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Ecological Impact Assessment

Mampitts Community Hub
Mampitts Green
Shaftesbury
SP7 8GR

November 2023

Darwin Ecology Ltd
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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.		
Prepared by	Assistant Ecologist Jonathan Bayliss BSc (Hons)	November 2023
Reviewed by	Consultant Ecologist Jessie Forster BSc (Hons)	November 2023
This report remains valid for 12 months from date of issue. The survey results provided in the report are valid for 12 - 18 months from date of survey.		

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 Shaftesbury Town Council to undertake an Ecological Impact Assessment (EcIA) of the site at Mampitts Green, Shaftesbury SP7 8GR[1]. The assessment was required to support a planning application for the construction of a Community Hub building, associated parking and improvements to the open space to the east - Mampitts Meadow. The assessment was informed by a desk study, Phase 1 habitat survey and reptile presence/absence survey.

1.2. During the Phase 1 habitat walkover survey, habitats recorded within the application site comprised modified grassland (divided in to two areas of long and short sward), bramble scrub, mixed scrub, a ruderal/ephemeral plant community within the modified grassland and native hedgerows, one with line a line of trees.

1.3. No direct evidence of European protected species was observed onsite. The habitats on site provided potential habitat for hazel dormice, badgers, hedgehog, reptiles, foraging/ commuting bats and breeding birds. A reptile presence/absence survey was conducted which concluded reptiles are likely absent from site.

1.4. No further surveys are considered necessary (regarding protected species), provided the proposed plans continue to show retention of the onsite hedgerow and mixed scrub. Habitats to be impacted comprise modified grassland and bramble scrub.

1.5. Mitigation measures to protect retained habitats and protected species include:

- All hedgerow and mixed scrub will be retained and protected with HERAS fencing (or similar) to protect against damage during works. The fencing must protect tree root protection areas in line with BS5837:12.
- Any bramble scrub clearance should take place outside of breeding bird season (March to August inclusive). Alternatively a breeding bird survey will be undertaken by a suitably qualified ecologist immediately prior to commencement of works.
- Excavations will be covered and ramps installed during construction works to prevent animals becoming trapped.
- Any new lighting on site will be subject to a bat sensitive lighting plan.

1.6. Compensation (and enhancement) for the loss of modified grassland and bramble scrub has been incorporated in the form of a planting scheme in accordance with the proposed landscaping layout plan.

1.7. The creation of a Landscape Ecological Management Plan (LEMP) is recommended to support the landscaping scheme and ensure ongoing appropriate ecological management of the site.

[1] OS Grid ST 87503 23018

1.8. Enhancements will include the planting of at least 21 native trees throughout the site and the over-seeding of the existing grassland with a native wildflower mix to improve the species diversity. Further enhancements have been recommended including the installation of bat and bird boxes and bat roosting features into the proposed new hub building.

2. INTRODUCTION

Background

2.1. Darwin Ecology Ltd was commissioned by Shaftesbury Town Council to undertake an Ecological Impact Assessment (EcIA) of the site at Mampitts Green, Shaftesbury SP7 8GR[2] The assessment was required to support a planning application for the construction of a Community Hub building, associated parking and the improvement of the open space to the east - Mampitts Meadow. The assessment was informed by a desk study, Phase 1 habitat survey and reptile presence/absence survey.

2.2. The proposed drawings on which this assessment is based are provided at **Appendix 1, Proposed Plans**.

2.3. The tree inspection followed the Bat Conservation Trust (BCT) Good Practice Guidelines (2016) and the habitat walkover survey followed the Chartered Institute for Ecological and Environmental Management (CIEEM) Guidelines for Preliminary Ecological Appraisal (2017).

2.4. The subsequent Ecological Impact Assessment (EcIA) follows the CIEEM Guidelines for Ecological Impact Assessment in the UK and Ireland (2018).

Scope of Assessment

2.5. The process of EcIA aims to identify, quantify and evaluate the potential effects of development-related or other proposed actions on habitats, species and ecosystems.

2.6. Potential effects on the following ecologically sensitive receptors have been considered during the EcIA of Mampitts Community Hub:

- Statutory and non-statutory designated sites;
- On-site habitats of intrinsic importance (such as priority habitats); and
- Habitats with the potential to support protected species, including bats, hazel dormice *Muscardinus avellanarius*, great crested newts *Triturus cristatus* and other common amphibians, common reptiles, birds, badgers *Meles meles*, otters, water voles and invertebrates.

2.7. As there is no running water within the site, in combination with their nationally sparse distribution, it is considered highly unlikely that white clawed crayfish *Austropotamobius pallipes* would be using the site and they are therefore not considered further in this report.

2.8. Otters *Lutra lutra* and water voles *Arvicola amphibious* are not considered further in this report due to the lack of running water on site, distance to the nearest watercourse and the small scale of the application site.

[2] OS Grid ST 87503 23018

Site Overview

2.9. The site is located in Shaftesbury, a market town in Dorset. Surrounding the site to the north, west and south are suburban houses with medium sized gardens. and some recreational parks throughout the area. There is a large network of agricultural fields to the east of the site with areas of woodland (see **Figure 1**).

2.10. The wider landscape to the east comprises arable fields with a fairly well connected system of hedgerows and scattered parcels of priority habitat deciduous woodland containing ancient and replanted woodland (see **Figure 2)**.

Figure 1. Site location within local landscape (Copyright Google Maps, 2023)

Figure 2: Site location within the wider landscape (Copyright Google Maps, 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 Ecological Impact Assessment in the UK. The presence of protected species within a site are a material consideration during the planning process. Protected species and habitat surveys 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).

Relevant Legislation

3.4. The principal pieces of legislation relating to wildlife and of relevance to this report are:

1. *EU Habitats Directive (1992);*
2. *EU Birds Directive (1979);*
3. *Conservation of Habitats and Species (Amendment) Regulations 2017;*
4. *The Wildlife and Countryside Act 1981 (as amended);*
5. *The Natural Environment and Rural Communities Act 2006;* and
6. *The Protection of Badgers Act 1992* (extended under *The Hunting Act 2004*).

3.5. The above legislation aims to protect sites and species and give detailed descriptions of exactly how these features are protected and what actions would constitute an offence.

3.6. See **Appendix 2** for full details of protected species legislation.

National Planning Policy

3.1. 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.

3.2. Chapter 15 ‘Conserving and enhancing the natural environment’ details what local planning policies should seek to consider with regard to planning applications.

3.3. 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 lease 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 minimise adverse impacts on the designated area.

3.4. 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 ro 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 conserved 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.

3.5. *Circular 06/05: Biodiversity and Geological Conservation* provides guidance on the application of the law relating to planning and nature conservation and complements the *National Planning Policy Framework*.

3.6. *Biodiversity 2020: A strategy for England's wildlife and ecosystem services* provides the *UK Biodiversity Action Plan* and country level biodiversity strategies for England, based on the list of habitats and species listed on *Section 41* of the *Natural Environment and Rural*

Communities Act 2006. These are considered the habitats and species of principal importance requiring conservation action.

Local Planning Policy

3.7. The local planning policy for the site is the North Dorset District Council Local Plan, with relevant policies comprising:

- *Policy 4: Developers should demonstrate that their proposals will not have significant adverse effects, including cumulative effects, on internationally important wildlife sites. The best and most versatile agricultural land will be safeguarded from permanent loss unless it can be demonstrated that there are no suitable alternative sites, or that the proposal has significant economic or social benefits that outweigh the loss of the land from agricultural uses, or that the proposal would support an existing agricultural business.*

- *Policy 15: Development will be required to enhance existing and provide new green infrastructure to improve the quality of life of residents and deliver environmental benefits. Where the full requirement for green infrastructure is not provided on-site, development would be expected to provide new green infrastructure off site, and/or enhance (or make a contribution towards the enhancement of) existing green infrastructure off site.*

3.8. The local biodiversity action plan relevant to the site is *Dorset Biodiversity Strategy*. It aims to set out a long-term strategy for biodiversity conservation within Dorset and provide a series of objectives and actions for achieving successful conservation of habitats and species across the county.

3.9. The *Dorset Biodiversity Strategy* was published in 2003 by the Dorset Biodiversity Partnership. In line with the national UK Biodiversity Action Plan, 32 of the 45 Uk Priority Habitats were identified as occurring in Dorset. In addition, a third of the 560 UK Priority Species occur in Dorset.

3.10. The *Dorset Biodiversity Audit* (2003) also identified local priority species based on local threat, decline, rarity and the significance of the local population. Several species are either extinct or possibly extinct in the county, but are included within the assessment. Where these species persist elsewhere they may return of their own accord if conditions are suitable.

3.11. The Dorset Biodiversity Strategy aims to achieve the following:

- Translate national targets for species and habitats, as specified in the UK BAP into effective action at the local level.
- Identify conservation targets for species and habitats appropriate to the local area, and reflecting the values of people locally.

- Develop local partnerships to ensure that programmes for biodiversity conservation are maintained in the long term.
- Provide a basis for monitoring progress in biodiversity conservation, at both local and national levels.

Dorset Biodiversity Appraisal Protocol

3.12. Dorset Council have committed to the principle of net gain for biodiversity and require enhancements to be clearly over and above the required mitigation and compensation:

- All householder applications for alterations and extensions must provide a minimum of one nest box for birds or one built-in tube for bats.
- All new houses / buildings on the edge of developments backing onto open countryside must have built-in bat roosting tubes.
- All new residential developments must include bird nesting and bat roosting provisions built-into the fabric of new buildings with 50% of all new houses on residential developments having built-in provision for bats such as tiles, tubes, bricks and boxes mounted within lofts and 50% of all new houses on residential developments having built-in boxes for birds reliant upon buildings such as swift, swallow and house martin.
- Residential developments must also include suitable lighting schemes, hedgehog friendly gaps in garden fencing between houses, bee bricks (for developments of a single new dwelling upward; a minimum of two bee bricks per dwelling) and fruit trees.

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 Dorset Council Planning Portal was searched for past and pending planning applications that may have associated ecological documents detailing results of bat surveys;
- A data search was requested from Dorset biodiversity records centre for non-statutory designated sites, and protected and notable species within 2 km; and
- Google Maps and Ordnance Survey (OS) Leisure Maps was utilised to view aerial photographs, maps and mapnik data, and to assess the ecological context of the site within the wider landscape.

4.2. Natural England has developed a tool to help assess the potential risks to Sites of Special Scientific Interest (SSSIs) by proposed developments. These are known as 'Impact Risk Zones' (IRZs) and they define the area around a SSSI that could be sensitive to development, considering the particular sensitivities of the feature for which the site is designated.

4.3. The IRZs help inform whether a development proposal may affect a SSSI and if so, whether it is necessary for the Local Planning Authority (LPA) to seek pre-application advice from Natural England. Information on the IRZs was determined from the MAGIC website to determine if the LPA is required to seek consultation for the current development.

Phase 1 Habitat Survey

4.4. A Phase 1 habitat survey was conducted by Principle Ecologist Mike Cummings MSc (Hons) MCIEEM and Ecologist Elvin Delaney BSc (Hons) on 15th March 2023, and an update walkover survey was carried out by Assistant Ecologist Jonathan Bayliss BSc (Hons) on 29th September 2023.

4.5. This survey assessed habitats present within the application red line boundary for their potential to support protected species, including:

- Bats;
- Great crested newts;
- Common amphibians;
- Reptiles;

- Dormice;
- Other terrestrial mammals, including hedgehogs *Erinaceus europeaus* and badgers*;*
- Breeding birds; and
- Invertebrates.

4.6. The site was also searched for non-native, invasive plant species, with particular care to search for the most commonly occurring and problematic species, such as Japanese 13 knotweed *Fallopia japonica*, Indian balsam *Impatiens grandiflora* and giant hogweed *Heracleum mentegasianum*.

4.7. The trees were assessed from the ground for evidence of use by bats and birds. The search was completed using a torch and binoculars. Trees were assessed in accordance with BCT guidelines for bat roosting features, such as storm damage, rot holes, ivy cover, flaying bark and splits in the trunk. Trees were also assessed for their nesting bird potential.

Reptile presence/absence survey

4.8. In order to assess reptile populations at the site, reptile refugia surveys were undertaken. 40 artificial refugia were placed around the site (see **Figure 3** below) in areas of suitable reptile habitat on the 12th September 2023. Refugia were left in-situ for two weeks prior to the first survey visit in order for the refugia to "bed in". Each survey at the site was undertaken in suitable weather conditions as set by guidelines by the Herpetofauna Workers Manual (Gent & Gibson, 1998), Froglife (1999) and JNCC (2012).

Figure 3: Reptile survey artificial refugia locations (yellow dots)

4.9. Seven reptile refugia checks were undertaken in September and October 2023 by Assistant Ecologist: Jonathan Bayliss BSc (Hons).

4.10. During the surveys all refugia were checked by the surveyor on each visit, whilst carefully observing the nearby vegetation and already present refugia on route for any movement from disturbed reptiles. Following the final survey for reptiles the artificial refugia were collected and removed from site.

4.11. A summary of reptile refugia checks and weather conditions during the visits can be found in **Table 1**, below.

Table 1: Data and weather conditions of Reptile Refugia Checks

Date	Temperature (°C)	Cloud cover (Oktas)	Wind (Beaufort)	Precipitation
25/09/23	19	3	2	0
29/09/23	14	0	1	0
03/10/23	15	4	3	0
06/10/23	15	5	1	0
09/10/23	19	3	2	0
11/10/23	17	7	1	0
16/10/23	9	4	3	0

Limitations

4.12. Ecological surveys are limited by factors that affect the presence of plants and animals such as the time of the year, weather, migration patterns. The surveys were undertaken inMarch, September and October and therefore represent a valid sample of ecological evidence present in those seasons.

4.13. No other limitations were encountered, or assumptions made during either the desk study or the field survey and it is considered that with the access gained and recording undertaken an accurate assessment of the site's ecological importance has been made.

4.14. This report remains valid for 2 years from the date of the survey, however, a walkover survey within this period may be required to demonstrate whether or not the habitats have remained as described.

4.15. The reptile survey was completed towards the end of the activity season, therefore it is noted that a survey completed over a longer time period, or within the peak activity period of April - May, has the potential to record higher numbers of common reptiles. However, refugia were given a suitable amount of time to 'bed in' before checks were undertaken, and checks were all carried out within the time period recommended within the survey guidelines, therefore the data collected is considered sufficient to assess the presence/ absence of common reptiles within suitable habitat at the site.

4.16. See **Appendix 3** for general survey limitations.

5. SURVEY RESULTS

Desk Study

Designated Sites

5.1. There were no statutory designated areas located within 2 km of the application site.

5.2. The site is located within a number of SSSI Impact Risk Zones (IRZ). The proposed works do not come under any description/category of development which would require the LPA to consult Natural England.

5.3. Two European Protected Species Licences were noted (below) within 1 km of the site.

- 2014-4803-EPS-MIT was granted for great crested newt approximately 150 m to the north.
- EPSM2009-720 was granted for brown long-eared bat Plecotus auritus, approximately 500 m to the south.

5.4. A check of North Dorset planning portal revealed there were no relevant planning applications that could cumulatively impact the ecology of the site.

5.5. The onsite (and their continuation offsite) native hedgerows are categorised as UK Biodiversity Action Plan (UKBAP) priority habitats. Several parcels of UKBAP priority habitat deciduous woodland (some categorised as ancient woodland) lie within approximately 1 km of the site to the north and east . An area of lowland meadow is located 1.5 km to the north west and patches of traditional orchard are located 1.2 km to the south west.

5.6. There are two areas of ancient woodland within 1 km of the application site, comprising ‘Great Hanging, approximately 1 km to the north and ‘Longbottom’, approximately 500 m to the east.

Phase 1 Habitat Survey

5.7. Habitats on site are outlined in **Figure 4 - Habitat Map**, with descriptions given below**.** All habitats detailed below are categorised according to the UKHABS method of classification. The habitats are given with their respective UKHABS codes.

Modified Grassland (UKHABS g4)

5.8. The dominant habitat within the proposed site is g4 modified grassland. This was separated in to two areas onsite, both of which contained similar species but were differentiated by the way in which they had been managed, one area had been kept to a short sward and the other left to grow to a longer sward length, forming a rough grassland area.

5.9. The short sward area forms an amenity grassland area in the west of the site between the hedgerow (running north-south) and road. It was cut short (below 20 cm) at the time of survey and appears to be regularly maintained at a short sward height for recreation and highways purposes.

5.10. The longer sward was evident in the rest of the site ('Mampitts Meadow') to the east of the native hedgerow (running north to south) and formed a tussocky, rough grassland habitat.

5.11. Species recorded included perennial rye grass *Lolieum perrene,* cocks foot *Dactylus glomerata*, white clover *Trifolium repens,* creeping buttercup *Ranunculus repens,* dandelion *taraxacum officinale*; broad leaved dock *Rumex obtusifolius*; hogweed *Heracleum sphodylium,* plantain *Plantago major,* spear thistle *Cirsium vulgare,* cranesbill *Geranium pratense*.

Ruderal/Ephemeral (UKHABS g4 secondary code 81)

5.12. An area of tall ruderal vegetation was present along and within a dry ditch on the southern boundary at the edge of the modified grassland. Species consist nettle *Urtica dioica*, white clover, cleavers *Galium aparine*, dandelion and curly dock *Rumex crispus.*

Bramble scrub (UKHABS h3d)

5.13. Several fragmented patches of bramble scrub have encroached upon the grassland at the edges of the site.

5.14. A small area of bramble scrub was enclosed by a close boarded fence to the south east of the site, this had very recently been cut back to ground height to enable a topographical survey.

Mixed scrub *(UKHABS h3h)*

5.15. An area of mixed scrub is present along the southern boundary and forms a link with ruderal area of grassland. This habitat has likely developed from the species rich native hedgerow (with mature field maple trees) that runs along a raised bank within it (parallel to the road). It presently reaches a width of approximately 10-12 m between the grassland and the road.

5.16. Species recorded included ash Fraxinus excelsior, hawthorn Craetagus monogyna, blackthorn Prunus spinosa, hazel Corylus avellana, dogwood Cornus sanguinea, crab apple Malus sylvestnis, field maple Acer campestre, spindle Euonymus *europeaus and* elder *sambucus nigra.*

Species Rich Native hedgerow (UKHABS h2a5)

5.17. A species rich native hedgerow runs north-south on a raised bank between the amenity grass area and the rough grass area. This hedgerow had a number of large gaps formed by informal walkways and a gateway. A hedgerow is also present along the southern boundary of the site on a raised bank within the mixed scrub area which also contains a number of mature field maple trees.

5.18. Species recorded included ash *Fraxinus excelsior*, hawthorn *Craetagus monogyna*, blackthorn *Prunus spinosa*, hazel *Corylus avellana,* dogwood *Cornus sanguinea*, crab apple *Malus sylvestnis*, field maple *Acer campestre.* The more mature trees consist of field maple and multi stemmed ash.

Bats

5.19. A licence (EPSM2009-720) was granted for damage/destruction of a roost for brown long-eared bats, approximately 500 m to the south of the application site.

5.20. The DERC data search returned 20 records of five different species of bats within 1 km of the site. The data included records of serotine *Eptesicus serotinus (4 records)*, myotis bat *Myotis.sp (2 records)*, noctule *Nyctalus noctula (3 records)*, common pipistrelle *Pipistrellus pipistrellus* (8 records) and soprano pipistrelle *Pipistrellus pygmaeus (3 records).*

5.21. The trees within the north-south running native hedgerow were assessed to be unsuitable for roosting bats due to their size and lack of potential roosting features. This hedgerow forms a linear feature suitable for commuting and foraging bats.

5.22. Assessment of the larger trees within the mixed scrub along the southern boundary was restricted by visibility from the dense foliage. From the limited observations no roosting features were observed. There are number of larger older field maples within this section that could support roosting features. This mixed scrub/hedgerow forms a linear feature suitable for commuting and foraging bats.

5.23. There were no buildings on site.

Hazel Dormice

5.24. There were no EPS licenses for dormouse located within 1 km of the application site.

5.25. The DERC species data identified 1 record of a hazel dormouse found within a nest in a nest box, approximately 350 m east of the site.

5.26. The mixed scrub/native hedgerow that forms the southern boundary represents suitable habitat for dormice. It has a dense understory of mixed species and is well connected by a hedgerow network to nearby areas of other mixed scrub, native hedgerow and deciduous woodland in the wider landscape (Including the location of the above dormouse record) to the east.

Great Crested Newts (GCN) and Other Common Amphibians

5.27. License 2014-4803-EPS-MIT was granted for great crested newt approximately 150 m to the north of the site. It allows for the damage of a resting place. The grid reference for this licence sits in what is presently a fenced back garden in a recently constructed housing development. It is entirely surrounded by housing, fenced gardens and urban roads. It offers no connectivity to the proposed site.

5.28. The DERC species data identified 2 records of GCN at a pond, approximately 600 m north of the site.

5.29. The longer sward modified grassland (rough grassland) on site provides opportunities for foraging/commuting and hibernating GCN.

5.30. Suitable habitat also exists within the adjacent native hedgerows and mixed scrub areas.

5.31. There are no ponds or water bodies on site. One pond was located 350 m to the south east and was beyond migratory barriers of a road and significant areas of hardstanding. No Habitat Suitability Index (HSI) assessment was conducted due access constraints, its distance from the site and the migratory barriers that lay between it and the application site.

Reptiles

5.32. The DERC species data identified one record of a grass snake *Natrix helvetica* approximately 1 km to the south west. The urban conurbation of Shaftesbury lays between the site and the location of this record.

5.33. The longer sward modified grassland, represented rough grassland habitat suitable for reptiles.

5.34. The onsite habitats of short sward modified grassland and de-vegetated bramble scrub offered negligible suitable habitat for reptiles.

5.35. The presence/absence reptile survey returned **no records of reptiles.** General observations from the survey included a high incidence of domestic cats onsite which may contribute to the lack of reptiles due to predation in the area.

Birds

5.36. The DERC data search identified a number of common urban species of bird.

5.37. The modified grassland and de-vegetated bramble scrub offered negligible suitable habitat for breeding birds.

5.38. The native hedgerow, bramble scrub and mixed scrub on site offered suitable habitat for breeding birds.

Invertebrates

5.43. The DERC data showed records of invertebrates within 1 km. These were limited to single entries for dotted bee-fly Bombylius discolour, white - letter hairstreak *Satyrium w-album*, wall brown *Lasiommata megera,* small heath *Coenonympha pamphilus.*

5.44. The habitats onsite of modified grassland and bramble scrub offered some suitable habitat for foraging invertebrates. The bramble scrub also offered suitable shelter for various stages of some of their life cycles.

Habitat Walkover Images

Image 1. Short sward modified grassland and close boarded fence

Image 2. De-vegetated bramble scrub enclosed by close boarded fence

Image 3. Gateway between native hedgerow. Viewed from the western edge of the site boundary

Image 4. Native hedgerow with trees

Image 6. Modified (rough) grassland

Image 4. Southern boundary showing species rich native hedgerow.

Contains OS data © Crown copyright (2023) ***NOTE:*** *Areas are indicative and are not shown to exact scale.*

Legend

- Red Line Boundary

HEDGEROWS

- Native hedgerow
- Native hedgerow with trees associated with bank or ditch
- Species-rich native hedgerow with trees associated with bank or ditch

HABITATS

- Bramble scrub
- Mixed scrub
- Modified grassland
- Ruderal/Ephemeral

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Project: Mampitts Green Community Hub

Figure 4: Habitat Map

Date: 10/11/2023

6. IMPACT ASSESSMENT

Sensitive Receptors/Ecological Important Features

6.1. The following habitats and species have been evaluated as being subject to potential adverse effects in the absence of mitigation:

- Native species hedgerow;
- Mixed scrub;
- Long sward modified grassland (rough grassland)
- Hazel Dormice;
- [redacted]
- Breeding birds.

Designated Sites

Baseline

6.2. The site does not lie within any statutory designated sites, there are no designated sites within 2 km of the application site and that the nearest statutory site is some 2 km to the west at Breach Fields SSSI (1001072).

6.3. Native hedgerow Priority habitat exists onsite but will be retained and will not be be impacted by the works. There are areas of priority habitat deciduous woodland within 600 m of the proposed site. Their distance and size of the development would mean any impact upon them would be negligible.

Potential Impacts

6.4. Given the small scale of the proposed development and distance from designated sites it is considered likely that there will be no impacts on designated sites and priority habitat as a result of the proposed plans.

Habitats

Baseline

6.5. The native species hedgerow on site is of high intrinsic ecological value, the bramble scrub and mixed scrub is of moderate ecological value, and the modified grassland and ruderal/ ephemeral vegetation is of low ecological value.

Potential Impacts

6.6. The areas of native hedgerow and mixed scrub are to be retained under the current plans. There is potential for a high local impact on the root systems of these trees and shrubs. This impact would be on a local level only.

6.7. Areas of modified grassland and small patches of bramble scrub will be lost due to the proposals. The remaining areas will be enhanced with a native species planting scheme

under the proposed landscape plans. The details of this represent an ecological improvement to the site and are discussed further below. The loss of this habitat, considering its relatively low ecological value together with the frequency of similar habitats within the surrounding landscape, comprises a permanent Low negative impact at a Local level and is unavoidable.

Mitigation

6.8. The loss of modified grassland (both long and short sward) and bramble scrub on site will be mitigated through a favourable native species planting scheme outlined below in and the landscape plan (see **Figure 5**).

6.9. A Landscape Ecological Management Plan (LEMP) will be created to ensure the ongoing appropriate ecological management of the site.

6.10. Enhancement to the modified grassland areas on site will be achieved by scarifying and over-seeding the existing grassland with a species rich native wildflower seed mix, and scraping back discrete areas for seeding with a species rich native wildflower/grass mix.

6.11. Improved species diversity within the grassland will be established with an appropriate seeding and cutting regime for each area to be detailed in the LEMP. Habitat areas to be achieved from these enhancement works are shown on the landscape plan planting scheme (**Figure 5**) and include:

- Species rich amenity grassland to be seeded with a low-growing wildflower mix such as Emorsgate EL1 or similar. These areas will be managed to a short sward with regular cuts.
- Longer species rich margins to be seeded with an appropriate native wildflower mix such as Emorsgate EM2 or similar, and managed with less frequent cuts.
- Rough grassland meadow to be over-seeded with a native wildflower mix suitable for tussocky grassland such as Emorsgate EM10F or similar, and managed as rough grassland.

6.12. The native hedgerow with trees and the mixed scrub area will be retained and protected using HERAS (or similar) type fencing to prevent root damage during the construction phase. These tree root protection areas must be protected in line with BS5837:12.

6.13. The loss of the bramble scrub will be mitigated by the creation of mixed scrub beds as proposed in the landscape planting scheme (see **Figure 5**).

6.14. In addition, an area of wildflower meadow will be created where the ground will require levelling for access to the south west of the site (see **Figure 5**). When groundworks are complete, this area will be seeded with an appropriate species rich native wildflower meadow mix such as Emorsgate EM2 or similar and managed appropriately as wildflower meadow.

6.15. If any other areas of grassland on site require re-seeding due to damage during construction, they will re-seeded with a species rich native wildflower meadow mix such as Emorsgate EM2 or similar.

6.16. Ecological losses and gains for the purposes of Dorset Biodiversity Appraisal (DBAP) are summarised below in **Table 2**.

Table 2: Habitat losses and gains for proposed development at Mampitts Green

Total area of development site (ha): 0.72

	Baseline information		**Post development (on site)**			**Net gain**
Habitat type	**Approx. area/ length (ha/m/no)**	**Quality/ management**	**Retained (ha)**	**Enhanced (ha)**	**Created (ha/m/no.)**	**Area (ha)/ length(m)/no. trees**
Modified Grassland	0.57	Species poor with area of short regularly cut amenity and area of unmanaged rough grassland and tall ruderal	0	0.45	0	N/A
Mixed scrub	0.09	Moderate	0.09	0	0.05	0.05
Bramble scrub	0.06	N/a	0.01	0	0	N/A
Hardstanding/ Buildings	0	N/a	0	0	0.05	N/A
Gravel pathways	0	N/a	0	0	0.06	N/A
Wildflower meadow	0	0	0	0	0.01	0.01
Urban/rural/ native tree	5	N/a	5	0	21	21
Species rich Native hedgerow	78	Good	78	0	0	0
Native Hedgerow	38	Good	38	0	0	0

Given the above avoidance and mitigation strategies, it is considered that there will be no residual impacts on habitats.

Figure 5: Proposed Landscape Plan (supplied by PWCR - for full plan see **Appendix 1**).

Protected Species

Bats

Baseline

6.17. There were no buildings on site and all trees were assessed as negligible for roosting bats.

6.18. The native hedgerow (running north-south) and tree line provide suitable linear features for foraging and commuting bats, as does the area of mixed scrub and hedgerow along the southern boundary. Some street lighting is already present within and adjacent to the site which lowers the value of these habitats for bats. The below mitigation is precautionary, to prevent degradation of the linear features for foraging and commuting bats.

Potential Impacts

6.19. The proposals are not anticipated to impact roosting bats. Potential moderate impacts to foraging / commuting bats may exist in the form of further light spillage onto the hedgerows on site.

Mitigation

6.20. A sensitive lighting plan (including baseline and proposed lux contours) will be required to prevent further degradation to the linear features adjacent to the site, specifically ensuring that light spill does not impact the value of retained and protected habitats for bats

6.21. It is likely that some external security lighting will be required around the building footprint and at the parking spaces, to ensure health and safety compliance. Any new external lighting must be directed to avoid light spillage onto the native hedgerow and mixed scrub areas. Upward lighting will be avoided by fitting lights with downward facing baffles and fixtures to ensure no light spillage above an angle of 70°. Lighting will be triggered by motion sensors using a short timer where possible and in compliance with building regulations. Warm white LEDs will be used in preference to bright white LEDs. All lighting plans will be reviewed by a suitably qualified ecologist before finalising and submitting for approval.

6.22. See **Appendix 4** for further guidance regarding bats and lighting.

6.23. Given the above avoidance and mitigation strategies, it is considered likely that there will be no residual impacts on bats.

Dormice

Baseline

6.24. The DERC species data identified 1 record of a hazel dormouse found within a nest in a nest box, approximately 350 m east of the site.

6.25. The mixed scrub and native hedgerow on the southern boundary provides suitable habitat for dormice and is connected to the wider landscape (with further suitable habitat) and ancient deciduous woodland 500 m to the east.

6.26. The mixed scrub habitat and native hedgerow will be retained and remain as the southern boundary to the site. If this remains the case any long-term impacts to local dormice populations are considered to be negligible.

Potential Impacts

6.27. There is potential for a low impact disturbance to the mixed scrub/native hedgerow habitat during the construction phase. This is considered to be temporary and on no more of a local level.

6.28. If the proposed plans are altered to include removal or alteration of the above dormouse habitat, a dormouse survey would be required to ascertain any potential impacts for this species.

Mitigation

6.29. Mitigation is recommended in the form of fencing for this area to avoid disturbance. This would take the same form as suggested above (6.15) for tree root protection zones.

6.30. Given the above avoidance and mitigation strategies, it is considered likely that there will be no residual impacts on dormice.

Great Crested Newts and Other Common Amphibians

Baseline

6.31. License 2014-4803-EPS-MIT was granted for great crested newt approximately 150 m to the north of the site. It allows for the damage of a resting place. The grid reference for this licence sits in what is presently a fenced back garden for a new house and is entirely surrounded by housing, fenced gardens and urban roads. It offers no connectivity to the proposed site.

6.32. The (longer sward) modified grassland, native hedgerow and mixed scrub habitats provide suitable habitat for foraging/commuting and hibernating GCN.

6.33. There are no ponds or water bodies on site. One pond was located 350 m to the south east and was beyond migratory barriers of a road and significant areas of hardstanding.

Potential Impacts

6.34. Given the distance from the nearest suitable pond and the migratory barriers between the pond and the site, it is highly unlikely that GCN are using the site. No negative impacts to this species from the proposed plans are anticipated.

Common Reptiles

Baseline

6.35. The longer sward modified grassland, native hedgerow and mixed scrub provide suitable habitat for foraging/commuting reptiles, however, the presence/absence reptile survey returned **no records of reptiles** on site.

Potential Impacts

6.36. Given the results of the presence/absence survey, it is considered highly unlikely that reptiles are using the site, therefore, no negative impacts from the proposed plans are anticipated.

Breeding Birds

Baseline

6.37. The native hedgerow, bramble scrub and mixed scrub on site offered suitable habitat for breeding birds.

Potential Impacts

6.38. The native hedgerow and mixed scrub is to be retained, and much of the bramble has already been cleared, however, there are potentially high local impacts to nesting birds during the construction and de-vegetation phase of the project, particularly if the de-vegetated bramble is allowed to re-establish or any further areas of bramble scrub are to cleared,

Mitigation

6.39. Any further clearance of the bramble scrub required should take place outside of the bird nesting season (March to August inclusive). If this is not possible, the bramble will be surveyed for nesting birds immediately prior to clearance by a suitably qualified ecologist.

6.40. During construction works, the native hedgerow and mixed scrub habitat will be protected with fencing in the same manner as outlined above (6.15), tree root protection zones.

6.41. Given the above avoidance and mitigation strategies, it is considered likely that there will be no residual impacts on breeding birds.

Invertebrates

Baseline

6.49. The modified grassland, bramble scrub, mixed scrub and native hedgerow on site offer suitable habitat for local communities of foraging invertebrates and shelter for various stages of their life cycles.

Potential Impacts

6.50. The native hedgerow and mixed scrub habitat will be retained under current plans. The impacts from the loss of the modified grassland and bramble scrub habitat would be of local importance only.

Mitigation

6.51. It is considered that the proposed native species planting scheme for the site will mitigate the loss of a small amount of habitat. In the long-term the management of the modified grassland to create a more species rich rough grassland will result in a significant increase in pollen and nectar resources.

6.52. Given the above avoidance and mitigation strategies, it is considered likely that there will be no residual impacts on invertebrates.

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, and landscaping proposals, should be carefully considered. These features can be simple and inexpensive, please see below for specific recommendations.

Habitats

Tree planting

7.2. At least 21 native 'specimen' trees will be planted throughout the site (see **Figure 5**). These will consist of both bare root stock and a smaller number of larger standard trees.

Hedgerow

7.3. The north south running parcel of native hedgerow would further benefit from an appropriate management plan to improve its base and structure for the benefit of mammals, birds and invertebrates. Appropriate management to enhance the hedgerow will be considered within a LEMP.

Wildlife beneficial landscaping scheme

7.4. The proposed landscaping scheme will seek to enhance biodiversity, improve connectivity to the surrounding habitats and provide food and shelter for a wide range of wildlife. The proposed mixed scrub planting and grassland areas will 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 will be non-invasive species.

Invertebrates

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. The main aim of management for invertebrates is to maintain a diverse structure, with areas of short sward, bare ground, tussocks and flowering herbaceous plants. Native plants should be allowed to set seed to enhance the ecological value of the site and increase the availability of food (nectar and pollen) for foraging insects.

Birds

7.6. At least one integrated universal nest brick such as Green & Blue integrated swift block (or similar) is will be installed in the new building on site to provide opportunities for swifts, sparrows and other bird species associated with buildings. This should be fitted on a side of the building that gets some shade during the day, to give protection from heat, but not over windows or near to vents. Boxes should be sited at least 5 m above ground, with clear adjacent airspace so the birds can access it in high-speed direct flight.

7.7. Alternatively, tree mounted wood stone bird boxes such as Vivara Pro Seville 32 mm or 5KL Schwegler Nuthatch Nest Box (or similar) can be installed in the trees along the western boundary to create additional opportunities for nesting birds. Bird boxes should be installed at least 4 m from ground level and with unobstructed air space in front (see **Appendix 5** for further details).

Bats

7.8. At least one integrated bat box such as Green & Blue integrated bat block (or similar) will be installed in the new building on site, located as high as possible on the south facing gable end. Integrated boxes should be installed at a height of at least 4 m, away from windows or doorways, preferably with with good connectivity to surrounding linear features.

7.9. Alternatively, an external bat box such as a Vincent Pro (or similar) can be installed externally on the building or on mature trees on site, to provide roosting opportunities for a wide range of bat species.

7.10. In addition, it is recommended that a “wet’ ridge-line is used to would enable ridge-tile bat roosting features to be incorporated in to the structure, examples of which can be found in **Appendix 5**.

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APPENDICES

APPENDIX 1 - PROPOSED LANDSCAPE PLAN

SOFT LANDSCAPING KEY:

1496.9m²	Species rich amenity lawn, regular cut, with close mown path to vewpoint
922.1m²	Longer species rich margins to scrub islands, with mown paths through
1783.9m²	Improved rough grassland /meadow, 1 or 2 cuts per annum
108.6m²	Wild-Flower Area
173.2m²	Scrub with scattered trees
	Proposed specimen tree, native species
371.3m²	Scrub island beds, native species
1137.5m²	Existing Trees and hedgerows to be retained and protected

HARD LANDSCAPING KEY:

	Bespoke shelter / Social space
	Playable structure
	Timber post and rail fence to protect bank and ditch below
51.3m²	Timber picnic benches on self-binding gravel base
	Timber benches with arms and back on self-binding gravel base
56.9m²	Playable entrance path in self-binding gravel with sleeper steps
464.8m²	Step-free accessible path in self-binding gravel
	Viewpoint with interpretive / art fature
186.2m²	Parking
121.6m²	Paving
219m²	Proposed community hub

Rev	Description	Drawn By	Date
A	Amendments for ecologist	LE	03/11/2023

Client: Shaftesbury Town Council	Drawn By: LE
Dwg Title: Landscaping Layout	Checked By: GC
Project: Mampitts Community Hub	Scale 1:500 @A3
	Date: 2nd Nov 2023
Job No.: 5166 / Dwg No.: P11	Revision: A

DRAFT

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N

1:500 0 5 10 15 20

Landscaping Plan

Scale 1:500

APPENDIX 2 - 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.

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.

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 Principal 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 3 - 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.

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.

APPENDIX 4 - BATS AND LIGHTING

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Bats & Lighting

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 / Behaviour	High	Medium	Low
Maternity roost	All species	-	-
Night roost	*Rhinolophus hipposideros* *Rhinolophus ferrumequinum* *Myotis* spp. *Plecotus* spp.	*Pipistrellus* spp. *Nyctalus* spp. *Eptesicus serotinus* *Barbastella barbastellus*	-
Emergence	All species	-	-
Foraging	*Rhinolophus hipposideros* *Rhinolophus ferrumequinum* *Myotis* spp. *Plecotus* spp.	-	*Pipistrellus* spp. *Nyctalus* spp. *Eptesicus serotinus* *Barbastella barbastellus*
Commuting	*Rhinolophus hipposideros* *Rhinolophus ferrumequinum* *Myotis* spp. *Plecotus* spp.	-	*Pipistrellus* spp. *Nyctalus* spp. *Eptesicus serotinus* *Barbastella barbastellus*
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.

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Bats & Lighting

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

Bat Conservation Trust guidance note 08/18 'Bats and artificial lighting in the UK & http://www.cost-lonne.eu/recommendations/

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APPENDIX 5 - ENHANCEMENTS

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Integrated Bat Boxes

How to Install

Integrated bat boxes can be installed into the brickwork of buildings to provide a roosting spot for bat species.

Being embedded in the masonry of a building, they do not impact the exterior seal of structure and are commonly integrated in new builds.

With some modification or bespoke design, integrated bat boxes can be installed in such a way that it does not interfere with a building's exterior facade.

The 1FR bat tube has a 45 degree angle for bats to land on and crawl upwards into the bat tube. It has been designed to be installed within or adjacent to the the external skin of the block work or brickwork.

For a rendered finish, the 1FR bat tube can be built into the external skin of breeze blocks (acting as a block) and be rendered over (ensuring the access point is left clear). Ridges should be created in the render immediately below the access point, which will aid the bats when crawling into the bat tube.

For a brickwork finish, the 1FR bat tube should be installed within the brickwork, set back slightly to allow the front to either be rendered over or for a continuity of brick slips to be mortared over the top of the tube. The upper brick slip should overlap the access point and the lower brick slip should be in line with the 45 degree angle of the bat tube.

Alternatively, **Habibat** bat tubes can be purchased that are designed for brickwork design and can be custom made.

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External Bat Boxes

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

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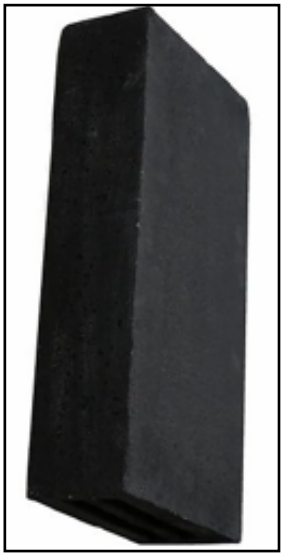
External Bat Boxes

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 ecostyrocrete
- 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

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Bird Boxes

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

“Universal’ Swift Nest Box

- Swift numbers are declining partly due to a loss of nesting sites
- Install a minimum of 5m high with unobstructed airspace in front of the nest
- Non- Integrated models of swift nest boxes are also available
- Can be used by a wide variety of migratory birds

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Bird Boxes

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 Next 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

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