



Preliminary Ecological Appraisal
(PEA)

Rosecot
15 New Cut, Hayling Island, Hampshire
PO11 0NB

GR: SU 72040 03430

February 2024





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Report Reference	PEA_Rosecot_Thompson & Hughes_February 2024
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Revision no	01
Issue date	February 2024
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Declaration of Compliance

BS 420202013

This study has been undertaken in accordance with British Standard 420202013 Biodiversity, Code of practice for planning and development, unless specifically stated otherwise.

Code of Professional Conduct

The information which we have prepared is true and has been prepared and provided in accordance with the Chartered Institute of Ecology and Environmental Management's Code of Professional Conduct. We confirm that the opinions expressed are our true and professional bona fide opinions.

Validity of Survey Data and Report

The findings of this report are valid for 12 months from the date of survey, unless the site has been maintained in exactly the same condition, in which case the report can be considered valid for 24 months once verified by the acting ecologist. Please be aware that some Local Planning Authorities (LPAs) require an update once 12 months has elapsed. If work has not commenced within this period, an updated survey by a suitably qualified ecologist may be required.

Legal and Moral Constraints and Responsibilities Summary

An overview of relevant legislation and responsibility is given within the Appendices Planning Policy and Legislation. Constraints exist for development where specific habitats or species are, or are potentially, within or adjoining a site proposed for development.

It is the responsibility of the client and those in receipt of this report to ensure ALL personnel or associated peoples likely to be involved in ANY management or works to this site - including but not limited to the seasonal flailing of hedgerows or cutting of grassland/scrub - are fully informed of any restrictions in force regarding the possible presence of protected species on this site as outlined in this report. If there is any doubt as to what works or management of habitats may legally occur, consultation with the acting ecologist is essential.

Avoidance, mitigation, compensation and enhancement are site specific and apply as herein.

In all instances where Mitigation is given, also refer to:

- Any further survey work for protected species (Phase 2 Surveys) recommended, or their results.
- General Good Practice during Construction Stage.
- Law and Legislation pertaining to specific species (plants and animals)
- Prevention of the spread of native and non-native invasive plants and animals.
- Avoidance of Wildlife Crime <http://www.nwcu.police.uk/>

Further advice if species are found onsite during development may be sought from Ecological Surveys Ltd (Tel 01503 240846 or 07736 458609) or Natural England.



1 INTRODUCTION

1.1 Executive Summary

Table 1

Purpose of the report:	To present the results of the Extended Phase 1 Habitat Survey undertaken at the named site; assess the impacts of the proposed development on the important ecological features identified and detail applicable compensation, mitigation measures and biodiversity enhancements as appropriate.
Project Description	It is understood that the proposal is for demolition of existing building, site clearance with retention/management of hedgerow to road frontage, removal/retention of trees as recommended by Arboricultural Consultant, and additional access to highway.
Summary of Habitat	The site is composed of a mosaic of buildings, vegetated garden with overgrown vegetation, and hedges.
Summary of Impact	The site has some value for protected species and habitat will be entirely lost as a result of proposed works. Consequently, mitigation will be required.
PEA sufficiency	This report is considered sufficient for the size and scale of predicted impacts as a result of the proposal.
Habitat/Species Mitigation	Required: - <ul style="list-style-type: none"> - Seasonal Constraints for Removal of Bird Nesting Habitats - Impact Avoidance During the Construction Phase - Construction Exclusion Zones (CEZ) - Hedgerow Creation - Hedgerow Management - Artificial Lighting Strategy - Grassland Creation - Gully Pot Mesh Ladders for Amphibians/Small Mammals - Small Mammal Access Provision - Beetle / Stag-beetle Provision
Habitat & Species Enhancement/Creation	Required: - <ul style="list-style-type: none"> - Bat Roosting Provision - Bird Nesting Provision - Solitary Bee Provision - Landscaping for the Benefit of Wildlife
Baseline Biodiversity Habitat Calculation	It is understood that a biodiversity net gain does not need to be evidenced through the Statutory Metric. There is still a necessity to achieve no net loss, and ideally a net gain on site.



The LPA should ensure that any mitigation and compensation measures identified in this report, together with enhancement recommendations are 'conditioned' where appropriate.

1.2 Requirement for Ecological Survey/Assessment

Ecological Surveys Ltd were commissioned to undertake a Preliminary Ecological Appraisal (PEA) to include the potential for legally protected and notable species of the Site, and to assess the potential impact of the development on the biodiversity of the Site and its immediate environs. Ecological Surveys Ltd has not been informed of any previous surveys undertaken on this site that need to inform this report.

All ecological data and information gained through both the desktop survey and the survey work were evaluated. The important ecological features were then identified and evaluated against the potential impacts/effects that the proposed development may have on the ecology of the Site and surrounding area.

The biodiversity importance of each designated site, habitat and species is evaluated on a geographic scale: international, national, county and local.

Evaluation of designated sites considers their designation; their ecological and landscape relationship with the proposed site; and the species and/or habitat types for which the site was designated.

Evaluation of habitats considers their designation; their area, quality and viability; diversity and connectivity to the wider landscape; and structural diversity and species-richness.

Evaluation of species considers their designation, including legal protection and rarity.

When assessing the impact of the development and changes to the baseline conditions on site, predictions will be made which focus solely on the zone of influence whilst taking into consideration the lifespan of the development and the significant impacts as identified from the proposed work operations throughout the lifespan of the development.

The proposed development aims to firstly avoid and then mitigate against any potential effects/impacts on the local ecology/biodiversity, ensuring compliance with nature conservation legislation. It aims to achieve this by applying the mitigation hierarchy (as mentioned in Paragraph 118 of the National Planning Policy Framework and detailed in Paragraph: 018 Reference ID: 8-018-20140306 of National Planning Practice Guidance) as follows:

Avoidance – Significant harm to wildlife species and habitats should be avoided through design.

Mitigation – where significant harm cannot be wholly or partially avoided, it should be minimised by design, or by the use of effective mitigation measures that can be secured by, for example, conditions or planning obligations.

Enhancement - Ecological enhancement measures are those that improve the ecological condition of the development site (or an alternative site) after the development is complete. Ecological enhancement measures must, therefore, be over and above any avoidance, mitigation and compensation measures required to neutralise the impacts of the development on wildlife.



Compensation – where, despite whatever mitigation would be effective, there would still be significant residual harm, as a last resort, this should be properly compensated for by measures to provide for an equivalent value of biodiversity.

Appropriate measures to avoid and/or minimise the significant negative effects on the important ecological features have been identified. These mitigation measures aim firstly to avoid the overall effect/impact, or for those that cannot be avoided, reduce their overall effect value. It is not always possible to fully mitigate an adverse effect to neutral levels.

Under the National Planning Policy Framework, NPPF, (HM Government, 2019) local planning policies and decisions should 'contribute to and enhance the natural and local environment by:

- 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);
- 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;
- c) maintaining the character of the undeveloped coast, while improving public access to it where appropriate;
- 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;
- e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans; and
- f) remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate.

[Taken from NPPF 2019, Section 15. Conserving and enhancing the natural environment, paragraph 170, p49]

Thus, the mitigation hierarchy should be applied when considering the impacts of developments and local planning decisions on the natural environment, with the protection of important wildlife sites, habitats, species and ecosystem services; the avoidance of impacts, mitigating these impacts where appropriate, and then achieving biodiversity net gain through enhancements.

Section 15 of the NPPF 2019 goes on to state that '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 a Site 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 features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;

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

d) development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to incorporate biodiversity improvements in and around developments should be encouraged, especially where this can secure measurable net gains for biodiversity.'

[Taken from NPPF 2019, Section 15. Conserving and enhancing the natural environment, paragraph 175, p50]

The aim of development should be to deliver biodiversity net gain on site as well as limiting damage to important ecological features. Using the information gained during the desktop survey and the extended Phase 1 habitat survey, and the ecological requirements of habitats, species and local environmental conditions, biodiversity enhancements for the Site have been considered, providing opportunities to increase the diversity of habitats and species on site.

1.3 Limitations to Report

Ecological surveys are limited by factors which affect the presence of plants and animals such as the time of year, migration patterns and behaviour. The current survey was carried out in February 2024. This is not an optimal time for undertaking ecological field surveys for all species/groups. The ecological survey has not produced a definitive list of plant and animal species present on site and the absence of evidence of any particular species should not be taken as conclusive proof that the species is not present or that it will not be present in the future. However, the results of field- and desk-based surveys are considered to have been sufficient to evaluate ecological features within the predicted zone of influence to a high degree of confidence and to enable an initial assessment of potential impacts likely to require mitigating actions.

It should be noted that habitats, and the species they may support, change over time due to natural processes and because of human influence. In line with current guidelines, the survey on which this report is based is only valid for two years, after which time it will need updating. It being accepted that some LPA's now expect a survey to be updated after twelve months.



2 METHODS

2.1 Desk Based Assessment

An initial desk-based assessment was carried out by Ecological Surveys Ltd collating data relating to the site itself and up to a 2km radius or greater depending upon the import of information gathered and includes:

- Statutory and non-statutory wildlife and earth science sites
- BAP Priority Inventory Habitats
- Legally protected and nationally notable species
- Sites primarily utilised included MAGIC and National Biodiversity Network

The data gathered is considered sufficient along with the field survey to reach appropriate conclusions for the mitigation and enhancement of this site.

2.2 Phase 1 Field-based Assessment

The field survey included carrying out an Extended Phase 1 Habitat Survey, consisting of a walkover assessment of the Site using Phase 1 Habitat Survey methodology (JNCC, 2010, as amended by the Institute of Environmental Assessment (IEA, 1995)). This is a standard technique for classifying and mapping British habitats. All areas within the Site were surveyed, the main plant species recorded, and habitat type mapped. Indicators of ecological value were also noted, including the presence or signs of any legally protected or rare species.

A search was also made to identify the presence of any invasive non-native species (particularly those listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended)), including Japanese knotweed (*Reynoutria japonica*) and Himalyan balsam (*Impatiens glandulifera*).

2.2.1 Vegetation

All broad habitat types were identified, and a list was compiled of characteristic plant species within each habitat type. Where necessary, habitat types of particular botanical interest are subject to more detailed survey using methods developed for the National Vegetation Classification (NVC) (Rodwell, 1992). The vegetation recorded on site during this Extended Phase 1 Ecological Survey is described here with reference to Joint Nature Conservation Committee Phase 1 habitat terminology.

Table 2 Protected Species Grading Criteria

Grading Criteria	Justification
Confirmed Presence	Species confirmed on site through direct sighting, presence of unambiguous field signs (e.g. scat, hair, prints, nest, eggs, habitation etc.) or through desk-based assessment.
High Potential	Presence of optimal habitat features for species. Surveyed site within known range/close to known occurrence. Excellent connectivity to optimal habitat. No justification for discounting presence of species.
Moderate Potential	Presence of some suitable habitat features for species. Surveyed site within/close to known range or known occurrence but factors such as isolation/fragmentation may reduce potential. Presence of



	species is more likely than not.
Low Potential	Minimal suitable habitat present or, if present, highly degraded/fragmented. Minimal linkage to suitable habitat beyond site. Presence of species unlikely.
Negligible Potential	Site is entirely unsuitable for species. Presence of species highly unlikely.

2.2.2 Buildings

Protected Species – Built Structures

All built structures were assessed for their potential to support protected species. All external and internal areas were inspected for the presence of suitable access, egress nesting or roosting features. Such features include open access for entry or free flight, missing, slipped, broken or bowed roof materials; gaps within soffits; gaps behind fascia; gaps/holes within brickwork; louvers; lifted lead flashing and gaps around window and door casements. Features were inspected using binoculars/close range monocular and the surveyor was equipped with a high-powered torch. All accessible internal void spaces were inspected for actual evidence (field signs) of protected presence (living or dead) nesting material, droppings, fur and urine staining.

2.2.3 Badger

The surveyed area and adjacent habitats were inspected for field signs of badger activity. This includes badger setts, latrine sites, dung piles, well-used trails, prints and hairs.

2.2.4 Bats – Trees

Trees within and immediately adjacent to the surveyed area were subject to detailed visual inspection from ground level using binoculars in order to identify potential roost features (PRF) which may offer suitable opportunities for bats. These features include dense ivy cladding; woodpecker holes; rot holes; limb stubs; cavities; flaking bark; cracks and splits.

Each tree has been graded for its suitability for supporting bats based on criteria within 'Bat Surveys for Professional Ecologists Good Practice Guidelines 3rd Edition' (Collins, 2016). These criteria are detailed in Table 3.

Table 3 Bat Roost Tree Grading Criteria

Grading Criteria	Reason
Confirmed Bat Roost	Unambiguous evidence of roost bats seen emerging/entering, bats audible, droppings/urine-/fur- staining visible or known roost based on desk-based assessment.
1* - High Suitability	Trees with obviously suitable PRFs which are considered capable of supporting larger, established roosts of high conservation significance.
1 - Moderate Suitability	Trees with potentially suitable PRFs but which are not likely to support roosts of high conservation



	status.
2 - Low Suitability	Trees of sufficient size/age to exhibit PRFs but nonvisible from ground-level or features seen appear to offer limited potential.
3 - Negligible Suitability	Trees with no /negligible potential to support bats.

2.2.5 Bats – Foraging and Commuting Habitat

An assessment was made of the suitability of the surveyed area and the surrounding landscape to support foraging and/or commuting bats. The assessment was based on the presence of key habitat features such as woodland, scrub, hedgerows, grassland and open water, which are highly attractive to bat species. Of importance, is the presence of unlit semi-natural vegetation and habitat linkage between the site and the surrounding landscape such that the site may form an integral part of landscape-scale habitat for bats.

The quality of bat foraging and commuting habitat has been assessed using the criteria detailed in Table 4.

Table 4 Bat Foraging and Commuting Habitat Grading Criteria

Grading Criteria	Reason
Optimal Quality	Presence of optimal habitat features such as unlit woodland, scrub, hedgerows, grassland and open water with excellent linkage to similar habitats within the wider landscape. Presence of high potential buildings/trees and/or known roosts within immediate landscape. Sites are generally rural in character.
Moderate Quality	Presence of optimal habitat features such as woodland, scrub, hedgerows, grassland and open water with reasonable linkage to similar habitats within the wider landscape. Limiting factors may include size of site.
Low Quality	Presence of some limited habitat features such as scrub or hedgerows, with minimal linkage to suitable habitats within the wider landscape.
Poor Quality	No suitable habitat present or, if present, highly degraded/fragmented. Minimal unlit areas with no linkage to suitable habitat beyond site. Generally urban in character.

2.2.6 Hazel dormouse

An assessment was made of the suitability of habitat within the site to support hazel dormice *Muscardinus avellanarius*. Key habitats are woodland, scrub and hedgerows, particularly where dense vegetation within which to nest/hibernate is offered along with key resources such as hazel nuts, fruiting/nectar-rich plants (e.g. hawthorn, bramble) and honeysuckle (for nesting material). Of importance is the presence of landscape-scale habitat linkages such as hedgerows, and where the site is linked to such habitat this will raise the potential for the species to occur.



2.2.7 Birds

An assessment was made of the site's suitability to support breeding and wintering bird species. Birds will utilise a broad range of habitats, including built structures; trees; scrub; isolated shrubs; dense herbaceous vegetation (terrestrial and aquatic) and open grassland among others. All bird species observed on site were recorded.

2.2.8 Reptiles

An assessment was made of the site's suitability to support reptile populations. Key habitat features include tussocky/patchy grassland; scrub edge; linear watercourses; ponds; compost heaps; brush piles and rubble/soil heaps. Linkage to suitable habitat within the surrounding landscape will increase the potential for reptiles to occur, although populations can occur within isolated/fragmented habitats even within otherwise-unsuitable areas.

2.2.9 Amphibians

An assessment was made of all waterbodies and terrestrial habitat within the site for their suitability to support populations of amphibians. Suitable waterbodies will generally be characterised by the presence of good quality freshwater, diverse macrophyte cover and an absence of fish.

For the European-protected great crested newt *Triturus cristatus*, each waterbody was, where considered necessary, assessed using the Habitat Suitability Index (HSI) system (Oldham et al., 2000) and assigned a grading score between zero (poor suitability) and 1 (excellent suitability).

2.2.10 Invertebrates

The presence of important invertebrate species or assemblages is generally dependent upon distinct micro-habitats such as dead wood (standing, fallen, of all decay stages), sap runs, damp/wet soils, mixed sun/shade, bare/friable soils (e.g. exposed sand/soil banks) and a diversity of plant species.

For aquatic invertebrates, important species/assemblages will generally be associated with high-quality aquatic habitats such as ponds, rivers, streams and ditches where water quality is good, and vegetation is diverse. Other key factors will include substrate and waterbody morphology. An assessment of the site's potential to support a diverse invertebrate assemblage and/or specialist species is based loosely on the presence of habitat features described in Kirby (2001). Where possible, a list of all invertebrate species encountered has been made.



3 PROJECT DETAILS

The site relates to a residential garden and bungalow located on Hayling Island. Ecological Surveys Ltd were commissioned by the clients to undertake a Preliminary Ecological Survey (PEA) of this site in relation to the demolition of the severely dilapidated bungalow, clearance of the overgrown garden and construction of two houses with associated parking.

3.1 Site Location Description

The site is located as indicated.

Figure 1 Site Location





Figure 2: Surveyed Area

(red line = surveyed structures, blue line = site boundary)



3.2 Illustrated Proposal

Demolition of existing building, site clearance with retention/management of hedgerow to road frontage, removal/retention of trees as recommended by Arboricultural Consultant as report attached, construction of two houses with additional access to highway.



Figure 3 Illustrated Proposal



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Proposed Block Plan 1/500



<p>This drawing is the copyright of the Architect and must not be reproduced without permission, except by the Local Planning Authority for planning purposes.</p> <p>Figured dimensions to be taken in preference to scaled. Dimensions to be checked on site before work commences. No deviation from this drawing will be permitted without the prior written consent of the Architect. Ground floor slabs, foundations, structure, etc., and all work below ground is shown provisionally and inspection of ground conditions is essential prior to work commencing. Reassessment is essential when the ground conditions are apparent and redesign may be necessary in the light of soil conditions found. The responsibility for establishing the soil and subsoil conditions rests with the Contractor.</p>	<p>drawing</p> <p>PROPOSED BLOCK PLAN</p>	<p>drawing no.</p> <p>22303/201</p>	<p>rev.</p>	<p>date</p> <p>NOV 2023</p>	<p>scale(s)</p> <p>1:500</p>	<p>sheet size</p> <p>A4</p>
	<p>project</p> <p>PROPOSED RESIDENTIAL DEVELOPMENT 15 NEW CUT, HAYLING ISLAND HAMPSHIRE PO11 0NB</p>	<p>client</p> <p>I. THOMPSON & R. HUGHES</p> <p>Jeffrey Douglas Chartered Architect</p> <p>114 Haycot Road • Hayling Island • Hampshire • PO11 0LJ Tel: (023) 528 5889 • Email: jdd@jeffreydouglas.co.uk</p>				



4 RESULTS

4.1 Introduction

This section provides details of the results of the Extended Phase 1 Ecological Survey of the named site. In light of the habitats present within the Site, a biological records search was not commissioned as it was not considered appropriate for the scale and probable impact of the proposed development.

4.2 Desk-based Assessment

4.2.1 Internationally and Nationally Designated Sites

Table 5: Internationally and Nationally designated sites located within 2km of the site.

Site Name Distance & Direction	
Special Area of Conservation (SAC):	Solent Maritime (approx. 360m west, 460m north)
Special Protection Area (SPA):	Chichester and Langstone Harbours (approx. 360m west, 460m north)
RAMSAR:	Chichester and Langstone Harbours (approx. 360m west, 460m north)
Site of Special Scientific Interest (SSSI):	Chichester Harbour (approx. 450m north) Langstone Harbour (approx. 1.40km northwest) Warblington Meadow (approx. 1.80km northeast)
Areas of Outstanding Natural Beauty:	Chichester Harbour
National Nature Reserve (NNR):	None found
Local Nature Reserve (LNR):	Hayling Billy (approx. 360m west, 460m north) West Hayling (approx. 250m southwest, 400m northwest)
RSPB Reserve:	Langstone Harbour (approx. 250m southwest, 400m northwest)
Green Belt:	None found

4.2.2 Locally Designated Sites

Table 6: Non-statutory designated sites located within 2km of the site.

It is currently impossible to search for non-statutory designated sites.

4.2.3 Priority Habitats

Table 7: UK BAP Priority Habitat Inventory habitats within 2km of the site.

Priority Habitats Distance & Direction
Coastal And Floodplain Grazing Marsh
Coastal Saltmarsh
Deciduous Woodland
Good Quality Semi-Improved Grassland



Intertidal Substrate Foreshore
 Lowland Meadows
 Mudflats
 Reedbeds
 Traditional Orchards

4.2.4 Protected Species

Table 8: Records of protected and notable species within 2km of the site.

Species Group	Species
Bats:	Brown Long-Eared Bat (<i>Plecotus auritus</i>) Common Pipistrelle (<i>Pipistrellus pipistrellus</i>) Natterer's Bat (<i>Myotis nattereri</i>) Soprano Pipistrelle (<i>Pipistrellus pygmaeus</i>)
Birds (Schedule 1):	Avocet (<i>Recurvirostra avosetta</i>) Barn Owl (<i>Tyto alba</i>) Black Tern (<i>Chlidonias niger</i>) Cetti's Warbler (<i>Cettia cetti</i>) Common Scoter (<i>Melanitta nigra</i>) Fieldfare (<i>Turdus pilaris</i>) Great Northern Diver (<i>Gavia immer</i>) Green Sandpiper (<i>Tringa ochropus</i>) Greenshank (<i>Tringa nebularia</i>) Kingfisher (<i>Alcedo atthis</i>) Little Gull (<i>Hydrocoloeus minutus</i>) Little Tern (<i>Sternula albifrons</i>) Long-tailed Duck (<i>Clangula hyemalis</i>) Marsh Harrier (<i>Circus aeruginosus</i>) Red Kite (<i>Milvus milvus</i>) Red-throated Diver (<i>Gavia stellata</i>) Redwing (<i>Turdus iliacus</i>) Scaup (<i>Aythya marila</i>) Slavonian Grebe (<i>Podiceps auritus</i>) Whimbrel (<i>Numenius phaeopus</i>)
Birds (Red Listed):	Common Scoter (<i>Melanitta nigra</i>) Corn Bunting (<i>Muscicapa striata</i>) Cuckoo (<i>Cuculus canorus</i>) Curlew (<i>Numenius arquata</i>) Fieldfare (<i>Turdus pilaris</i>) Grasshopper Warbler (<i>Locustella naevia</i>) Grey Partridge (<i>Perdix perdix</i>) Grey Wagtail (<i>Motacilla cinerea</i>) Herring Gull (<i>Larus argentatus</i>)



	House Sparrow (<i>Passer domesticus</i>) Lapwing (<i>Vanellus vanellus</i>) Linnet (<i>Linaria cannabina</i>) Long-tailed Duck (<i>Clangula hyemalis</i>) Marsh Harrier (<i>Circus aeruginosus</i>) Nightingale (<i>Luscinia megarhynchos</i>) Redwing (<i>Turdus iliacus</i>) Ringed Plover (<i>Charadrius hiaticula</i>) Scaup (<i>Aythya marila</i>) Skylark (<i>Alauda arvensis</i>) Slavonian Grebe (<i>Podiceps auritus</i>) Song Thrush (<i>Turdus philomelos</i>) Spotted Flycatcher (<i>Emberiza calandra</i>) Starling (<i>Sturnus vulgaris</i>) Turtle Dove (<i>Streptopelia turtur</i>) Whimbrel (<i>Numenius phaeopus</i>) Yellow Wagtail (<i>Motacilla flava</i>)
Reptiles:	Adder (<i>Vipera berus</i>)
Amphibians:	Great Crested Newt (<i>Triturus cristatus</i>)
Schedule 9 non-native invasive plants:	Japanese Rose (<i>Rosa rugosa</i>) Wireweed (<i>Sargassum muticum</i>)



4.3 Field Survey

The broad distribution of each habitat and its general composition is described below. The location of each surveyed area is shown in Figure 4 Habitat Map.

Habitat Map

Figure 4 Habitats Map





4.4 Habitats

4.4.1 Buildings



Front (eastern side of the southern aspect) and eastern aspect of the surveyed bungalow



Western aspect of the surveyed bungalow



Western side of the southern aspect of the surveyed bungalow



The bungalow does not have a loft hatch but the loft void can be accessed from the broken part of the ceiling



The roof is not lined and there are lot of light ingresses within the void, making it too bright to be suitable for bat roosting. It is also filled with thick cobwebs, indicating that bats have not flying within the loft void at any point recently. No evidence of bat roosting or bird nesting was found.

Surveyed Bungalow



Front (southern aspect) of the shed



Rear (northern aspect) and side (western aspect) of the shed

Surveyed Shed

Two buildings exist on site, a bungalow and a shed. The bungalow is a pebbledash rendered structure with an unlined, pitched, interlocking tile roof. As the roof is not lined, the light



ingresses from the gaps from raised / missing tiles are visible within the void, making it too bright to be suitable for bat roosting. It is also filled with thick cobweb, indicating that bats have not been flying within the loft void in recent times. No evidence of bat roosting or bird nesting was found. Negligible potential for bat roosting or bird nesting.

The garden shed is a single storey structure of wooden construction with a pitched corrugated sheeting roof. Potential free flight access exists above doors and in broken cladding. Consequently, bird nests may be created in future nesting seasons. Whilst this free flight access could also allow bats ingress into the structure, windows ensure that the structure is bright internally and therefore unsuited for day roosting bats. Negligible potential for bat roosting, low potential for bird nesting.

4.4.2 Vegetated Garden



Overgrown vegetated garden



Trees with within the overgrown vegetated garden



Dead wood within the garden

The garden is heavily vegetated and with overgrown shrubs of varying species including oak, crab apple, blackthorn, willow, and cherry. Being within a residential area limits the connectivity of this habitat to the surrounding countryside and the garden is therefore not considered to be of high ecological value, although it does have potential to support protected species such as occasional foraging bats and nesting birds.

The ground cover is predominantly ivy, with occasional cleaver, lords and ladies, wild parsley and wild garlic. This microhabitat provides limited ground cover and is structurally poor. It is therefore considered to be of negligible ecological value. No evidence of or potential for protected species was recorded.

There are dead wood piles and trees within the garden, which have some potential to support invertebrates such as stag beetles.

4.4.3 Hedgerow



The front southern hedge



<p>The front southern hedge</p>	<p>Periwinkle (<i>Vinca major</i>) within the front southern hedge</p>
<p>The single species eastern hedgerow</p>	

Hedges exist along the southern and eastern boundaries of the site. The front (southern) hedge consists of a variety of species including bramble, old-man’s beard, blackthorn, hawthorn and dog rose. The eastern hedge present on site is an ornamental single-species hedge. This hedge has relatively little value for wildlife. Although the connectivity to surrounding habitats is limited for both, both have potential to support protected species such as nesting birds.

4.5 Protected Species

4.5.1 Bats

The roof of bungalow surveyed on site is not lined. No evidence of bat roosting was noted within the structure. As the roof of the structure is not lined, should roosting bats be present, evidence, such as bat droppings or feeding signs, would be visible. Consequently, with the absence of evidence, it is considered that the structure has negligible potential to support roosting bats.

4.5.2 Badger

The surveyed area and adjacent habitats were inspected for field signs of badger activity. This includes badger setts, latrine sites, dung piles, well-used trails, prints and hairs. No evidence of badger was recorded.



4.5.3 Birds

Hedges and vegetated garden habitat as well as the shed on site have the capacity to support nesting birds. 46 species of bird have been recorded within 2km of the site. Whilst it is possible that some of these species could be present on site, at least on occasion, the habitats on site are of limited value for most.

4.5.4 Hazel Dormouse

Whilst overgrown garden habitat on site could theoretically support dormice, the area of this habitat is small and has negligible connectivity to the surrounding landscape. Additionally, as there are no records of dormice found within 2km of the site, it is unlikely that dormice are present within the proposed development area.

4.5.5 Reptiles

The ground cover on site is of short sward height, structurally poor, and shady due to the overgrown shrubs. Consequently, the cover of habitat is considered to be insufficient to support a population of reptiles. Habitat immediately surrounding the site is also largely unsuitable for reptiles, composing residential gardens with regularly managed amenity grassland.

4.5.6 Amphibians

The site is not considered to offer sufficient habitat to support protected amphibian species. As with reptiles the ground cover on site is short sward height with little to no thatch. Consequently, the cover of habitat is considered to be insufficient. Online mapping does not reveal the presence of ponds within 250m.

4.5.7 Invertebrates

There are dead wood piles within the garden which have some potential to support invertebrates such as stag beetles.



5 IMPACTS

5.1 Introduction

This section is supported by the results of the Extended Phase 1 ecological survey and presents the likely impacts, *in the absence of any mitigating actions*, on protected and notable habitats and species associated with the proposed works. Only those features confirmed as present on site or considered to have from low to high potential occurrence on site have been taken forward for further assessment.

5.2 Designated Sites: SSSI/SPA/SAC/RAMSAR

The Chichester Harbour SSSI situated 0.45km north of the site is relatively unlikely to be impacted by any works at this site. However, the Site lies within a SSSI Impact Risk Zone, with Natural England needing to be consulted all planning applications, except householder applications.

A '**Habitats Regulation Assessment' (HRA)** is unlikely to be required on this site.

If the proposed development has the potential to impact up on any of the European sites, the LPA can request an HRA be conducted. The responsibility for conducting such an HRA lies with the LPA, but they can insist that all relevant information is provided to them by the developer.

5.3 Habitats

5.3.1 Buildings

It is understood the current proposal will result in the loss of the bungalow and shed. Whilst of negligible ecological value, it is possible that bird nests could be established in the shed in future. Consequently, mitigation will be required to ensure minimal impacts on protected species. Specifically, Seasonal Constraints for the Removal of Bird Nesting Habitat will be required. If removal is not possible during this period, a nesting bird check must be conducted prior to works commencing. Where bird nesting is present, works cannot proceed until nesting has concluded.

5.3.2 Vegetated Garden

It is understood the current proposal will result in the loss of most of the overgrown vegetation within the vegetated garden habitat, except T1, T2, T4, T7 and T9 (as shown in Figure 3 Illustrated Proposal), either to make way for the proposed houses, driveway and parking, or to be converted to more formal residential gardens. Whilst this habitat is not of high ecological value, potential for protected species, specifically bats and birds exists. Consequently, mitigation is required. Specifically, Construction Exclusion Zones, an Artificial Lighting Strategy, and Seasonal Constraints for the Removal of Bird Nesting Habitat are required. This will minimise light spill and prevent degradation of the retained trees for nocturnal species such as bats, protect it from accidental damage during the construction phase, and ensure no nesting birds are impacted during works.



5.3.3 Hedgerow

It is understood that the native hedge on the southern boundary will be mostly retained with a small part removed to make way for the driveway. This loss will need to be mitigated with replacement Hedgerow Creation along the northern boundary. This length will more than offset that lost for the new driveway and also enhance the site. The remainder of the southern boundary and the single species hedge on the east will be retained with no direct impacts proposed. Indirect impacts through increased artificial lighting and accidental damage are possible. Consequently, Construction Exclusion Zones and an Artificial Lighting Strategy are required for the retained hedges. This will minimise light spill and prevent degradation of the hedges for nocturnal species such as bats as well as protect them from accidental damage during the construction phase.

5.4 Protected Species

5.4.1 Bats

The southern hedge and vegetated garden has been assessed as capable of supporting occasional foraging bats. To ensure no negative impacts to bats, mitigation is required. Construction Exclusion Zones will ensure no accidental damage to retained habitat, while an artificial lighting strategy should be put in place to minimise disturbance. In addition, new hedgerow planting will enhance the site for foraging and commuting bats.

5.4.2 Birds

Hedges and vegetated garden habitats and shed have been assessed as having potential to support nesting birds. To ensure no negative impacts to birds, mitigation is required. Specifically, seasonal constraints for removal to avoid bird nesting season is required where bird nesting habitat requires removal, while accidental damage to retained habitat can be avoided through Construction Exclusion Zones. In addition, new hedgerow planting will enhance the site for foraging and nesting birds.

5.4.1 Invertebrates

The dead wood piles have been assessed as having some potential to support invertebrates such as stag beetles. The habitat must be retained or recreated post-development.



6 FURTHER SURVEYS, MITIGATION & ENHANCEMENT

6.1 Introduction

This section provides details of recommendations considered necessary in order to ensure that ecological issues are considered fully. This includes recommendations for further ecological surveys to inform the assessment of impacts as well as mitigation, compensation or enhancement measures to avoid, lessen or offset the identified impacts to ecological features arising from the proposed works.

Ecological Constraints and Opportunities (Avoidance/Mitigation/Enhancement) are mapped (where mappable) in Section 8.

6.2 Mitigation

This section provides general recommendations for mitigation and enhancement measures. The Ecological Constraints and Opportunities map (ECOPS) should be consulted for locations and area.

6.2.1 Seasonal Constraints for Removal of Bird Nesting Habitats

Removal of any habitats with potential for bird nesting (including any trees, hedge, shrubs and the shed) should be done outside of the bird nesting season of March – September (inclusive).

If removal is not possible during this period, a supervised watching brief must be conducted prior to works commencing.

If breeding birds are found or suspected, clearance work will not be permitted until an ecologist is satisfied that breeding is complete, which may be as late as August or September.

Best practice methods

- Keep tree work to a minimum, retaining all potential roosts where possible.
- A precautionary inspection of the tree(s) by the tree work contractor looking for signs of bats should be carried out before starting work.
- This should include an inspection of all holes and niches using a torch and preferably an endoscope. If bats or signs of bats are found, unless the bat is in imminent danger of death, it should not be handled by law. No work should start, and the acting ecologist should be contacted for further advice.
- Where possible, avoid cross cutting in proximity to cavities or hollows.
- Limbs with internal fissures should be pruned carefully to maintain integrity of features as potential roost sites.
- Any sections felled containing cavities should be lowered carefully and left on the ground (preferably for 24 hours) with the openings clear, allowing anything inside an opportunity to escape.
- Split limbs that are under tension will need to be wedged open to prevent their closure when pressure is released, potentially trapping bats



- If ivy covers areas of a tree's trunk or branches, there is roosting potential behind it. In addition, potential roosts in the tree may also be hidden behind the ivy. Dealing with ivy covered trees depends on the amount of growth. If there is a thick mass of ivy growth, it may be practical to consider felling the tree on the basis that the thickness of the foliage will soften the fall and reduce the shock. This tree can then be inspected on the ground and if possible, left for 24 hours, before section cutting.
- If the tree is only partially covered in ivy, pruning or sectioning may be more appropriate.
- If the works are not urgent, cutting the ivy at its base and completing the work when the ivy is dead, thus reducing the bat roosting potential should be considered.

6.2.2 Impact Avoidance During the Construction Phase

All activities on site should bear in mind the potential for wildlife or the environment being harmed through the process of development from inception to end, with a proactive approach occurring for lawful protection of wildlife and the environment regarding use of materials, machines, chemicals, and human activity on site.

- Contractors must ensure that no harm can come to wildlife by maintaining the site efficiently, clearing away any material such as wire in which animals can become entangled and preventing access to toxic substances.
- Trenches or large excavations should be covered overnight to prevent wildlife such as badgers or hedgehogs falling in and failing to escape. If this is not possible then a strategically placed plank may provide a means of escape.
- Any large bore pipes should be capped at the end of the day to reduce the potential for badgers and other wildlife entering and becoming trapped.
- If there is a substantial delay before development commences, the site should be maintained in a way that would prevent wildlife colonising it and causing constraints in the future. Such management should include mowing grassland at least twice a year and preventing scrub encroachment.
- Piles of brush wood and or log piles should be carefully inspected for signs of wildlife prior to their removal. This is especially crucial during the period March – September (inclusive) as some species of bird choose such sites to construct their nests. Ideally removal of such features should be done outside of the nesting season. If this is not possible, it is recommended that these features are covered in such a way as to exclude / prevent birds and / or reptiles taking up residence. If nesting birds or reptiles are discovered, work must cease immediately with ecological advice sought.



6.2.3 Construction Exclusion Zones (CEZ)

Areas that are being retained should be protected from damage during the groundworks and construction phase of the development by erecting Heras (or similar) fencing around these features. Temporary fencing (Heras or similar) with appropriate signage will be erected at the appropriate distance(s). The only exception to this is at existing access points. Heras fencing is not intended to restrict the access of species to other areas of the site, therefore, mindful procedure by site workers and visitors to the site is always necessary.

No development work should be undertaken within the CEZs and no materials, machinery, chemicals etc. should be stored within these zones. No development or any associated works should be located within these Construction Exclusion Zones.

Appropriate signs should be placed at regular intervals along the fencing to ensure everyone on site is aware of the CEZ and understands its relevance e.g. CONSTRUCTION EXCLUSION ZONE – NO ACCESS.

Any areas proposed for planting post-development should also be fenced off where possible to prevent compaction of the soil through vehicle movements.

6.2.4 Hedgerow Creation

A new native hedgerow should be created along the northern boundary of the site to replace the scrub felling onsite. This would provide approximately 25m of hedging and provide mitigation for lost nesting/commuting habitats.

- The hedgerow should be created from planting at least 7 different native species ideally of local provenance. Suggested species include hawthorn (*Crataegus monogyna*) for its flowers and berries; hazel (*Corylus avellana*) for its nuts and attracting insects; blackthorn (*Prunus spinosa*); pedunculate oak (*Quercus robur*); crab apple (*Malus sylvestris*); holly (*Ilex aquifolium*); elder (*Sambucus nigra*); wild privet (*Ligustrum vulgare*); dogwood (*Cornus sanguinea*); guelder-rose (*Viburnum opulus*); wayfaring-tree (*Viburnum lantana*); grey willow (*Salix cinerea* agg.); goat willow (*Salix capraea*); hornbeam (*Carpinus betulus*).
- Use two-year-old pot grown shrubs planted in a double, staggered row at a rate of at least four plants per meter.
- Apply a layer mulch to a depth of 75mm around shrub base to suppress weeds.
- Spiral guards will be used to protect new shrubs from rabbits.
- Plan a monitoring programme during first year of growth. Any saplings which fail to thrive should be re-planted in order to prevent the development of gaps.
- Trim lightly during the first three years.
- Approximately three years following planting, an appropriate management scheme should be established to ensure that it develops into a dense hedgerow which is optimal for protected species.



6.2.5 Hedgerow Management

Hedgerows should be trimmed only every three years (or less frequently if possible) and maintained at a height of at least three, and preferably four, metres. It is important not to cut all hedgerows in an area at the same time, so that some heavily fruiting hedgerows are always present. As a guide, it is suggested that cutting only 10 to 30 per cent in any one year is advisable. Gaps in any of the hedgerows should be infilled with native species. Hedgerow management for dormice is given below.

Hedgerow Management	
Good Practice, for the Benefit of Dormice and Hedgerow Biodiversity Ref: <i>The Dormouse Conservation Handbook Second Edition.</i>	
1	Except where road safety or access, preclude it, hedgerows should be trimmed only every three years (or less frequently if possible) and maintained at a height of at least three, and preferably four metres.
2	Ideally, about one third of hedgerows should be left to grow for 7 to 10 years.
3	It is important not to cut all hedgerows in an area at once, so that some heavily fruiting hedgerows are always present. As a guide, we suggest cutting only 10 to 30 per cent in any one year.
4	In some places, it may be feasible to cut only one side of the hedge, cutting the other a year or two later, thus not removing all the food sources at once and allowing some regrowth before further cutting takes place. If possible, flails should not be used to manage hedgerows.
5	Coppicing or, even better, laying should be used to manage hedgerows that become gappy or lack dense branches at their base. Fencing may be needed to prevent stock from causing damage before new growth has become established.
6	If hedgerow size needs to be reduced, it is better to avoid cutting the top and to cut one side only.
7	When creating new hedgerows, or plugging gaps in existing ones, at least five and preferably seven different shrub/tree species should be planted. The best species to plant are hawthorn (for its flowers and berries) and hazel (nuts and insects); with a diversity of other species to offer flowers insects and fruits at different times Bramble would make a valuable addition but may arrive naturally.
8	Where new roads or other developments cut across hedges, the 'loose ends' should be linked up by suitable plantings. Mixtures of hawthorn and hazel are the preferred species where early results are needed.



6.2.6 Artificial Lighting Strategy

- LED and/or low-pressure sodium lamps with glass glazing should be utilised instead of mercury or metal halide lamps. This type of lighting can be utilised more directionally and will reduce the range of light wavelengths emitted thus significantly reducing the levels of UV light which may attract increased levels of invertebrate bat prey items.
- Avoid artificial lights shining on known or potential bat roosts, their access points and their flight paths.
- Light ONLY when and where it is needed for health and safety.
- Prevent light-spill and spread. Eliminate bare bulbs, upward pointing lights, keep light near to or below the horizontal. E.g. flat cut-off lanterns. Such light should be positioned to only illuminate the required areas, limiting light spill, both horizontally and vertically. Additionally, hoods, cowls, louvers and/or shields may be utilised to further direct any lighting.
- When external lighting is needed for safety reasons, dynamic lighting schemes that are switched on only when needed should be considered. Dynamic lighting schemes are usually triggered via motion sensors by a pedestrian, bicyclist or cars.
- Timer switch on any proposed outdoor lighting to facilitate dark periods.
- Reduce height of lighting columns. Or allow for lower main beam angles to reduce glare.

6.2.7 Grassland Creation

When landscaping urban gardens, the floral mixture should be of greater diversity than that there originally. Mixture EL1 contains slow growing grasses with a selection of wildflowers that respond well to regular short mowing. No artificial inputs, such as artificial pesticides and fertilisers, should be applied on site. This helps to maintain and improve the floristic diversity.

- %	Latin name	Common name
4	Galium verum	Lady's Bedstraw
0.5	Leontodon hispidus	Rough Hawkbit
1	Leucanthemum vulgare	Oxeye Daisy - (Moon Daisy)
3.7	Lotus corniculatus	Birdsfoot Trefoil
3	Primula veris	Cowslip
4	Prunella vulgaris	Selfheal
3.5	Ranunculus acris	Meadow Buttercup
0.3	Trifolium pratense	Wild Red Clover
20		

%	Latin name	Common name
8	Agrostis capillaris	Common Bent
40	Cynosurus cristatus	Crested Dogstail
28	Festuca rubra	Slender-creeping Red-fescue
4	Phleum bertolonii	Smaller Cat's-tail



6.2.8 Gully Pot Mesh Ladders for Amphibians/Small Mammals

Install mesh / fixing simple free-standing mesh ladders in gully pots to permit amphibians and small mammals to escape; gully pots act as a pit-fall trap to small mammals and amphibians. This is an inexpensive but highly successful way to avoid unnecessary wildlife deaths and contributes high gain value to the development.

Reference <https://www.thebhs.org/shop/the-bhs-amphibian-gully-pot-ladder>

6.2.9 Small Mammal Access Provision

Garden fences should permit the free movement of hedgehogs between gardens and the surrounding countryside. Raise any fencing by 150mm at the base or allow a section gap of 150mm² on the base of the fence.

6.2.10 Beetle / Stag-beetle Provision

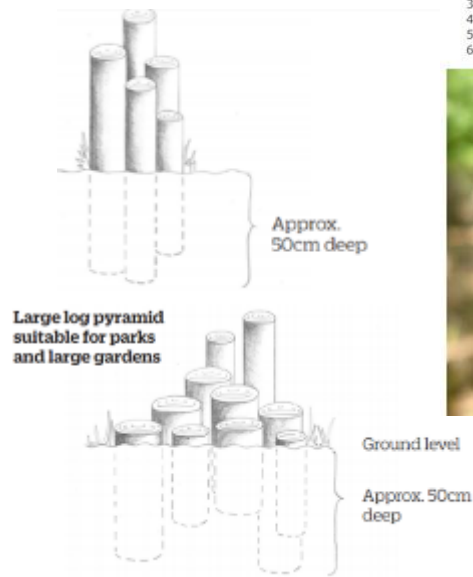
Leaving tree stumps to rot naturally and / or creating log piles within the site, will help provide valuable habitat for beetle species. This can either be achieved through retaining existing deadwood or creating new log piles.

Reference

<https://ptes.org/wp-content/uploads/2016/11/Build-a-log-pile-for-stag-beetles.pdf>

Creating a Vertical Log-Pile.

- Use wood from any broadleaved tree.
- The logs should be at least the thickness of an adult's arm.
- Site the logs in partial shade if possible, to prevent them drying out
- Partially bury the logs in the soil so that they don't dry out.
- Allow plants to grow over the log pyramid to retain moisture and provide shade.



About the larva:

1. Orange head
2. Cream body
3. Takes 6 years to grow upto 8cm
4. 6 legs
5. Lives in and eats rotten wood
6. Sheds skin 5 times



If larvae are discovered in rotten wood and need to be relocated, dig a hole and relocate soil/matter from original area. Avoid using polythene sheeting to control weeds. Newly emerging stag beetles can get trapped beneath it in spring and die.



6.3 Enhancement

6.3.1 Bat Roosting Provision

One built in bat provision of a type similar to that illustrated is required.

- Bat tubes/boxes erected on properties offer potential bat roosts and augment the natural roosting opportunities. These tubes/boxes should be erected not less than 3m high and ideally 4m plus.
- Bat tubes must be built into the fabric of the building, ideally on the southern and western aspects, and not bolted on to the outside and are therefore only suited to structures, not trees. A choice of styles is sometimes available, and the most suitable style can be agreed with the LPA.
- Where bat-tubes are unsuited owing to the type of construction of the proposed structures, other bat boxes or specifically designed bat habitation of an equally durable condition may be substituted for bat-tubes (subject to LPA approval.)
- Where enhancement recommends bat tubes or bat boxes on structures, aspects of the Artificial Lighting Strategy must be followed to ensure artificial lighting does not shine on the access points /boxes or flight paths.

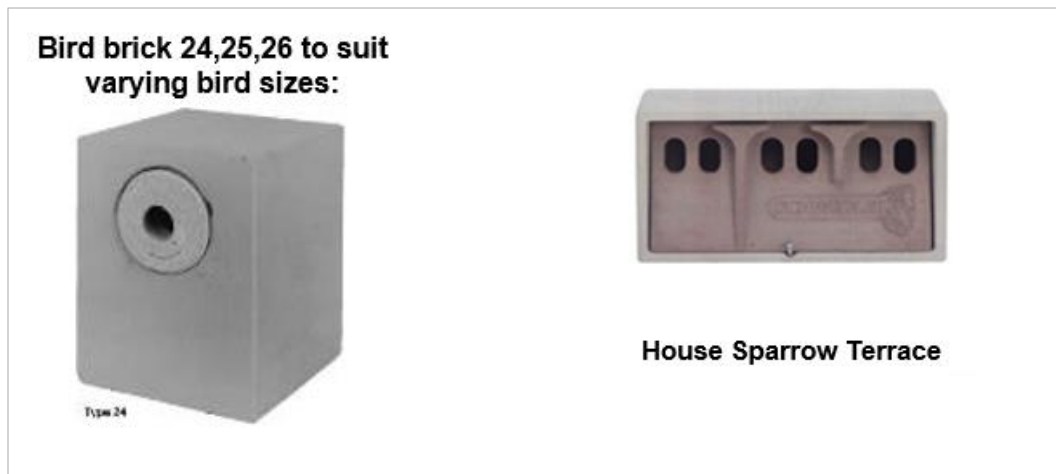


6.3.2 Bird Nesting Provision

One built in bird provision of a type similar to that illustrated is required.

In-built bird bricks provide a long-lasting solution. LPA approval of external mounted boxes is generally required.

- Only boxes of robust or permanent construction are suitable. Some account must be taken of the potential need to maintain and replace boxes after a number of years in use.
- Boxes/bricks should be positioned with orientation preferably between north and east with external positions of not less than 3m high to avoid cat predation and vandalism.
- Site nest boxes in locations that are accessible for maintenance, but away from bird feeders. Ideally boxes should be a discrete distance away from other nest boxes, except for house sparrows, as they like to nest in colonies.



6.3.3 Solitary Bee Provision

One Solitary Bee Brick to be installed on each residential unit. Each bee brick provides multiple cavities for solitary bees to lay their eggs. Bricks should ideally be built into south-facing, sunny walls, at between one and two metres above ground level and with nectar sources nearby.



Solitary bee bricks

6.3.4 Landscaping for the Benefit of Wildlife

Landscaping in sympathy with the needs of native wildlife is relevant to all important wildlife species. It helps to support birds by providing plant species which carry seeds, fruits, nuts, and/or support insects (nectar and pollen) upon which birds feed and supports bats by attracting insects to the garden.

The list below is not exhaustive, neither is it prescriptive, and recommendations can be applied with discretion.

- The landscape architect/or appointed person should plant a variety of flowering plants, biased towards native and near-native species. Exotics are not required; however, a selection of exotics to extend the flowering season and potentially provide resources for specialist groups now and in the future, is becoming increasingly important owing to climatic changes, and should be given serious consideration by any with a view to protecting and sustaining present and future



biodiversity. Plant holistically for biodiversity value: nectar rich plants/shrubs which yield fruits /nuts of benefit to a multitude of species.

- Where grass is planted, use a grass mix other than low amenity lawn grass. Plant mixes with diverse grass species support a wealth of insects when allowed to seed and flower before being cut back.
- Provide green corridors (hedges/trees/water features/lawns or mixed diversity species and beds) with attention to other neighbouring green spaces. The garden itself, when taken as one of many within the neighbourhood, will become part of a wider green corridor.
- Select a variety of plants that will produce foods in different seasons. For winter residents as well as migrants that return early in spring, plants that hold their fruits throughout the winter ("winter-persistent" plants) are a vital food source.
- Leave rough areas of vegetation and native trees and shrubs around the vicinity of any replacement building will also maintain nesting opportunities.
- Avoid pesticide and insecticide use.
- For garden areas: improve the area of green habitat within the garden wherever feasible and where paved spaces and balconies must be used also consider:
 - Planters and raised beds
 - Courtyard trees, low level shrubs, hedges
 - Planting climbers and creepers.
- Provide shelter using low shrubs, thickets or hedges where birds can nest, perch, and escape from predators.
- Leave tree stumps, dead wood (where safe to do so) tree limbs, leaf piles and compost to encourage insects and worms for birds to feed on.
- Appropriate aftercare and management should ensure that these areas are maintained to give optimum benefit to wildlife.



7 CONCLUSIONS

The Extended Phase 1 Habitat Survey undertaken along with the desktop survey are considered to have collected enough information about the ecological condition of the site to have been able to adequately assess the impact of the proposed development. Further survey work is therefore not required.

A strategy of 'Avoidance' must be employed to significant harm to wildlife species and habitats is avoided through the design of the Site.

Where significant harm cannot be wholly or partially avoided, Mitigation measures have been set out to avoid and reduce the effects/impacts of the development on the important ecological features and the local environment as a whole. All measures should be included as a planning condition for the proposed development.

Ecological enhancement measures are required to improve the ecological condition of the development site (or an alternative site) after the development is complete. Ecological enhancement measures must, therefore, be over and above any avoidance, mitigation and compensation measures required to neutralise the impacts of the development on wildlife. These enhancements should result in a net ecological gain for the site and should be included as a planning condition for the proposed development.

Providing the recommendations within this report are adhered to, with the mitigation measures and enhancements agreed, there would appear to be no ecological constraints to prevent this development.

The local planning authority (LPA) should ensure that the mitigation measures, together with enhancement recommendations, are either 'conditioned' where appropriate, or that full permission is withheld pending the agreement of mitigation, compensation (where necessary) and enhancement measures.

It is the responsibility of all those involved with the proposed development works at this site to ensure that wildlife protection and nature conservation legislation is complied with throughout the lifespan of the development, at every stage. Although no current evidence of protected species was found on site it cannot be assumed that they are not present when the development work commences. Care should therefore be taken during all stages of the development and if any protected are discovered they must not be handled; works must stop immediately, and advice sought from a licensed ecologist.



8 MAP OF ECOLOGICAL CONSTRAINTS & OPPORTUNITIES



Mitigation	
New Hedgerow Creation	
Enhancements	
Bat Roosting Provision	
Bird Nesting Provision	
Solitary Bee Provision	



9 REFERENCES

- Bat Conservation Trust (2009) *Bats and lighting in the UK – Version 3, May 2009*, The Bat Conservation Trust, London.
- Bat Conservation Trust (BCT) "[Landscape and Urban Design for Bats and Biodiversity](#)," by Kelly Gunnell, Gary Grant and Dr. Carol Williams
- Bright P., Morris P., and Mitchell-Jones, A. (2006) *The dormouse conservation handbook*, second edition, English Nature, Peterborough.
- Bright, P., Morris, P. and Mitchell-Jones, T. (2006) *The Dormouse Conservation Handbook*, 2nd Edition. English Nature, Peterborough.
- British Standards Institute (2013) *Biodiversity – Code of practice for planning and development. BS42020: 2013*. BSI Standards Limited, London.
- Chanin and Woods (2003) *Surveying dormice using nest tubes: results and experiences from the South West Dormouse Project*. English Nature Research Report No 524. Peterborough: English Nature.
- CIEEM (2016) *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal, 2nd edition*. Chartered Institute of Ecology and Environmental Management, Winchester. www.cieem.net
- CIEEM (2017a) *Guidelines for Preliminary Ecological Appraisal, 2nd edition*. Chartered Institute of Ecology and Environmental Management, Winchester.
- CIEEM (2017b) *Guidelines on Ecological Report Writing*. Chartered Institute of Ecology and Environmental Management, Winchester.
- Collins, J. (ed.) (2016) *Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn.)*. The Bat Conservation Trust, London.
- Collins, J (2016) *Bat Surveys for Professional Ecologists Good Practice Guidelines 3rd Edition*, Bat Conservation Trust, London.
- Cornwall Biodiversity Initiative (CBI) (2011) *Cornwall Biodiversity Action Plan Volume 4: Priority Projects*. CBI, Truro.
- Cornwall Council (2017) *Accommodating swallows, swifts and house martins: Guidance for developers, builders, surveyors, architects and householders*. Cornwall Council, Truro. <https://www.cornwall.gov.uk/media/3626630/Accommodating-swallows-swifts-and-house-martins.pdf>
- Countryside & Rights of Way Act 2000. HMSO.
- DEFRA (2007a) *Securing a Healthy Natural Environment: an action plan for embedding an ecosystems approach*. PB12853. DEFRA, London.
- DEFRA (2007b) *An Introductory Guide to Valuing Ecosystem Services*. PB12852. DEFRA, London.
- Department of the Environment (1997) *The Hedgerows Regulations 1997: A guide to the law and good practice*. Department of the Environment, London.



- Eaton, MA, Aebischer NJ, Brown AF, Hearn RD, Lock L, Musgrove AJ, Noble DG, Stroud DA and Gregory RD (2015) Birds of Conservation Concern 4 the population status of birds in the United Kingdom, Channel Islands and Isle of Man. *British Birds* 108, 708–746.
- English Nature (2001) *Great crested newt mitigation guidelines*. English Nature, Peterborough, ISBN 1 85716 568 3.
- English Nature (2004) *Bat Mitigation Guidelines*, English Nature, Peterborough.
- English Nature (2005) *Reptiles: guidelines for development* English Nature, Peterborough.
- Froglife Advice Sheet 10 (1999) *Reptile survey methods*, Herpetological Conservation Trust, Peterborough.
- Gent, T., and Gibson, S. (2003) *Herpetofauna Workers Manual*, JNCC, Peterborough.
- HM Government (1981) *The Wildlife and Countryside Act 1981*. HMSO, London.
- HM Government (1991) *The Wildlife and Countryside (Amendment) Act*. HMSO, London.
- HM Government (1992a) *Statutory Instrument 1992 No. 2350* [Variations to Schedules 5 and 8 of the Wildlife and Countryside Act]. HMSO, London
- HM Government (1992b) Protection of Badgers Act 1992. HMSO, London.
- HM Government (1994) *The Conservation (Natural Habitats, & C) Regulation 1994*. HMSO, London.
- HM Government (1997) *The Hedgerow Regulations 1997*. HMSO, London.
- HM Government (1998) *Statutory Instrument 1998 No. 878* [Variations to Schedules 5 and 8 of the Wildlife and Countryside Act]. HMSO, London.
- HM Government (2000) *The Countryside and Rights of Way Act 2000*. HMSO, London.
- HM Government (2006) *Natural Environment and Rural Communities Act 2006*. HMSO, London.
- HM Government (2010) *The Conservation of Habitats and Species Regulations 2010*. HMSO, London.
- HM Government (2019) *National Planning Policy Framework. February 2019*. HMSO. www.gov.uk/government/publications
- Institute of Environmental Assessment (IEA), 1995. Guidelines for Baseline Ecological Assessment, Institute of Environmental Assessment. E&FN Spon, aJn Imprint of Chapman and Hall. London.
- Joint Nature Conservation Committee (2004) *Bat Workers Manual*, Joint Nature Conservation Committee, Peterborough.
- Joint Nature Conservation Committee (JNCC) (1993) *Handbook for Phase 1 Habitat Survey*. JNCC Peterborough.



- Joint Nature Conservation Committee, 2010. Handbook for Phase 1 Habitat Survey - a Technique for Environmental Audit. Reprinted by JNCC, Peterborough
- JNCC and Defra (on behalf of the Four Countries' Biodiversity Group), 2012. UK Post-2010 Biodiversity Framework. July 2012.
- Kirby, P (2001). Habitat Management for Invertebrates – A Practical Handbook. RSPB, Sandy.
- Menneer, Robin (2008a). *Building hedges in Cornwall: How to build a Cornish hedge*. Guild of Cornish Hedgers.
- Menneer, Robin (2008b). *How to look after a Cornish Hedge*. Guild of Cornish Hedgers.
- Morris, P.A. Bright, P.W. & Woods, D. (1990). Use of nest boxes by the dormouse *Muscardinus avellanarius*. *Biological Conservation*. 51: 1-13
- Natural England (2007) *Badgers and Development; A guide to best practice and licensing*. Natural England, Peterborough.
- Natural England (2009) *Protection of Badgers Act (1992) as amended: Interpretation of 'Disturbance' in relation to Badgers occupying a sett*, Natural England, Peterborough.
- Nature crisis: Humans 'threaten 1m species with extinction' (2019) Matt McGrath accessed 06/05/2019 <https://www.bbc.co.uk/news/science-environment-48169783>
- Russ, J. & Montgomery, W. (2002) Habitat associations of bats in Northern Ireland: Implications for conservation. *Biological Conservation* 108: 49-58.
- Stace, C. (2009) *New Flora of the British Isles, Fourth edition*. C & M Floristics, Suffolk.
- The British Standards Institution (2013) *Biodiversity – Code of practice for planning and development*. BS42020:2013. The British Standards Institution Limited.
- The British Standards Institution (2012) *Trees in relation to design, demolition and construction – Recommendations*. BS5837:2012. The British Standards Institution Limited.
- Voigt, C.C. *et al* (2018): *Guidelines for consideration of bats in lighting projects*. EUROBATS Publications Series No. 8. UNEP/EUROBATS Secretariat, Bonn, Germany, 62pp.
- Wildlife & Countryside Act 1981, as amended HMSO
- Williams, C. (2010) *Biodiversity for Low and Zero Carbon Buildings: a technical guide for new build*, RIBA Publishing, London.
www.chaninweb.co.uk/Chanin%20&%20Gubert2012_Lutra_55_1_LOWRES.pdf



9.1 Data Search Websites

- Barn Owl Trust www.barnowltrust.org.uk
- Multi Agency Geographical Information for the countryside: www.magic.defra.gov.uk
- National Biodiversity Network Atlas: www.nbnatlas.org
- UK Biodiversity Action Plan: - www.ukbap.org.uk/NewPriorityList.aspx
- Hampshire Biodiversity Action Plan:
- <http://www.hampshirebiodiversity.org.uk/action.html>
- Hampshire and the Isle of Wight Wildlife Trust: - <http://www.hiwwt.org.uk/>
- Prevent the spread of harmful invasive plants: www.gov.uk/prevent-the-spread-of-harmful-invasive-and-non-native-plants
- <https://freshwaterhabitats.org.uk/projects/million-ponds/pond-creation-toolkit/#Core>