

**ecological support, management &  
solutions**



## **Updating Ecological Information Land at Bishopsdown Farm, Salisbury, Wiltshire**

Date of Issue **29<sup>th</sup> January 2019**

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For **The Trustees of the D. J. Pearce 1998 Voluntary Settlement**

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## 1.0 INTRODUCTION

### 1.1 Brief

Ecosupport Ltd. was commissioned by The Trustees of the D. J. Pearce 1998 Voluntary Settlement to provide updated and additional ecological information to support a planning application for the residential development of land at Bishopsdown Farm, Salisbury, Wiltshire.

A previous application was submitted to Wiltshire Council (16/06690/OUT). An objection was raised by Louisa Kilgallen, Senior Ecologist for Wiltshire Council, with regards to the ecological information submitted in support of the application.

The aims of this document are as follows:

- Update the Phase II Bat and Reptile Surveys undertaken to support the previous application, due to their becoming out of date, updating and expanding upon the mitigation & compensation strategy where necessary;
- Produce an alternative Reptile Mitigation Strategy to address concerns raised by Louisa Kilgallen;
- Provide information of the provision of compensation bat roosting features;
- Provide information of a suitably sensitive lighting strategy to maintain boundary commuting features;
- Provide information to ensure the adequate and long-term protection of boundary hedgerows.

This report should be read alongside the original ecological reports for full details of the site, as much of the information remains applicable:

- *“Ecological Surveys of Three Sites in Salisbury, Wiltshire”* (Ecological Consultancy Services Ltd., March 2015; and
- *“Ecological Impact Assessment of Proposals to Re-develop Bishopsdown Farm, Salisbury, Wiltshire”* (Ecological Consultancy Services Ltd., June 2016).

*This survey takes no account of seasonal variation or fluctuations in the presence of any species that might take up residence following this report. Lack of signs of a particular species does not confirm its absence, merely that there was no indication of its presence at the time of survey.*

*Should the proposed development not be underway within 24 months of the date of issue of this report, it is strongly recommended that the assessment be repeated.*

## 1.2 Site Description

The site is located just outside Bishopdown, Salisbury (approximate central Ordnance Survey Grid Reference SU 14966 32477) (**Figure 1**). The site comprises an overgrown, derelict agricultural building and associated yard, bounded by hedgerows, with the red line boundary also including an access track to the road to the north and a small portion of the adjacent agricultural field. The site is bounded to the east by residential development, to the north by land currently under development, to the west by a field dominated by bare ground and to the south by grassland (**Figure 2**). The land to the west and south is to become a new Country Park.

**Figure 1.** Aerial photograph of the site, with approximate boundaries illustrated in red (Google Maps, 2019).



**Figure 2.** The site in the wider context of the local area (Google Maps, 2019).



### 1.3 Proposed Development

The proposed development comprises 14 traditionally-styled residential units plus associated parking spaces, gardens and access roads. Under the current application, the existing track to the north will be retained as site access to the Sarum to Ford road, but will be resurfaced to gravel or similar substrate. The access track will require widening in a low number of points to provide passing places, but the majority will be retained as a single track. An area of land in the northwestern corner of the red line boundary (alongside the Sarum to Ford road) will be retained in its current form (**Appendix 1**).

## 2.0 RELEVANT LEGISLATION & POLICY

### 2.1 Legislation

#### 2.1.1 *The Conservation of Habitats and Species Regulations (2017)*

This transposes the EU Habitats Directive (Council Directive 92/43/EEC) into UK domestic law. It provides protection for sites and species deemed to be of conservation importance across Europe. It is an offence to deliberately capture, kill or injure species listed in Schedule 2 or to damage or destroy their breeding sites or shelter. It is also illegal to deliberately disturb these species in such a way that is likely to significantly impact on the local distribution or abundance or affect their ability to survive, breed and rear or nurture their young.

In order for activities that would be likely to result in a breach of species protection under the regulations to legally take place, a European Protected Species (EPS) licence must first be obtained from Natural England.

### *2.1.2 The Wildlife and Countryside Act (1981) (as amended)*

This is the primary piece of legislation by which biodiversity is protected within the UK. Protected fauna and flora are listed under Schedules 1, 5 and 8 of the Act. They include all species of bats, making it an offence to intentionally or recklessly disturb any bat whilst it is occupying a roost or to intentionally or recklessly obstruct access to a bat roost. Similarly this Act makes it an offence to kill or injure any species of British reptiles and also makes it an offence to intentionally kill, injure or take any wild bird or to take, damage or destroy their eggs and nests (whilst in use or being built). Further, the Act requires the identification and subsequent protection of Sites of Special Scientific Interest (SSSIs).

The Wildlife & Countryside Act (1981) states that it is an offence to ‘plant or otherwise cause to grow in the wild’ any plant listed in Schedule 9 art II of the Act. This list over 30 plants including Japanese Knotweed (*Fallopia japonica*), Giant Hogweed (*Heracleum mantegazzianum*) and Parrots Feather (*Myriophyllum aquaticum*).

### *2.1.3 The Countryside and Rights of Way Act (2000)*

This Act strengthens the Wildlife & Countryside Act by the addition of “reckless” offences in certain circumstances, such as where there is the likelihood of protected species being present. The Act places a duty on Government Ministers and Departments to conserve biological diversity and provides police with stronger powers relating to wildlife crimes.

### *2.1.4 Natural Environment and Rural Communities Act (2006)*

This places a duty on Local Authorities to consider the conservation of biodiversity in their policy and decision making procedures and ‘in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity’.

### *2.1.5 The Protection of Badgers Act (1992)*

The Protection of Badgers Act (1992) makes it an offence to:

- Kill or injure Badgers;
- Damage a Badger sett or any part of it;
- Destroy a Badger sett;
- Obstruct access to, or any entrance of a Badger sett;
- Disturbing a Badger when it is occupying a sett.

If a proposed development may contravene any of the above points then a licence would be required from Natural England and an appropriate mitigation scheme proposed.

## **2.2 Policy**

The development seeks to comply with relevant Planning Policy. The National Planning Policy and Framework (NPPF) 2018 supersedes the previous national policy and sets out the Government's vision for biodiversity in England in line with the country's 25 Year Environment Plan. Chapter 15 of this policy outlines key principles related to the natural environment and states that plans should take a strategic approach to maintaining and enhancing networks of habitats and green infrastructure and should provide net gains for biodiversity. Plans should promote the conservation, restoration and enhancement of priority habitats and ecological networks and the protection and recovery of priority species.

On a local scale, the site falls within the jurisdiction of Wiltshire Council. Core Policy 50 (Biodiversity and geodiversity) of the Wiltshire Core Strategy is divided into three main sections:

### **Protection:**

Development proposals must demonstrate how they protect features of nature conservation value as part of the design rationale. There is an expectation that such features shall be retained, buffered, and managed favourably in order to maintain their ecological value, connectivity and functionality in the long-term. Where it has been demonstrated that such features cannot be retained, removal or damage shall only be acceptable in circumstances where the anticipated ecological impacts have been mitigated as far as possible and appropriate compensatory measures can be secured to ensure no net loss of the local biodiversity resource, and secure the integrity of local ecological networks and provision of ecosystem services.

All development proposals shall incorporate appropriate measures to avoid and reduce disturbance of sensitive wildlife species and habitats throughout the lifetime of the development. Any development potentially affecting a Natura 2000 site must provide avoidance measures in accordance with the strategic plans or guidance set out in published guidance (for example The Stone Curlew Management Strategy – applicable to residential development within distances up to 15km of Salisbury Plain - Wiltshire Bats SAC Planning Guidance – applicable to all development types in the areas within and surrounding Bradford on Avon, Box, Colerne, Corsham, Trowbridge, Westbury, Fonthill and Chilmark - and River Avon Planning Guidance – applicable to any new development in proximity to the Salisbury Avon, or major development



within the wider catchment) where possible, otherwise bespoke measures must be provided to demonstrate that the proposals would have no adverse effect upon the Natura 2000 network. Any development that would have an adverse effect on the integrity of a European nature conservation site will not be in accordance with the Core Strategy.

#### Biodiversity Enhancement:

All development should seek opportunities to enhance biodiversity. Major development in particular must include measures to deliver biodiversity gains through opportunities to restore, enhance and create valuable habitats, ecological networks and ecosystem services. Such enhancement measures will contribute to the objectives and targets of the Biodiversity Action Plan (BAP) or River Basin/ Catchment Management Plan, particularly through landscape scale projects, and be relevant to the local landscape character. Local sites Sustainable development will avoid direct and indirect impacts upon local sites through sensitive site location and layout, and by maintaining sufficient buffers and ecological connectivity with the wider environment. Damage or disturbance to local sites will generally be unacceptable, other than in exceptional circumstances where it has been demonstrated that such impacts:

- i. cannot reasonably be avoided;
- ii. are reduced as far as possible;
- iii. are outweighed by other planning considerations in the public interest;
- iv. where appropriate compensation measures can be secured through planning obligations or agreements.

Development proposals affecting local sites must make a reasonable contribution to their favourable management in the long-term.

A further policy, Policy 69, within the core strategy provides protection for the River Avon SAC. In order to avoid and reduce potential environmental effects on the River Avon SAC, development will need to incorporate measures during construction and operation to avoid and prevent pollution and mitigate potential disturbance effects; appropriate measures may include consideration of suitable buffer zones along watercourses, habitat enhancements and river access management measures. All development within 20m of the river banks should submit a construction management plan to the local planning authority to ensure measures proposed during construction are satisfactory. Where additional sewage discharges to a STW cannot be accommodated without measures to offset phosphate loading, development will be required to undertake proportionate measures (which may include contributions

towards those measures identified in the Nutrient Management Plan) to demonstrate that the proposals would have no adverse effects upon the SAC.

### **2.3 Biodiversity Action Plans & UK Post-2010 Biodiversity Framework**

The UK Post-2010 Biodiversity Framework (JNCC & DEFRA, 2010) supersedes the UK Biodiversity Action Plan 1992-2012 (UKBAP), setting out goals relating to nature conservation at a UK scale, for example the reduction and reversal in the decline of threatened species and improving the status of biodiversity. The specific habitats and species contained within the UKBAP continue to be regarded as conservation priorities under the UK Post-2010 Biodiversity Framework, and are required to be a material consideration in the planning process under the 2018 NPPF.

### **3.0 PREVIOUS ECOLOGICAL BASELINE**

The original ecological assessment of the application site was undertaken by ECS Ltd. This comprised a Preliminary Ecological Appraisal (PEA), supported by a data search, followed by Phase II Bat Survey of the barn and Phase II Reptile Survey of the derelict yard.

An individual Brown Long-eared Bat *Plecotus auritus* and two Common Pipistrelles *Pipistrellus pipistrellus* were recorded within the barn.

A medium to high, breeding population of Slow Worm *Anguis fragilis* was recorded across the site.

Evidence of a roosting Barn Owl *Tyto alba* was noted within the barn, alongside a number of Pigeon *Palumba columbus* nests.

Evidence of nesting birds was also noted within the vegetation across the site.

### **4.0 CONSULTATION**

The following comments were published by Louisa Kilgallen, Senior Ecologist for Wiltshire Council, following the submission of the original ecological assessment (ECS, June 2016):

*The Ecological Impact Assessment, (ECS Ltd, June 2016) provides a competent review of issues at the site.*

*I understand that housing development affects land outside the proposed Hampton Country Park (secured through permission S/2009/1943). It is unclear whether the upgrade to the existing farm access would require land take from within the park.*

*Bat roosts – single bats of common species, a licence may or may not be required however I have no doubt a licence application would meet the three tests and therefore could be granted. Condition required for details of compensation bat roosting features to be integrated into the buildings of the development.*

*Bat commuting – no surveys undertaken of hedgerows. Hedgerows along the access route and around the development have the potential to be of wider than site importance for commuting. Therefore it will be essential to avoid lighting along the access route and around the development site. I recommend a condition for no lighting. If this is unacceptable to the applicant / highways dept, I recommend bat surveys are conducted of these features in accordance with BCT guidelines during the summer before the application is determined.*

*Reptiles – high population of slow worms (estimated at 400-600) to be translocated off site. The receptor site is partly within flood zone 3 with only 0.15 ha is outside the flood zone and therefore partly unsuitable for reptiles. Given the potential scale of the translocation effort, the receptor site will need to be much greater in size than the donor site if the habitat conditions at the receptor site are less than ideal. I recommend further information is obtained before determination in order to be able to secure the translocation by condition most effectively.*

*Barn owl – roost site, not believed to be a nesting site. Such roosts are nevertheless important for retaining individuals in an area since they are very site faithful and intolerant of changes to roosts. Inappropriate relocation of the roost would risk birds abandoning the area. Although a survey in September suggested it had not been used during the summer, a construction method statement should be submitted post determination to include a pre-commencement survey, procedures to be followed if barn owls are found to be present and details of a suitable location for a barn owl nest box.*

*Hedgerows – the proposal aims to retain these. The current layout demonstrates that hedgerows will be part of the curtilage for private dwellings and therefore the Council will assume they will be lost, degraded or replaced in the long term and there will be an overall loss of hedgerow habitat following development. The site masterplan needs to be redesigned to demonstrate that the hedgerows will be retained in communal ownership and managed by a management company arrangement. Adequate access needs to be provided for management operations. It is unclear how the hedgerow along the access track will be affected by the road upgrade.*

*Timing – I support the consultant’s recommendation for a short method statement to ensure ecological works are undertaken in appropriate seasonal windows. This should be conditioned.*

## **5.0 METHODOLOGY**

### **5.1 Updating Phase II Bat Surveys**

Phase II Bat Survey data can generally be considered valid for a period of 24 months. The original Phase II Bat Surveys were therefore updated to determine the current status of roosting bats associated with the barn on site.

Due to the previously-identified presence of bat roost(s), three Phase II Bat Surveys were undertaken to classify the roost(s) and determine the species of use as per best practice guidelines (Collins, J. (eds.), 2016).

The surveys followed guidelines published by the Bat Conservation Trust (Collins, J. (eds.), 2016). Anabat SD2, Bat Scanner and Batbox Duet frequency division detectors were used to determine the species of bats recorded during the surveys. Surveys were undertaken by experienced surveyors of Ecosupport Ltd, led by Sophie Hughes (bat licence number 2017-28414-CLS-CLS), positioned such that all areas of the barn were fully visible to the surveyors (**Figure 3**).

The dusk emergence surveys began approximately 15 minutes prior to sunset and continued until approximately one hour 30 minutes after sunset (or until the building was no longer visible, whichever was later). The dawn return survey began one and a half hours before sunrise and ended at approximately 15 minutes after sunrise, or after the last bats were noted in flight (whichever was later).

Survey sheets were used to record the following information wherever possible:

- Time of call registration;
- Species;
- Location / activity;
- Direction of flight.

During the Phase II Surveys, general bat activity within the site was also noted.

The surveys were carried out in August 2018, to coincide with the active period for bats, and during suitable weather conditions.

Upon completion of the generation of baseline data, the proposed development plans were then assessed in order to identify any potential significant impacts (positive or negative) to bats and how these related to wildlife legislation, to inform any necessary avoidance, mitigation and compensation measures.

**Figure 3.** Locations of bat surveyors, 2018.



## 5.2 Updating Phase II Reptile Survey

As with the original Phase II Bat Surveys, the Phase II Reptile Survey data was considered out of date, and the survey was therefore repeated in 2018 to determine the current status of reptiles on site.

The updating survey was undertaken in accordance with best practice guidelines published by Froglife (1999). 80 artificial refugia (a combination of bitumen roofing felt and corrugated tin) were distributed through all suitable areas of reptile habitat in mid-August 2018. The refugia were left to 'bed in' for two weeks, and then checked a total of seven times by experienced Ecologists of Ecosupport Ltd. Each check was made during suitable weather conditions (between 10 and 20 degrees Celsius with full

sun or sunny spells), with the survey undertaken in September to coincide with the optimum survey timings for reptiles in the UK. In addition to checking beneath the refugia, all suitable habitat areas were checked for any reptiles present via a short transect walk during each visit.

To facilitate the evaluation of survey data, the site was divided into four 'zones' during the survey (**Figure 4**).

**Figure 4.** Different Phase II Reptile Survey zones.



### 5.3 Assessment

The methodology for the assessment of the likely ecological effects of the proposed development is based on CIEEM's Guidelines for Ecological Assessment in the UK (CIEEM, 2018). Although the assessment of the site does not constitute a formal Ecological Impact Assessment (EclA), the CIEEM guidelines provide a useful framework for assessing ecological impacts at any level.

The approach of the guidelines is to assess potential impacts to all features of ecological interest that could be affected by a scheme. As a scheme may have effects beyond its boundaries, it is important to identify the 'zone of influence' of the scheme and to assess the potential for significant impacts throughout this area, for example impacts upon nearby species, habitats and sites designated for their nature conservation value. All potential impacts are considered in the absence of any avoidance, mitigation or compensation measures to inform the suitable design of such measures (where necessary).

### 5.4 Limitations

No significant limitations were experienced during the 2018 assessment. All results are considered to represent an accurate status of the species assessed at the time of survey.

## 6.0 RESULTS

### 6.1 Phase II Bat Surveys

**Table 1** details the timings and conditions of the three Phase II Bat Surveys and **Table 2** details the results. Where bats were recorded emerging from or returning to the building these are highlighted in bold, with their approximate locations illustrated in **Figure 5**.

A maximum count of one Long-eared Bat, four Common Pipistrelles and one Soprano Pipistrelle were identified roosting within the barn during any one survey. Access to roosts was via a range of points; gaps along the eaves, gaps at the tops of walls through lean-to elements of the structure and above doors. It could not be determined where bats were roosting internally.

**Table 1.** Timings and conditions of Phase II Bat Surveys of barn.

| Survey Number | Date       | Weather Conditions             | Sunset/Sunrise time | Survey start time | Survey End time |
|---------------|------------|--------------------------------|---------------------|-------------------|-----------------|
| 1             | 03/08/2018 | 17c, 0% cloud cover, calm, dry | 05:34               | 04:04             | 05:49           |

|   |            |                                  |       |       |       |
|---|------------|----------------------------------|-------|-------|-------|
| 2 | 16/08/2018 | 18c, 0% cloud cover, calm        | 20:26 | 20:11 | 21:56 |
| 3 | 29/08/2018 | 19c, 95% cloud cover, light wind | 20:00 | 19:45 | 21:30 |

**Table 2.** Results of the Phase II Bat Surveys of barn.

| <b>Survey 1</b> |                            |   |
|-----------------|----------------------------|---|
| <b>Time</b>     | <b>Species</b>             | <b>Activity</b>   |
| 04:41           | Common Pipistrelle         | Commuting along hedge to the north west of the building   |
| 04:43           | Common Pipistrelle         | Foraging along the hedge and in the lean to to the north western corner of the building   |
| 04:44           | Common Pipistrelle         | Foraging to the east of the building  |
| 04:45           | Common Pipistrelle         | Foraging to the north west of the building  |
| 04:46           | Long-eared Bat             | Heard not seen commuting to the south of the building   |
| <b>04:47</b>    | <b>Long-eared Bat</b>      | <b>Re-entry into the building via the lean-to in the south western corner of the building</b>   |
| 04:47           | Common Pipistrelle x 2     | Foraging in to the north west of the building   |
| 04:49           | Soprano Pipistrelle        | Foraging to the north west of the building  |
| <b>04:49</b>    | <b>Soprano Pipistrelle</b> | <b>Re-entry through the lean-to at the north of the building.</b>   |
| 04:50           | Soprano Pipistrelle        | Foraging to the north east of the building  |
| 04:51           | Common Pipistrelle         | Foraging to the east of the building  |
| 04:51           | Common Pipistrelle         | Foraging in and out of the northern aspect of the lean-to   |
| 04:51           | Common Pipistrelle         | Foraging to the north west of the building  |
| 04:52           | Common Pipistrelle         | Foraging to the south of the building   |
| <b>04:53</b>    | <b>Common Pipistrelle</b>  | <b>Re-entry through the lower sliding door on the western face of the building</b>  |
| <b>04:54</b>    | <b>Common Pipistrelle</b>  | <b>Re-entry through the top right corner of the tallest door on the western face of the building</b>  |
| <b>Survey 2</b> |                            |   |
| <b>Time</b>     | <b>Species</b>             | <b>Activity</b>   |
| <b>20:38</b>    | <b>Common Pipistrelle</b>  | <b>Emergence from the northern corner of the central door on the western aspect of the building. Followed by foraging to the west of the building</b> |
| 20:40           | Common Pipistrelle         | Commuting to the west   |



|              |                           |   |
|--------------|---------------------------|---|
| 20:57        | Soprano Pipistrelle       | Commuting from south to north along the tree line                       |
| 20:58        | Common Pipistrelle        | Commuting from south east to north west                                 |
| 20:59        | Soprano Pipistrelle       | Foraging to the north west of the building                              |
| 20:59        | Common Pipistrelle        | Commuting from lean-to heading north west                               |
| 21:00        | Soprano Pipistrelle       | Commuting from south to the north west of the building where it foraged |
| 21:00        | Soprano Pipistrelle       | Foraging to the north west of the building                              |
| <b>21:01</b> | <b>Common Pipistrelle</b> | <b>Emergence from northern side of lean-to</b>                          |
| 21:02        | Soprano Pipistrelle       | Foraging to the north west of the building                              |
| 21:02        | Serotine                  | Commuting from south to north entering the southern lean-to             |
| <b>21:02</b> | <b>Common Pipistrelle</b> | <b>Emergence from the northern lean-to</b>                              |
| 21:03        | Common Pipistrelle        | Foraging to the north of the building                                   |
| 21:05        | Soprano Pipistrelle       | Foraging to the south of the building                                   |
| 21:05        | Common Pipistrelle        | Commuting under northern lean-to heading south east                     |
| 21:05        | Soprano Pipistrelle       | Commuting from south to north   |
| <b>21:06</b> | <b>Common Pipistrelle</b> | <b>Emergence from northern lean-to</b>                                  |
| 21:07        | Soprano Pipistrelle       | Commuting from north to south along the tree line                       |
| 21:08        | Common Pipistrelle        | Emergence from the northern lean-to                                     |
| 21:08        | Soprano Pipistrelle       | Foraging along the southern aspect of the building                      |
| 21:08        | Soprano Pipistrelle       | Commuting from south to north along the tree line                       |
| 21:10        | Soprano Pipistrelle       | Commuting from north to south along the tree line                       |
| 21:10        | Soprano Pipistrelle       | Commuting from east to west along the northern aspect of the building   |
| 21:11        | Common Pipistrelle        | Commuting from east to west along the southern aspect of the building   |
| 21:12        | Soprano Pipistrelle       | Commuting from south to north along the western aspect of the building  |
| 21:12        | Common Pipistrelle        | Commuting from north to south along the eastern aspect of the building  |
| 21:13        | Common Pipistrelle        | Heard not seen commuting to the north west of the building              |

|       |                         |  |
|-------|-------------------------|--|
| 21:14 | <i>Myotis spp.</i>      | Foraging to the north of the building  |
| 21:14 | Common Pipistrelle      | Head not seen commuting to the east of the building  |
| 21:15 | Common Pipistrelle      | Foraging to the north west of the building   |
| 21:16 | Soprano Pipistrelle     | Heard not seen foraging to the north west of the building                                  |
| 21:16 | Common Pipistrelle x 2  | Social behaviour to the north of the building  |
| 21:17 | Soprano Pipistrelle     | Foraging to the north west of the building   |
| 21:18 | Soprano Pipistrelle x 2 | Commuting from north to south over the building  |
| 21:19 | Common Pipistrelle      | Commuting from east to west along the northern aspect of the building then heading south   |
| 21:19 | Common Pipistrelle x2   | Foraging to the north west of the building   |
| 21:19 | Soprano Pipistrelle     | Foraging to the north west of the building   |
| 21:20 | Common Pipistrelle      | Commuting from south to north and returning south along the western aspect of the building |
| 21:20 | <i>Myotis spp.</i>      | Heard not seen commuting to the north west of the building                                 |
| 21:21 | Soprano Pipistrelle x 2 | Foraging from south to the north west of the building                                      |
| 21:22 | Common Pipistrelle      | Commuting from west to east along the north aspect of the building                         |
| 21:22 | Common Pipistrelle      | Foraging to the north east of the building   |
| 21:23 | Common Pipistrelle      | Commuting from north to south along the western aspect of the building                     |
| 21:24 | Soprano Pipistrelle     | Foraging along the northern tree line  |
| 21:24 | Common Pipistrelle      | Heard not seen foraging to the south east of the building                                  |
| 21:25 | Soprano Pipistrelle     | Foraging to the west of the building   |
| 21:25 | Common Pipistrelle      | Commuting from west to east  |
| 21:26 | Common Pipistrelle      | Heard not seen commuting to the east of the building                                       |
| 21:27 | Long-eared Bat          | Heard not seen commuting to the north west of the building                                 |
| 21:27 | Common Pipistrelle      | Heard not seen foraging to the north west of the building                                  |
| 21:30 | Common Pipistrelle      | Heard not seen commuting to the east of the building                                       |
| 21:31 | Common Pipistrelle      | Heard not seen commuting to the south of the building                                      |

|                 |                         |  |
|-----------------|-------------------------|--|
| 21:32           | Long-eared Bat          | Heard not seen commuting to the south of the building                                  |
| <b>Survey 3</b> |                         |  |
| <b>Time</b>     | <b>Species</b>          | <b>Activity</b>  |
| 20:13           | Common Pipistrelle x 2  | <b>Emergence from the northern lean-to</b>   |
| 20:14           | Seen not heard          | Foraging around north eastern edge of the lean-to                                      |
| 20:15           | Soprano Pipistrelle     | Heard not seen commuting to the south east of the building                             |
| 20:19           | Seen not heard          | Foraging around the north eastern edge of the lean-to                                  |
| 20:22           | Common Pipistrelle      | <b>Emergence from the northern lean-to</b>   |
| 20:22           | Soprano Pipistrelle x 2 | Commuting from south west to north east  |
| 20:24           | Common Pipistrelle      | Foraging to the west of the building   |
| 20:27           | Soprano Pipistrelle     | <b>Emergence from the southern eaves on the western aspect of the building</b>         |
| 20:27           | Common Pipistrelle      | Commuting from north west to south east  |
| 20:29           | Common Pipistrelle      | Commuting from north west to south east  |
| 20:30           | Common Pipistrelle      | Heard not seen foraging to the south east of the building                              |
| 20:31           | Soprano Pipistrelle x 2 | Foraging to the west of the building   |
| 20:32           | Soprano Pipistrelle     | Heard not seen commuting to the west of the building                                   |
| 20:33           | Common Pipistrelle      | Commuting from south to north along the western aspect of the building                 |
| 20:34           | Common Pipistrelle      | Foraging to the west of the building   |
| 20:35           | Common Pipistrelle      | Commuting over the building from east to west  |
| 20:36           | Common Pipistrelle      | Commuting from east to west over the building and foraging to the west of the building |
| 20:37           | Common Pipistrelle      | Heard not seen commuting to the south east of the building                             |
| 20:39           | Common Pipistrelle      | Heard not seen commuting to the north east of the building                             |
| 20:42           | Common Pipistrelle      | Foraging to the west of the building   |
| 20:42           | Soprano Pipistrelle     | Foraging to the west of the building   |
| 20:42           | <i>Myotis spp.</i>      | Foraging to the west of the building   |
| 20:55           | Common Pipistrelle      | Commuting from south to north along the western aspect of the building                 |
| 20:58           | Common Pipistrelle      | Heard not seen commuting to the north west of the building                             |

**Figure 5.** Approximate locations of roost entrance/exit points. Red = Brown Long-eared, yellow = Common Pipistrelle, green = Soprano Pipistrelle.



## 6.2 Phase II Reptile Survey

**Table 3** details the dates and conditions of the Phase II Reptile Survey, and **Table 4** provides the results.

Slow Worms were the only reptile species recorded on site during the survey. No reptiles were recorded within zone A (alongside the Sarum to Ford road). One adult was recorded in zone B (alongside the access track). A maximum count of eight adults were recorded across zones C and D combined (the main development area) during any one survey, with juveniles and yearlings also recorded consistently within these two areas.

**Table 3.** Dates and conditions of the Phase II Reptile Survey.

| Date       | Time  | Cloud cover/% | Precipitation | Temp/°C | Wind (none, low, moderate, high) |
|------------|-------|---------------|---------------|---------|----------------------------------|
| 03/09/2018 | 09:15 | 50            | None          | 16      | None                             |
| 05/09/2018 | 10:20 | 0             | None          | 18      | None                             |
| 11/09/2018 | 09:45 | 40            | None          | 18      | Moderate                         |
| 13/09/2018 | 10:30 | 0             | None          | 15      | None                             |
| 17/09/2018 | 11:00 | 70            | None          | 17      | Moderate                         |
| 19/09/2018 | 09:10 | 50            | None          | 18      | None                             |
| 20/09/2018 | 10:30 | 50            | None          | 16      | Moderate                         |

**Table 4.** Results of the Phase II Reptile Survey.

| <b>Zone A</b> |                |                  |                    |                    |
|---------------|----------------|------------------|--------------------|--------------------|
| Date          | Male Slow Worm | Female Slow Worm | Juvenile Slow Worm | Yearling Slow Worm |
| 03/09/2018    | 0              | 0                | 0                  | 0                  |
| 05/09/2018    | 0              | 0                | 0                  | 0                  |
| 11/09/2018    | 0              | 0                | 0                  | 0                  |
| 13/09/2018    | 0              | 0                | 0                  | 0                  |
| 17/09/2018    | 0              | 0                | 0                  | 0                  |
| 19/09/2018    | 0              | 0                | 0                  | 0                  |
| 20/09/2018    | 0              | 0                | 0                  | 0                  |
| <b>Zone B</b> |                |                  |                    |                    |
| Date          | Male Slow Worm | Female Slow Worm | Juvenile Slow Worm | Yearling Slow Worm |
| 03/09/2018    | 0              | 1                | 0                  | 0                  |
| 05/09/2018    | 0              | 0                | 0                  | 0                  |
| 11/09/2018    | 0              | 0                | 0                  | 0                  |
| 13/09/2018    | 0              | 0                | 0                  | 0                  |
| 17/09/2018    | 0              | 0                | 0                  | 0                  |
| 19/09/2018    | 0              | 0                | 0                  | 0                  |
| 20/09/2018    | 0              | 0                | 0                  | 0                  |
| <b>Zone C</b> |                |                  |                    |                    |
| Date          | Male Slow Worm | Female Slow Worm | Juvenile Slow Worm | Yearling Slow Worm |
| 03/09/2018    | 0              | 0                | 3                  | 0                  |
| 05/09/2018    | 0              | 4                | 2                  | 0                  |
| 11/09/2018    | 0              | 0                | 1                  | 2                  |
| 13/09/2018    | 0              | 1                | 0                  | 1                  |
| 17/09/2018    | 1              | 1                | 1                  | 0                  |
| 19/09/2018    | 0              | 2 (+1 skin)      | 1                  | 1                  |
| 20/09/2018    | 0              | 1                | 0                  | 3                  |
| <b>Zone D</b> |                |                  |                    |                    |
| Date          | Male Slow Worm | Female Slow Worm | Juvenile Slow Worm | Yearling Slow Worm |
| 03/09/2018    | 0              | 0                | 2                  | 0                  |
| 05/09/2018    | 0              | 4                | 0                  | 0                  |
| 11/09/2018    | 0              | 1                | 2                  | 1                  |
| 13/09/2018    | 0              | 0                | 0                  | 0                  |
| 17/09/2018    | 0              | 1                | 0                  | 0                  |
| 19/09/2018    | 0              | 0                | 0                  | 0                  |
| 20/09/2018    | 0              | 1                | 1                  | 2                  |

## 7.0 EVALUATION & POTENTIAL IMPACTS IN THE ABSENCE OF MITIGATION

### 7.1 Introduction

This chapter evaluates the results of the updating Phase II Bat and Reptile Surveys, comparing them to the results of the original surveys, then details the potential impacts of the proposals to these species groups in the absence of avoidance, mitigation and compensation measures to inform the production of a suitable such strategy (where necessary). The potential impacts are identified in reference to the proposed activities associated with the scheme. In many cases, whilst a potential negative impact is identified at this stage, measures can be implemented to ensure that no actual negative impacts occur. Such measures are detailed in later sections of this report.

### 7.2 Phase II Bat Surveys

#### 7.2.1 Status of Roosting Bats on Site

Maximum counts of one Long-eared Bat, four Common Pipistrelles and one Soprano Pipistrelle were identified roosting within the barn during any one survey.

The Common Pipistrelles were recorded accessing the barn via the doors along the western aspect of the barn and through the northern lean-to.

A Soprano Pipistrelle was recorded accessing the barn via two different locations on two different surveys; the eaves on the western aspect and the northern lean-to.

A roosting Long-eared Bat was recorded only once; via the lean-to in the southwestern corner of the barn. As per the statement below, taken from the ECS report, the Long-eared Bat is considered most likely to comprise a Brown Long-eared Bat:

*“There are two species of long-eared bat in the UK. Brown long-eared bat *Plecotus auritus* is common and widespread. Grey long-eared bat *Plecotus austriacus* is rare. There are very few records of grey long-eared bat in Wiltshire or Hampshire although the Isle of Wight is a UK stronghold for this species. Habitat preferences have been studied and identified as marshy grassland rather than woodland preferred by brown long-eared bat. The assessment of the site at Bishopsdown Farm therefore assumes that the long-eared bat species is brown long-eared bat.”*

As per the original assessment, it was unclear where the bats were roosting within the internals of the barn, but it is considered most likely that they were utilising crevices behind breezeblocks, between blockwork and the steel beams/uprights and/or between asbestos roofing sheets.

The original surveys by ECS identified roosts of at least one Long-eared Bat (considered most likely to be a Brown Long-eared Bat) and two Common Pipistrelles, therefore numbers of Common Pipistrelles are slightly higher in 2018, and one additional species (Soprano Pipistrelle) was identified.

**All bats and their roosts are afforded full protection under wildlife legislation.**

General bat activity around and adjacent to the site was also noted during the surveys, and was dominated by moderate numbers of Common and Soprano Pipistrelles foraging within the site boundaries and commuting past/over the site.

#### 7.2.2 Roost Types

The barn was therefore classified as a **KNOWN ROOST** for at least four Common Pipistrelles, one Soprano Pipistrelle and one Brown Long-eared Bat.

As per BCT guidelines the roosts were considered most likely to be examples of at least three low-level day roosts. Day roosts are defined as *“A place where an individual bat, or small groups of males, rest or shelter in the day...Males of most British species spend the summer roosting alone or in small groups with other males in such roosts. Bats may regularly use a number of day roosts, switching between them on a daily basis, though conversely they may occupy the same roosting site for several weeks.”*

#### 7.2.3 Site Status Assessment

Brown Long-eared Bats, Soprano Pipistrelles and Common Pipistrelles are considered to be amongst the most common and widespread bat species in the UK (BCT, 2016). In accordance with best practice guidance (Mitchell-Jones, 2004; Wray *et al.*, 2010), day roosts are considered to be of **local conservation value** due to the single/low numbers of bats present, their species and the roost types.

#### 7.2.4 Implications

**Due to the confirmed presence of roosting bats, the demolition of the barn would, unmitigated, result in the immediate destruction of the bat roosts and potentially the harm/death of bats, which would constitute an offence under wildlife legislation. Further, should adequate compensation not be implemented associated with the proposed development, the proposals would result in the permanent loss of bat roosts, which contravenes both legislation and planning policy.**

In order for such works to be undertaken legally, a European Protected Species License (EPSL) will be required from Natural England prior to any works taking place to the barn, with all works undertaken under a suitable mitigation and compensation strategy.

### 7.2.5 Potential Impacts to Bats in the Absence of Mitigation

#### 7.2.5.1 Initial Impacts

Unsupervised contractors carrying out works associated with the proposals could result in direct harm to bats with the risk of them being crushed or injured should they be present at the time of works. Further, the proposals would result in the loss of at least three day roosts. This would result in significant negative impacts at a site level for each of the bat species identified (**and an offence under wildlife legislation**), however due to the relatively common occurrence of these species it would be considered highly unlikely to have a significant impact on the populations at a regional or national level.

An increase in traffic, people, noise and light will occur on site during the works, however, these will mainly occur during the daytime, so the impact upon the foraging and commuting bats identified around the site is expected to be negligible during construction works.

#### 7.2.5.2 Roost Loss

Uncompensated, the proposed works will result in the permanent loss of at least one day roost for each of the species recorded.

#### 7.2.5.3 Fragmentation and Isolation

The development will retain all boundary vegetation and the lighting scheme associated with all phases of the development will be designed such that all boundaries will remain unlit. As such, no habitat fragmentation or isolation will occur.

#### 7.2.5.4 Post Development Impacts

Unmitigated and uncompensated, the proposed scheme will result in the permanent loss of at least three low-level bat roosts.

#### 7.2.5.5 Residual Impacts

It is considered that provided the avoidance, mitigation and compensation measures outlined within this document are implemented in full, residual impacts to bats resulting from the proposed development are highly unlikely as new roosting opportunities will be provided as detailed in the following section.

#### 7.2.5.6 Disturbance of Commuting and Foraging Bats

Increased levels of artificial light can cause disturbance and disruption to nocturnal animals.

Though several bat species can take advantage of artificial lighting systems for foraging, feeding on the insects they attract, other species avoid them.

Many nocturnal insects are attracted to light, especially lamps that emit an ultra-violet



component and particularly if it is a single light source in a dark area (BCT, 2009). Studies have shown that although Noctules, Leisler's Bat, Serotine and Pipistrelles swarm around white mercury and metal halide streetlights, this behaviour is not true of all species. The slower-flying broad-winged species such as Long-eared Bats, *Myotis* species, Barbastelle *Barbastella barbastellus* and Horseshoe *Rhinolophidae sp.* Bats generally avoid streetlights (BCT, 2009). In addition it is also thought that insects are attracted to lit areas from further afield, resulting in the depletion of foraging resources elsewhere.

Artificial lighting is also thought to increase the risk of predation. For example observations have been made of Kestrels *Falco tinnunculus* hunting at night under artificial lighting along motorways (BCT, 2009). Therefore increased light levels may lead to increases in mortality.

Bright light may reduce social flight activity and cause bats to move away from the lit area.

Should a sensitive lighting scheme not be implemented on site during both the construction and operational phases of the development, the proposals have the potential to cause disturbance to the relatively low numbers of bats known to be utilising the site to forage and those which commute through/past the site.

### 7.3 Phase II Reptile Survey

#### 7.3.1 On-site Reptile Population

The results of the 2018 Phase II Reptile Survey indicate that there is likely to be a **Low** population of Slow Worm present within the main development area of the application boundary, and a **Low** population of Slow Worm along the existing access track, based upon the maximum count of adult individuals on any one survey visit (HGBI, 1998).

All age classes were recorded within the main development area, indicating the presence of a breeding population.

The site is connected to further areas of habitat considered suitable to support reptiles in the wider landscape. Due to this, and the identification of only one male during the survey, it is considered highly likely that the reptile population identified is part of a wider metapopulation.

The results of the updating survey confirm the continued likely presence of only one reptile species on site, with only Slow Worms recorded in both 2015 and 2018. However, the numbers recorded in 2018 are significantly lower than those recorded in 2015. This difference could be attributable to a number of factors; for example, the

population itself could have experienced a decline, or the reptiles present in 2018 may have demonstrated a lower dependency upon the artificial refugia due to the increased quality of habitats available for reptiles (the grass sward appeared to have become more structured through lack of management, and areas of successional scrub appear to have expanded). As such, this report assumes that the population size recorded during the 2015 assessment remains correct.

### *7.3.2 Site Status Assessment*

The results of neither the 2015 nor 2018 surveys do not indicate that the site constitutes a Key Reptile Site (Froglife, 1999).

Slow Worms are considered to be relatively widespread in Hampshire and across the South of England, with those identified on site considered likely to be part of a larger metapopulation in the local area. That said, the species is still afforded protection under wildlife legislation. Consequentially, the site is considered to hold **local value** for reptiles.

### *7.3.3 Impacts in the Absence of Mitigation*

In the absence of avoidance/mitigation measures being implemented, the proposed development of the site is likely to impact reptiles on site as follows.

#### *Initial Impacts*

The site preparation and construction phases of the proposed works on site (both along the access track and the main development area) have the potential to harm/kill resident reptiles, due to the clearance of areas of suitable reptile habitat where populations of Slow Worm have been recorded. This would constitute an offence under wildlife legislation, and an **adverse impact** on local reptile populations.

#### *Isolation and Fragmentation*

it is not considered likely that any significant habitat fragmentation and/or isolation will be caused to local reptiles as a result of the proposed development due to the retention of site boundary vegetation.

#### *Post-development Impacts*

In the absence of mitigation/compensation, the proposed works will result in a loss of suitable reptile habitat on site, which would constitute an **adverse impact** on local reptile populations.

#### *Residual Impacts*

It is considered that provided the avoidance, mitigation and compensation measures outlined within this document are implemented in full, there should be **no residual impacts** to reptiles resulting from the proposed development. Enhancements

included within the proposals will ensure the development has a long-term positive outcome for reptiles (and other wildlife).

## **8.0 ECOLOGICAL AVOIDANCE, MITIGATION, COMPENSATION AND ENHANCEMENT STRATEGY**

### **8.1 Introduction**

The following information is provided to reduce the ecological impact of the proposals as far as possible to ensure compliance with wildlife legislation, and to ensure the proposals result in a positive outcome for biodiversity as per both national and local planning policy.

**Please note, this report addresses only those aims detailed within Section 1 of this document; additional measures are detailed within the original report by ECS and therefore these reports must be read in conjunction.**

Avoidance/mitigation refers to measures that can be undertaken to avoid or reduce ecological impacts, for example by retaining and protecting suitable habitat on site or timing works to avoid certain ecologically sensitive timings. Compensation refers to measures taken in order to offset potential significant impacts, for example by providing alternative habitat features to replace those lost as a result of the works. Measures referred to as 'enhancements' refer only to those that will deliver positive impacts to ecology compared to the current site conditions.

### **8.2 Bat Roost Mitigation Strategy**

#### *8.2.1 Introduction*

This section provides mitigation, compensation and enhancement for the loss of the Brown Long-eared Bat, Soprano Pipistrelle and Common Pipistrelle day roosts identified within the barn on site. The following information follows the principles of the measures proposed within the original report produced by ECS, but provides additional and more detailed information.

#### *8.2.2 European Protected Species Licence*

**All works associated with the demolition of the barn that will impact upon potential roosting features will take place under a Natural England European Protected Species Mitigation Licence (EPSL), under a suitable mitigation strategy (which this report will form the basis of) and under the supervision of a suitably experienced and licensed Ecologist due to the identified presence of bat roosts. Failure to do so will result in offences being committed under wildlife legislation.**

All works will be fully detailed within the EPSL Method Statement required as part of the licence application.

An application can be made to Natural England for an appropriate licence as soon as Planning Permission is granted for the proposals and all ecological conditions have been suitably discharged (where possible).

### 8.2.3 Timing

As the identified roosts are not considered to be of medium/high level of significance (i.e. maternity roost or used by a significant number of bat species), disturbance is permitted during any season of the year (in suitable weather conditions as defined by BCT (2012) guidelines). That said, the optimum time for carrying out work on day roosts is 1<sup>st</sup> September – 1<sup>st</sup> May, but avoiding the winter months when temperatures are likely too low (December – February), as this is when bats enter a state of torpor and so if, in the unlikely event bats are in residence over the winter period, they would be more at risk. Works will therefore endeavour to be undertaken between September-November and/or March-April during suitable weather conditions, where the build schedule allows. Wherever possible, demolition will avoid the bird nesting season, however, which spans March to August inclusive. Please see **Section 5.4.3** of the 2016 ECS report for full details of protective measures associated with nesting birds.

### 8.2.4 Mitigation Bat Boxes

English Nature (2004) states that ‘...bat boxes provide an appropriate form of mitigation, either alone or, preferably, in combination with the provision of roosts in buildings’.

Prior to any works commencing associated with the demolition of the barn, two artificial bat boxes will be installed on suitable retained trees on site, near to the barn. One Schwegler 1FD bat box will be utilised; the domed roof of these boxes results in an increased interior height for Long-eared Bats whilst the two grooved internal wooden front panels provide a crevice for species such as Pipistrelles, both of which were recorded roosting within the building. Both the cooler woodcrete surface and the warmer wooden panel means bats have a choice of different temperatures in different parts of the box, which has been highlighted as a key requirement of Brown Long-eared bats (Entwistle *et al.*, 1997). The box is painted black to absorb warmth. The use of long-lasting Woodcrete which will not rot, leak, crack or warp, and will last for at least 20 - 25 years, makes this a suitable form of long-term mitigation. In addition, one Schwegler 2F General Purpose Box will also be installed, suitable for Pipistrelle species. The boxes will be sited 3-6m high in an open, sunny position, and will remain *in situ* as permanent enhancement features of the site following the completion of the proposed works.

**Please note artificial bat roosts, if active, are also afforded full protection under wildlife legislation.**

#### *8.2.4 Supervision*

Prior to works commencing associated with the removal of all roof coverings and the demolition of the walls of the barn, the licenced Ecologist will give a Tool Box Talk to all necessary contractors detailing best practice methods of sensitive works and identifying signs of bats. In the unlikely event a bat is found whilst the licensed Ecologist is absent, all works must stop immediately until the licensee returns to site. Prior to any works commencing, the licensed Ecologist will carry out an updating search of the internals of the barn wherever possible to establish whether any bats are in residence which, if so, can be moved to the mitigation bat boxes to minimise the level of disturbance.

#### *8.2.5 Sensitive Working Methods*

The licenced Ecologist will supervise the stripping of all roof materials, as well as all works associated with the demolition of the walls, which will be undertaken via sensitive methods. **Please note, however, restrictions may be present associated with the presence of asbestos. Where such limitations exist, the Ecologist will work closely with the on-site contractors to ensure the protection of bats.**

#### *8.2.6 Capture (if required)*

If during the initial search or sensitive removal of the roof or walls bats are discovered the supervising Ecologist will capture them and place them into a holding bag (a soft cloth bag with closure-strings and with seams on the outside (Mitchell-Jones & McLeish, 2004) to ensure the bat remains calm and will not take flight during daylight hours. The Ecologist will then immediately transport the bat to the mitigation bat boxes where the bat will be released and left undisturbed. During this time, the licenced bat worker will be wearing appropriate bat handling gloves to ensure the bat does not come to any harm. The licenced bat worker will have ample experience in handling bats and be confident in doing so.

#### *8.2.7 Underlining Materials*

In-line with Natural England (2015) guidance roofing felt will be utilised as opposed to Breathable Roof Membrane (BRM) and other similar fibrous materials for **all roofing works** on site as there is considerable evidence that fibrous underlining poses a threat to bats occupying a structure due to entanglement (Natural England, 2015).

#### *8.2.8 Monitoring & Maintenance*

Due to the status of the roosts identified, post-completion monitoring is not required.

### 8.2.9 Compensation

To compensate for the permanent loss of at least three day roosts for Common and Soprano Pipistrelles and Brown Long-eared Bats, the following features will be included within the development:

3 x Ibstock Enclosed Bat Box 'C' will be installed on the new dwellings. These features provide suitable roosting opportunities for crevice-dwelling bat species including Pipistrelles, providing several internal roosting zones without allowing bats access into the internals of the building.

6 x bat access tiles will be installed across two roofs of the new dwellings. These provide a crevice between the tile and the felt underlining, suitable for crevice-dwelling bat species including Pipistrelles.

1 x additional Schwegler 1FD bat box to provide compensation for the loss of the Brown Long-eared Bat roost. The box will be installed at a height of between 3 to 6 metres on retained boundary trees, in an open, sunny position.

**Appendix 2** provides details of the locations of these features, which have been selected to enhance their value for roosting bats (backing onto foraging and commuting features and away from disturbance). Please note, these features must not be located adjacent to any artificial lighting.

### 8.2.10 Enhancement

In addition to the mitigation and compensation bat roost features, three Schwegler 2F General Purpose Bat Boxes will be installed to provide additional roosting opportunities for bats on site. The boxes will be installed at a height of between 3 to 6 metres on retained boundary trees, in an open, sunny position.

## 8.3 Reptile Mitigation Strategy

### 8.3.1 Introduction

The proposed development is likely to result in adverse impacts to Slow Worms due to the requirement for the clearance of the majority of habitats on site aside from boundary hedges. This loss represents a permanent reduction in the availability of reptile habitat in the local area. Therefore, in order to fully comply with legislation and planning policy relating to reptile conservation, it is necessary to plan and implement a reptile mitigation and compensation strategy that will ensure reptiles are not harmed or killed as a result of the development, or that the development would not impact upon the conservation status of reptiles within the local area or an overall net reduction in biodiversity value.

The mitigation strategy has been informed by best practice guidelines published by English Nature (2004) and the Herpetofauna Groups of the British Isles (HGBI) (1998).

**All aspects of the reptile mitigation and compensation strategy must be completed in full prior to any construction works being undertaken on site to ensure compliance with wildlife legislation.**

### 8.3.2 Aims

The general principles of reptile mitigation entail the protection of reptiles from harm by removing them from within the footprint of the development. The favourable conservation status of reptiles within the local area must also be maintained by ensuring there is sufficient suitable reptile habitat within the receptor site to support the relocated reptile populations.

Best practice states that wherever possible (and appropriate) reptiles should be retained on site *in situ*. This is not an option with the Bishopsdown Farm development as the full extent of the main development area supports reptiles. However, a receptor site has been selected that lies immediately adjacent to the development site, such that the local Slow Worm metapopulation will not be compromised.

As per best practice, a Reptile Mitigation Strategy should adhere to the following points:

**Step 1.** Identification of suitable receptor site;

**Step 2.** Survey and habitat improvement/creation at receptor site (if required);

**Step 3.** Set up of donor (development) site;

**Step 4.** Capture and translocation of reptiles from donor site to receptor site;

**Step 5.** Destructive search of donor site following completion of capture effort (if necessary);

**Step 6.** Post-release monitoring and habitat management (as necessary) at receptor site.

### 8.3.3 Receptor Site

#### 8.3.3.1 Location

Best practice (HGBl, 1998) states that a reptile receptor site should, wherever possible, comply with the following criteria:

- Be local to the donor site, and as close as possible to it;
- Not currently support a population of the species to be translocated, but be capable of supporting them given suitable remedial works, such that the translocation will result in no net loss in reptile sites;
- Not be subject to planning or other threats in the foreseeable future;
- Be subject to a written, agreed and funded pre- and post-translocation monitoring programme.

The designated receptor site is located adjacent to the development site, to the immediate west (**Figure 6**). The receptor site currently exists as a portion of a field comprising bare ground due to recent and ongoing management (**Figure 7**). The field will form part of the future Country Park (this area has been proposed as 'Grass/scrub mosaic via natural regeneration' under the proposals: the usage of this section as a reptile receptor site has been discussed and agreed with the Parish Council. Although the land is, therefore, subject to a planning application, the use of the land as a reptile receptor will not conflict with its proposed future usage, as long as suitable planning conditions are attached to its long-term management.

The receptor site provides an area of land greater than the area of reptile habitat to be lost to the development (approximately 1.2ha versus just under 0.9ha) and will be enhanced (as detailed below) to provide optimum reptile habitat, exceeding the current quality of reptile habitat on the development site, with a management scheme implemented to ensure its long-term quality.

The receptor site provides opportunities for reptiles to disperse into the wider landscape, thereby resulting in no population isolation and allowing the continuation of the wider metapopulation. Due to the current composition of the receptor site as bare ground, however, it does not provide suitable habitat opportunities for reptiles prior to the enhancements proposed within this report, and therefore it is highly unlikely that a reptile population exists at present.



**Figure 6.** Approximate location of reptile receptor site (outlined in yellow) (Google Maps, 2019).



**Figure 7.** Receptor site in current form.



#### *8.3.3.2 Pre-translocation Enhancement*

Prior to planning permission being granted, the current management regime associated with the receptor site will be continued to prevent the bare ground habitat being colonised by successional vegetation. This is important as it prevents the site developing into suitable reptile habitat prematurely, which could allow the local populations to occupy the land prior to the translocation commencing. If this were to

occur, the carrying capacity of the receptor site may already have been reached prior to the proposed introduction of the Slow Worms from the donor site.

Once planning permission has been granted for the proposals, enhancement of the receptor site will commence at the earliest possible opportunity, to allow newly created habitats to establish prior to reptiles being translocated. The following strategy will be implemented, in advance of any reptiles being translocated, with the habitats left to establish for a full growing season prior to the translocation commencing. These measures will also enhance the site for a broad range of other species, including foraging bats and birds, amphibians and Badgers.

#### *Grassland Seeding*

The full extent of the land will be seeded with a native wildflower mix suited to the soil type: Emorsgate Seeds provide a range of suitable mixes.

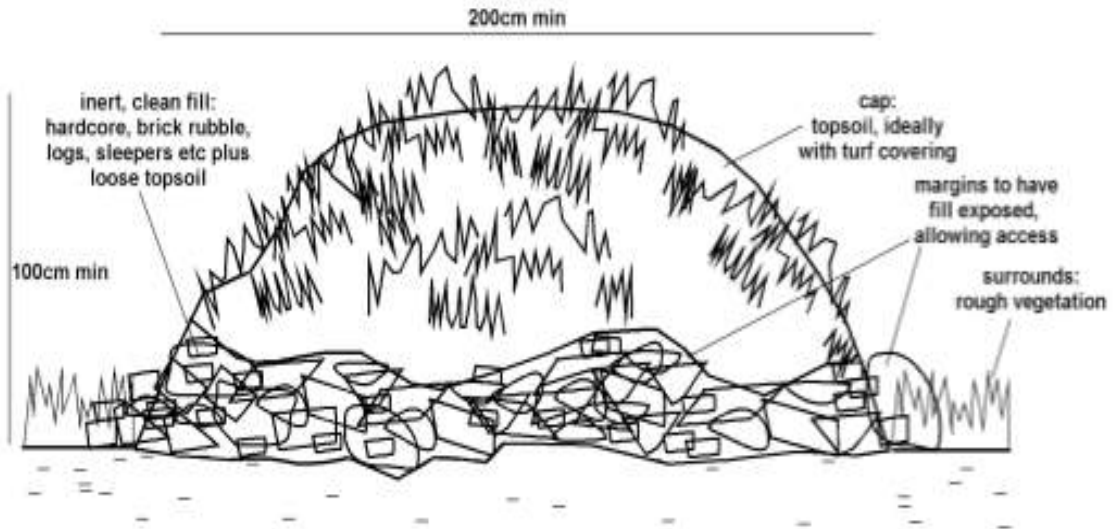
The newly seeded grassland will require regular management in the first year to ensure its suitable establishment (to be informed by the Project Ecologist once a suitable seed mix has been selected).

#### *Planting*

A matrix of native scrub will be planted though the grassland, with edges scalloped to provide a range of microclimates. A detailed planting plan is to be produced in full consultation with the Parish Council to ensure its suitability for incorporation into the future Country Park.

#### *Hibernacula*

Six artificial hibernacula will be constructed, along the boundaries of the receptor site and adjacent to the newly planted scrub patches, to provide opportunities for sheltering and hibernating reptiles and to encourage invertebrate colonisation, which will act as a food source for reptiles. The hibernacula will follow the design principles provided by English Nature (2001) (**Figure 8**).

**Figure 8.** Reptile hibernaculum design (English Nature, 2001).

#### 8.3.3.3 Long-term Habitat Management of Receptor Site

A management plan will be implemented to ensure both the successful establishment and long-term quality of the reptile receptor site. This is to be designed in collaboration with the Parish Council once a detailed planting plan has been agreed. Therefore, the production of the habitat management plan should be suitably conditioned during the planning process associated with the application.

The broad aims of the habitat management plan will be to provide a continued diverse habitat in terms of both species and structure. Scrub habitat will be allowed to expand/develop, but should not exceed 15% coverage of the site in order to create a structurally diverse habitat with 'ecotones' (i.e. scrub/grassland interface) with suitable basking and foraging areas for reptiles. The grassland/wildflower meadow, once fully established, should be managed on an annual basis via a hay cut in September once wildflowers have set seed. The vegetation will not be cut any lower than 15cm from the ground to avoid injuring reptiles. The habitat management plan should include ongoing monitoring of the habitat quality within the reptile receptor site by a suitably experienced Ecologist/land manager, such that the habitat management plan can be adapted where necessary.

#### 8.3.3.4 Funding and Safeguarding

The proposed reptile receptor site will be protected in perpetuity from any works that could reduce its suitability to support reptiles and/or pose any risk to the reptiles present via a suitably binding and legal agreement.

Initial habitat enhancement works to the reptile receptor site will be the responsibility of, and funded by, the developer of the Bishopdown Farm development, as is also the case for the implementation of the reptile translocation.

In the longer term, habitat monitoring and management of the receptor site will be funded by, and the responsibility of, the developer for a period of five years post-completion of the development, after which it will be handed over to the Parish Council for incorporation in the overall management regime of the Country Park. Responsibilities as detailed above should be suitably and legally secured during the planning process to ensure the immediate and long-term protection of the reptile receptor site and associated translocated Slow Worm population.

### *8.3.4 Reptile Translocation*

#### *8.3.4.1 Vegetation Clearance*

Once planning permission has been granted, all scrub and grass vegetation within the development site (retaining the boundary hedges) will be cut to 15cm, with all arisings removed. This will facilitate the reptile translocation by reducing the suitability of the site for reptiles, thereby encouraging reptiles off site prior to exclusion fencing being installed and, later, increasing the reliance of any remaining reptiles upon the artificial refugia. Vegetation will be cut between the months of September-February wherever possible, to avoid the bird nesting season. If this is not possible, clearance must be preceded by a nesting bird survey undertaken by the supervising Ecologist; should any active nests be identified, these will be protected with a 5m buffer until the chicks have fledged and the nest has been deemed inactive by the Ecologist. Cutting to 15cm minimum height protects any reptiles present.

Following the completion of the enhancement of the reptile receptor area, suitable establishment of the associated planting and cutting of vegetation from within the donor site, reptile exclusion fencing will be installed around the full extent of the donor site as illustrated in **Figure 9** to prevent reptiles recolonising the works area prior to the completion of the translocation. This will be installed during the active season for reptiles wherever possible (April-October) to allow reptiles to move out of the donor site following the vegetation clearance, thereby speeding up the translocation. Fencing will be installed by or under the supervision of a suitably experienced Ecologist to ensure the protection of reptiles. Reptile fencing will remain in place until the completion of all construction works on site, after which it will be removed to allow reptiles to recolonise the garden areas on site.

Signage will be installed at regular intervals along the reptile exclusion fencing to ensure its protection during construction works on site (see **Appendix 2** for printable signage). Red and white tape will also be installed along the exclusion fencing to

ensure no accidental damage of fencing or encroachment of machinery/materials/personnel into the receptor area.

During construction works, the reptile exclusion fencing will be regularly inspected by the site manager. Any breakages will be rectified immediately, and vegetation will not be allowed to grow up over the fence. Where vegetation requires removal, this will be undertaken by hand, to a height no less than 10cm to ensure the protection of reptiles. This will ensure the fence remains fit for purpose, thereby preventing the recolonisation of the site by reptiles.

Artificial refugia will then be distributed throughout the site by the Ecologist. The refugia used will be a mixture of bitumen roofing felt and corrugated metal. The density will be increased from the minimum recommendation detailed within best practice (100/ha) to further increase capture rates. Refugia will be left to 'bed' in for at least 7 days during the active reptile season prior to the translocation commencing.

**Figure 9.** Indicative reptile exclusion fence plan (fencing dashed blue, application boundary red) (Google Maps, 2019).



#### 8.3.4.2 Timing

The optimum months for the capture of reptiles are considered to be April, June and September. However as long as the capture visits are carried out during suitable weather conditions it is possible to successful capture during July and August, and sometimes into the early part of October depending upon weather conditions. By ensuring that all reptiles are translocated by the end of September/early October (if weather permits), it will allow sufficient time for reptiles to find suitable hibernation sites within the receptor site and surrounding habitat.

#### *8.3.4.3 Translocation*

Following the completion of the translocation set-up the Ecologist will carry out daily checks of the artificial refugia in accordance with the timings detailed above (where weather is suitable), capturing reptiles from beneath the refugia or wherever they are encountered on site. All reptiles will be placed into a suitable container, given a health check and then released into the receptor site within 15 minutes of capture. Capture will take place during suitable weather conditions and timings.

#### *8.3.4.4 Capture Effort*

The HGBI guidelines (1998) suggest that for a population of Slow Worm as identified on site checks should be undertaken for a minimum of 90 suitable days to ensure the full clearance of the site. By using increased refugia density and undertaking pre-translocation vegetation manipulation, it may be possible to clear the site in fewer days. Throughout the capture operation capture rates will be monitored by the Project Ecologist. The capture effort will not be considered complete until five consecutive negative days during suitable weather conditions are recorded.

#### *8.3.4.5 Destructive Search*

Following the completion of the translocation, and during the active reptile season, a destructive search will then be undertaken to allow any remaining reptiles to be relocated. A small mechanical excavator with a toothed bucket will be used to sensitively and progressively remove any remaining vegetation, the first few inches of top soil and any hibernacula such as rubble piles from the donor site under the full supervision of the Ecologist. Any reptiles identified will be captured and placed into the receptor area.

#### *8.3.4.6 Reporting*

Following the completion of the Reptile Mitigation Strategy a suitable report will be produced detailing the results, to be submitted to Wiltshire Council.

#### *8.3.4.7 Post-completion Monitoring*

In years 1, 3 and 5 following the completion of the reptile translocation, population monitoring will be undertaken within the receptor site to assess the current status of the translocated population (and any other populations that have colonised the land). This will be undertaken by a suitably experienced Ecologist, following the methodology detailed earlier in this report for Phase II Reptile Surveys. The results of the reptile monitoring surveys will inform any necessary updates of the habitat management plan (any changes to be first agreed in writing with Wiltshire Council prior to implementation). The results of the monitoring surveys will be reported to Wiltshire Council after each year of monitoring. The monitoring surveys will be funded by, and the responsibility of, the developer.

#### **8.4 Lighting Strategy**

With reference to the comments received from Louisa Kilgallen, artificial lighting will be avoided in full along all site boundaries during all phases of the proposed development to ensure the retention of dark corridors for commuting and foraging bats. Low-pressure sodium or LED lighting will be utilised as this also reduces light spill.

#### **8.5 Retention and Protection of Boundary Hedges**

Reflective of Louisa Kilgallen's comments, to ensure the continued retention and quality of site boundary hedges, these will sit outside the curtilage of the private homeowners. Garden fences will be installed inside the hedge lines. The hedges will be retained in communal ownership, and a suitable management company will be set up prior to first occupation, to be responsible for ongoing hedgerow management.

The hedgerow along the site access track will be retained under the proposals. To prevent damage to this feature during the construction phase, as well as the hedges to be retained around the boundaries of the main development area, prior to works commencing suitably robust construction fencing (heras or similar) will be installed. This will remain in place until all construction works have been completed. Its location is to be advised by a suitably qualified Arboriculturalist to ensure protection of root systems.

#### **8.6 Construction Ecological Method Statement**

Reflective of Louisa Kilgallen's comments, a Construction Ecological Method Statement should be produced (secured via condition) prior to works commencing on site, and agreed in writing by Wiltshire Council. This will include working procedures to ensure the protection of important and legally protected wildlife habitats and species throughout the construction phase of the development.

The method statement is to include *a pre-commencement Barn Owl survey, procedures to be followed if barn owls are found to be present and details of a suitable location for a barn owl nest box. In addition, it is to include an indicative timeline to ensure ecological works are undertaken in appropriate seasonal windows.*



## 9.0 REFERENCES

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## **10.0 APPENDIX**

### **Appendix 1. Development proposals.**

**GATEWAY**  
 The entrance to the site would be denoted by a vista towards the first property which would be detailed with appropriate local materials

**PARKING LANE**  
 This lane would accommodate access to and parking for three properties

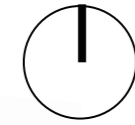
**TOPOGRAPHY**  
 Site levels would need to be made suitable for development and would need to be made to gently fall from south to north across a low gradient

**CENTRAL FEATURE**  
 A landscape feature such as a small green space or in this case native street tree planting would create a focal point in the scheme

**SOUTHERN GROUP**  
 This group of larger properties in the south would be clustered around a gravel drive



1:500 @ A3



← - - - Key vista

- 4-5 bed properties (x 7)
- 3-4 bed properties (x 7)

scale | 1:500 @A3

scale | 1:500 @A3



**Appendix 2.** Indicative locations of bat roost mitigation, compensation and enhancement features (trees subject to detailed selection by Ecologist on site).



- Ibstock Enclosed Bat Box C (compensation)
- Bat Access Tile (compensation)
- Schwegler 1FD Bat Box (1 x mitigation, 1 x compensation)
- Schwegler 2F General Purpose Bat Box (1 x mitigation, 3 x enhancement)

**Appendix 3.** Signage to be installed along reptile exclusion fencing.



**STOP!**

**ECOLOGY AREA**

**NO UNAUTHORISED ACCESS**