided on request and submitted with further survey results for the final planning application.

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APPENDICES

APPENDIX 1 - PROTECTED SPECIES LEGISLATION

Bats

In England and Wales, all bat species and their roosts are legally protected under the Wildlife and Countryside Act (1981) (as amended); the Countryside and Rights of Way Act, 2000; the Natural Environment and Rural Communities Act (NERC, 2006); and by the Conservation of Habitats and Species Regulations (2010). You will be committing a criminal offence if you:

- Deliberately capture, injure or kill a bat
- Intentionally or recklessly disturb a bat in its roost or deliberately disturb a group of bats
- Damage or destroy a bat roosting place (even if bats are not occupying the roost at the time)
- Possess or advertise/sell/exchange a bat (dead or alive) or any part of a bat
- Intentionally or recklessly obstruct access to a bat roost

Barbastelle, Bechstein's, greater horseshoe, lesser horseshoe, brown long-eared, soprano pipistrelle, and noctule bats are all priority species under the UK Biodiversity Action Plan (UK BAP) and have also been adopted as species of principal importance in England under Section 41 of the NERC Act 2006.

Badgers

Badgers and their setts are afforded strict protection under the Protection of Badgers Act 1992. This Act consolidates past badger legislation and, in addition to protecting the badger itself, makes it an offence to damage, destroy or obstruct badger setts. Badgers are also protected under Schedule 6 of the Wildlife and Countryside Act 1981 (as amended), and listed under Appendix III of the Bern Convention, as a species that is in need of protection but may be hunted in exceptional instances. Only badger setts that are currently in use are covered by wildlife legislation.

Birds

All wild birds in the UK are protected under Section 1 of the Wildlife and Countryside Act 1981 (as amended) which makes it an offence to intentionally kill, injure or take any wild bird or to take, damage or destroy the nest or its eggs.

Some bird species, such as the barn owl *Tyto alba*, are listed in Schedule 1 of the 1981 Act and receive further protection, making it an offence to intentionally or recklessly disturb these birds whilst building a nest or in, on or near a nest containing eggs or young; or to disturb dependent young of such a bird.

The NERC Act (2006) inserts a new schedule into the Wildlife and Countryside Act (1981) to protect the nests of some bird species that regularly re-use their nests, even when the nests are not in use. This protection currently applies to golden eagle, white-tailed eagle and osprey.

Reptiles

All British reptiles are listed under schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and are therefore protected from intentional killing or injury. This is largely as a consequence of a national decline in numbers associated with habitat loss.

Two scarcer native British reptiles (smooth snake *Coronella austriaca* and sand lizard *Lacerta agilis*), are afforded 'full' protection. This legislation makes it an offence to intentionally or recklessly kill, injure, disturb, take, possess or sell these species (in all life stages). It is also illegal to damage, destroy or obstruct access to places they use for breeding, resting, shelter and protection.

All species of reptile are priority species in the UKBAP and have been adopted as Species of Principal Importance under Section 41 of the NERC Act (2006) in England (Section 42 in Wales).

Amphibians

Great crested newts (GCN's) *Triturus cristatus* and their habitats are fully protected by the Conservation of Habitats and Species Regulations (2010) and partially protected under the Wildlife and Countryside Act 1981 (as amended). This legislation makes it an offence to kill, injure or capture GCN's, their young or eggs, or destroy / damage their ponds or places of shelter used for breeding or protection. The great crested newt is also a Priority species in the UK Biodiversity Action Plan (UKBAP), and had been adopted as a Species of Principle Importance in England under Section 41 of the NERC Act 2006.

The natterjack toad *Epidalea calamita* is fully protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and Schedule 2 of The Conservation of Habitats and Species Regulations 2010 making it a European Protected Species. The natterjack toad is also a priority species under the UK Biodiversity Action Plan.

The pool frog *Rana lessonae* is protected under the Conservation (Natural Habitats &C.) Regulations 1994 (as amended). As a European protected species the deliberate capturing, disturbing, injuring or killing of this species is prohibited, as is damage or destruction of its breeding sites or resting places. The pool frog is also a priority species under the UK Biodiversity Action Plan due to a 100% decline over 25 years (1980-2005).

Common toads *Bufo bufo* are also designated UKBAP species due to a serious decline of populations across large areas of southern, eastern and central England, thought to be mainly due to changes in habitat management, mortalities on the roads, and climate change.

Dormice

Common dormice *Muscardinus avellanarius* and their habitats are fully protected by both the Wildlife and Countryside Act 1981 (as amended) and the Conservation of Habitats and Species Regulations (2010). This legislation makes it an offence to kill, injure, disturb or capture dormice, or destroy or obstruct their resting or breeding places.

The dormouse is also a priority species under the UK Biodiversity Action Plan and has been adopted as a species of Principal Importance in England under Section 41 of the NERC Act 2006 (section 42 in Wales) and so is protected from any adverse effects as a result of development.

Otters

Otters *Lutra lutra* are protected by both the Wildlife and Countryside Act 1981 (as amended) and The Conservation of Habitats and Species Regulations 2010. This legislation makes it illegal to; deliberately or recklessly kill, injure or capture an otter, deliberately or recklessly disturb or harass an otter, damage, destroy or obstruct access to a breeding site or resting place of an otter.

The otter is also a UK BAP Priority Species and has been adopted as a Species of Principal Importance in England under Section 41 of the NERC Act 2006 (Section 42 in Wales) and the Conservation (Scotland) Act in Scotland.

Water Voles

Water voles *Arvicola terrestris* are fully protected under the Wildlife and Countryside Act 1981 (as amended). This legislation makes it an offence to kill or injure water voles, and to damage, destroy or obstruct access to places used for protection or shelter, and to disturb water voles whilst they occupy such a place.

The water vole is also a Priority species in the UK Biodiversity Action Plan, and had been adopted as a Species of Principle Importance in England under Section 41 of the NERC Act 2006.

White-clawed Crayfish

The white-clawed crayfish *Austropotamobius pallipes* is protected under the Wildlife and Countryside Act 1981 (as amended), making it a criminal offence to; intentionally or recklessly kill or injure a white-clawed crayfish, or sell or

attempt to sell any part of this species. The Habitats Regulations (2010) provide further protection through the declaration of Special Areas of Conservation (SAC). This protection aims to prevent commercial harvesting of white-clawed crayfish and prohibits their capture without a licence.

The white-clawed crayfish is also a Priority species in the UK Biodiversity Action Plan (BAP), and has been adopted as a Species of Principal Importance in England under Section 41 of the NERC Act 2006.

Hedgehogs

Hedgehogs are UK Biodiversity Action Plan (BAP) species, and therefore must be taken into consideration as part of development planning. A recent report (Wembridge, 2011) shows that hedgehog numbers have declined by 25% in the last ten years.

APPENDIX 2 - SURVEY AND REPORTING LIMITATIONS AND EXCEPTIONS

This report and its survey results should be considered in conjunction with the terms and conditions proposed and scope of works agreed between Darwin Ecology Ltd and the client.

This report has been produced in the context of the proposals stated in the Introduction & Background section of this report (Section 2) and should not be used in any other context.

Darwin Ecology Ltd have endeavoured to identify the likely presence / absence of protected species wherever possible on site, where this falls within the agreed scope of works. Current standard methodologies have been used, which are accepted by Natural England and other statutory conservation bodies. No responsibility can be accepted where these methodologies fail to identify all species or significant species on site.

Extended Phase 1 and Preliminary Ecological survey techniques provide a preliminary assessment of the likelihood of protected species occurring on the development site, based on the suitability of the habitats and any field signs found during the site visit. A Phase 1 survey should not be taken as providing a full and definitive survey of any protected species group.

Extended Phase 1 and Preliminary Ecological Appraisals represent a snapshot of conditions at the time of survey and are limited by factors which affect the presence of plants and animals such as the time of year, migration patterns and behaviour. Surveys should therefore not be considered a comprehensive list of all plant species or as conclusive proof that certain protected species are not present or will not be present in the future.

Where the presence/absence of a certain species is in question our ecologists must apply a precautionary approach until further survey data can be sought to better inform the decision.

Darwin Ecology Ltd will advise on the optimum survey season for a particular habitat or protected species prior to undertaking the survey work. Darwin Ecology Ltd cannot accept responsibility for the accuracy of surveys undertaken outside this period.

The potential impacts, mitigation and enhancement sections of the report provide an overview and is for guidance only. This section should not be solely relied upon, but should be considered in the context of the whole report.

Interpretations of survey results and recommendations outlined in the report represent our professional opinions, expressed in accordance with recognised industry practices and current legislation at the time of reporting. The results of survey work undertaken by Darwin Ecology Ltd are representative at the time of surveying.

Where the client had supplied us with data from previous reports, it has been assumed that this information is valid. No responsibility can be accepted by Darwin Ecology Ltd for inaccuracies within any previous data supplied.

The copyright in this report, plans and other associated documents prepared by Darwin Ecology Ltd is owned by them and no such report, plans and other associated documents may be reproduced without their written consent.

Amendments to this report after its submission may be necessary in light of new, relevant information and / or legislation. This report should be referred to us for re-assessment if any such amendments are necessary or after the expiry of one year from the date of the report.



THE IMPACT OF LIGHTING ON BATS

Bats favour a dark environment for both roosting and foraging as they are adapted to low-light conditions. Artificial lighting will disturb bats if the lighting covers roost access points, flight paths or foraging habitats.

The main peak of nocturnal insect abundance occurs at dusk and a delay in emergence results in a lower foraging rate for bats.

Artificial lighting creates a 'vacuum effect' for nocturnal insects. During the night nocturnal insects use the light of the moon* to navigate. However, artificial lighting and even sky glow above cities obscures the natural moonlight as it is closer

and radiates light in multiple directions.

Some species of bats have been recorded foraging around street lights such as Pipistrelle species and Nyctalus species. However, species that are less tolerant of artificial light are at a disadvantage when foraging as insects are drawn away from these species usual foraging grounds into the zones of artificial light.

Lighting must be considered in context to any development as increased lighting may cause roost abandonment, reduced reproductive success, and reduced foraging. Mitigation to reduce the impacts of lighting for bats is therefore of great importance in bat conservation.

Table 1: Summary of predicted impact of lighting for each species/genus

Impact	High	Medium	Low
Behaviour			
Maternity roost	All species	-	-
Night roost	<i>Rhinolophus hipposideros</i> <i>Rhinolophus ferrumequinum</i> <i>Myotis</i> spp. <i>Plecotus</i> spp.	<i>Pipistrellus</i> spp. <i>Nyctalus</i> spp. <i>Eptesicus serotinus</i> <i>Barbastella barbastellus</i>	-
Emergence	All species	-	-
Foraging	<i>Rhinolophus hipposideros</i> <i>Rhinolophus ferrumequinum</i> <i>Myotis</i> spp. <i>Plecotus</i> spp.	-	<i>Pipistrellus</i> spp. <i>Nyctalus</i> spp. <i>Eptesicus serotinus</i> <i>Barbastella barbastellus</i>
Commuting	<i>Rhinolophus hipposideros</i> <i>Rhinolophus ferrumequinum</i> <i>Myotis</i> spp. <i>Plecotus</i> spp.	-	<i>Pipistrellus</i> spp. <i>Nyctalus</i> spp. <i>Eptesicus serotinus</i> <i>Barbastella barbastellus</i>
Swarming	All species	-	-
Hibernation	All species	-	-

*For more information see Warrant, E., and Dacke, M. (2016) Visual Navigation in Nocturnal insects. *Physiology*, 31, 182-196.

Sources of light that can disturb bats include; light spill via windows, sport floodlighting, car headlights, roadside lighting, security lighting, aesthetic lighting of waterways, and aesthetic illumination of buildings. Glare will affect bats over greater distance than the target area directly illuminated.

Avoidance is the most effective method, but if this is not possible the following measures should be considered.

What lighting should I use?

- Low pressure sodium lights or 'warm' LEDs
- Wavelength above 540nm
- Colour temperature below 2700K
- Shielded lights that prevent light spill above a 70 degree angle
- Passive infrared (PIR) motion sensors



What to avoid:

- Lighting roost entrances, flightpaths, and foraging or commuting routes
- Reflective surfaces beneath lighting
- High level lights
- Non-directional lighting

Lighting should be considered at an early stage allowing impacts to be minimised through the design of the site.

Key Points

- Keep lighting intensity to the minimum level required
- Limit the times that lights are on to provide some dark periods (e.g. switching installations off between midnight and 5am)
- Dim lighting according to demand
- As an alternative to lighting pathways use paving materials that reflect moonlight
- Low level lighting allows darkness to be retained within higher vegetation
- Set dark habitat buffers - lighting should always be a minimum of 25m from vegetated margins and 40m from waterbodies
- Incorporate dark corridors within the site
- Compensate for the loss of dark areas by enhancing other dark areas
- Consider building design - install internal lighting away from windows



TYPES OF BAT BOXES



Schwegler 2F Double Front Panel

- Manufactured from long-lasting woodcrete
- Lifetime - 20-25 years
- Suitable for pipistrelle and Myotis species
- A second inner wooden panel is fitted adjacent to the front panel imitating a cavity wall



Schwegler 1FD Double Front Panel

- Manufactured from long-lasting woodcrete
- Lifetime - 20-25 years
- Suitable for pipistrelle and Myotis species
- A second inner wooden panel is fitted adjacent to the front panel imitating a cavity wall
- Small entrance hole discourages birds from using the box



Vincent Pro Bat Box

- Manufactured from timber and recycled plastic
- The front and the top of the box is black, which helps heat absorption
- Suitable for a range of species including pipistrelle species, Myotis species, and brown long-eared bats.
- No maintenance required



Schwegler 2FN

- Manufactured from long-lasting woodcrete
- Lifetime - 20-25 years
- Suitable for pipistrelle species, Myotis species, serotine, brown long-eared, noctule and Leisler's bats
- Dual entrance
- Birds and dormice have also been found using this box
- A newer model is now available, Schwegler 3FN, designed with smaller entrance holes which discourage birds and dormice



Schwegler 1FS Large Colony Box

- Manufactured from long-lasting woodcrete
- Lifetime - 20-25 years
- Suitable for a range of bats including pipistrelle species, Myotis species, Noctule, and brown long-eared bats
- Three grooved inner wooden panels are connected to the front panel, which are ideal for bats to cling to.
- Accommodates large summer colonies



Schwegler 1FF Colony Box

- Manufactured from long-lasting woodcrete
- Lifetime - 20-25 years
- Suitable for a range of crevice dwelling bats including pipistrelle species, barbastelle, noctule, and brown long-eared bats
- Rough wooden surface for bats to cling onto and climb



Greenwoods Ecohabitats Small Hollow Bat Box

- Manufactured from long-lasting ecostycrete
- Lifetime - 20-25 years
- Suitable for a range of bats preferring a cavity space, including pipistrelle species, myotis species, noctule, and brown long-eared bats
- Suitable for hibernating bats



Bark Boxes Large Twin Crevice Bat Box

- Suitable for range of bat species providing roosting opportunities similar to naturally formed tree roosts.
- Thermal mass suitable for spring and autumn roosts.
- Natural and discreet appearance for hanging on trees.
- No maintenance required.
- Made from over 50% recycled materials./



TYPES OF BIRD BOXES



Vivar Pro Seville 32mm WoodStone Nest Box

- Manufactured from woodstone - increases longevity and provides a consistent internal temperature
- The nest box compensates for the lack of natural cavities that are found in trees
- Suitable for blue tits, tree sparrows, house sparrows, great tits, crested tits, nuthatches, coal tits and pied flycatchers
- Should be installed between 1.5m and 3m high



House Martin Nest Cups



Swallow Nest Bowl

- Suitable nest building mud is difficult for house martins and swallows to find
- Alterations to house construction and roof design have resulted in a decrease of suitable nesting sites
- Install swallow nest bowls within an outbuilding or garage that has flight access - 6cm below the ceiling
- Install house martin nest cups under the eaves of a house - minimum of 2m high



Swift Nest Box

- Swift numbers are declining partly due to a loss of nesting sites
- The entrance hole discourages other birds such as starlings and sparrows
- Install a minimum of 5m high with unobstructed airspace in front of the nest
- Integrated models of swift nest boxes are also available



5KL Schwegler Nuthatch Nest Box

- Manufactured from woodcrete
- Nuthatches prefer nest boxes with larger cavities. They will often occupy owl nest boxes and fill the entrance hole with mud reducing the size to approximately 32mm
- Nuthatches plaster mud on the internal walls of the cavity and line the floor with wood chipping and leaves to nest
- To discourage nuthatches from using owl nest boxes try installing the 5KL immediately adjacent



Open-fronted Nest Box

- Manufactured from woodstone - lifetime of 20-25 years
- Suitable for robin, wren, spotted flycatchers, and black redstart
- Best installed hidden from view on the wall of a building or hidden within ivy/honeysuckle as the boxes open-front may attract predators
- Install at a height of 1-3m



Sparrow Terrace Nest Box

- Sparrow populations are decreasing due to a lack of nesting sites
- Sparrows are a sociable species and prefer to nest in a colony
- Likelihood of uptake is increased if more nesting chambers are available (the example nest box shown contains three nesting chambers)
- Various other nest box designs are available
- Install at a minimum of 2m high



Tawny Owl Nest Box

- Install on a mature tree within a woodland (not on the outskirts)
- Install a minimum of 3m high
- Face the box entrance away from prevailing wind (generally avoiding west/south-west)



Little Owl Nest Box

- Prefer areas of mixed farmland and orchards
- Essential features; small entrance hole (70mm), narrow tunnel, and a dark nesting chamber
- Install on a horizontal tree branch/wall top or beam so that owlets can walk in/out prior to fledging
- Can be installed on any tree species apart from cherry - the cherry harvest coincides with the little owl breeding season
- Entrance hole should face the tree trunk
- Install at a minimum height of 3m