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NORTH LITTLEHAMPTON (SOUTHERN ALLOTMENTS), TODDINGTON LANE, LITTLEHAMPTON, WEST SUSSEX

ECOLOGICAL IMPACT ASSESSMENT

Final Document

June 2022

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Preliminary Ecological Appraisals • Protected Species Surveys and Licensing • NVC • EcIA • HRA • Management Plans
Habitats • Badger • Bats • Hazel Dormouse • Birds • Reptiles • Amphibians • Invertebrates • Riparian and Aquatic Species

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ECOSA Quality Assurance Record

This report has been produced in accordance with the Chartered Institute of Ecology and Environmental Management (CIEEM) Guidelines for Ecological Report Writing 2017 (CIEEM, 2017). The Ecological Impact Assessment and report has been prepared in line with the CIEEM Guidelines for Ecological Impact Assessment in the UK and Ireland (CIEEM, 2018) and survey work has been undertaken in line with references within CIEEM's Source of Survey Guidance (CIEEM, 2017).

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ECOLOGICAL IMPACT ASSESSMENT

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EXECUTIVE SUMMARY

Ecological Survey and Assessment Ltd (ECOSA) have been appointed by Persimmon Homes Thames Valley to undertake an Ecological Impact Assessment in support of a Reserved Matters Application as part of the wider North Littlehampton urban expansion for the development of the Southern Allotments, North Littlehampton. The site is located north of the town of Littlehampton, West Sussex and comprises a recently cleared plot of land with boundary vegetation. The proposals entail the construction of allotments with associated access running east-west through the site.

The main findings of the Ecological Impact Assessment are:

- The on-site habitats have been assessed to be of suitability for foraging and commuting bats, badger, breeding birds, reptiles, fox and European hedgehog.
- A hybrid precautionary method of works will be adopted in relation to reptiles.
- One-way exclusion gates will be installed on the fox den and 21 days monitoring undertaken to exclude any indiviauls from the den. A watching brief will then be required for den destruction and habitat removal within the south-eastern corner of the site to ensure no fox individuals or their cubs are harmed during the works.
- Mitigation and compensation measures recommended include supervised vegetation clearance works, the implementation of a sensitive lighting strategy and compensatory planting.
- Opportunities for enhancement have been recommended including the provision of bat and bird boxes, and shrub planting with species to benefit pollinators.
- Given the impacts identified, and the mitigation, compensation and enhancement measures proposed it is considered that the proposals accord with all relevant local and national planning policy.
- If the planning application boundary changes or the proposals for the site alter, a re-assessment of the scheme in relation to ecology may be required. Given the mobility of animals and the potential for colonisation of the site over time, updating survey work may be required, particularly if development does not commence within 18 months of the date of the most recent relevant survey.

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1.0 INTRODUCTION

1.1 Background

Ecological Survey & Assessment Limited (ECOSA) have been appointed by Persimmon Homes Thames Valley to undertake an Ecological Impact Assessment to support a Reserved Matters Application for the development of the North Littlehampton Southern Allotments, Toddington Lane, Littlehampton, West Sussex BN17 7PP (hereafter referred to as the site).

Outline planning permission was granted for the North Littlehampton development scheme in January 2013 under Arun District Council planning application reference LU/47/11 for the mixed used development comprising up to 1,260 residential dwellings, commercial and local facilities, and primary infrastructure including new access from the A259 bridging over the railway line. This permission included the provision for replacement and additional allotments, and are to be addressed within a Reserved Matters Application.

The wider North Littlehampton development site has been extensively surveyed since 2008, and the area associated with the proposed Southern Allotments has been subject to breeding bird (WYG, 2014) and reptile (WYG, 2014) surveys, with a mitigation strategy prepared for the latter by Arbeco Ltd (Arbeco, 2017). Where relevant these reports, and additional ecological reports produced with respect to other protected species within the wider North Littlehampton development, will be referenced throughout this Preliminary Ecological Appraisal report.

1.2 The Site

The site is located to the north of the town of Littlehampton, West Sussex, centred on National Grid Reference (NGR) TQ 0312 0370 (**Map 1**).

The site is approximately 1.2 hectares in size and is dominated by bare ground with vegetated boundaries in the north, east and south. The newly constructed Lyminster Bypass road runs parallel with the western boundary, and a national railway line is located adjacent to the northern boundary.

The wider landscape is dominated by residential development to the south, east and west, whilst agricultural fields are present to the north. The Black Ditch stream flows approximately 775 metres north of the site, whilst at its closest point the River Arun is located approximately 1.8 kilometres west.

1.3 Aims and Scope of Report

The information within this report is based on a field survey and desktop study carried out between November 2021 and March 2022. The report describes the habitats and

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species (hereafter referred to as ecological features) within the site's Zone of Influence (Paragraph 3.2), and provides a detailed assessment of potential ecological effects of the proposed development of the site. It identifies the need for any measures to avoid, mitigate or compensate for significant adverse effects[1] on ecological features and outlines enhancements to the site's ecology to be implemented as part of the development. The objectives of the assessment are:

- To provide baseline information on ecological features within the site's Zone of Influence;
- To assess, characterise and quantify the effects on ecological features, including cumulative effects, and identify effects in the absence of any mitigation;
- To set out measures to avoid, mitigate and compensate for significant ecological effects in accordance with the 'mitigation hierarchy'[2]; and
- To outline opportunities for enhancement in order to achieve a net gain for biodiversity.

1.4 Site Proposals

The proposals entail the construction of 36 allotment plots, with the provision for additional wheelchair accessible ground level planting beds. An access track is proposed for the centre of the site which will extend from the west off the new Lyminster Bypass and connect to Holly Drive to the east. A metered water supply is proposed to be installed. New grassland, tree and hedgerow planting is proposed for the site boundaries.

The appraisal made reference to an initial proposals plan produced by CSA Environmental 'Allotments Landscape Proposals', dated January 2021 (Drawing No. CSA/5111/100, Revision B) (**Appendix 1**).

The Southern Allotments are subject to a Reserved Matters Application and once permission for this has been granted then construction will subsequently commence.

[1] For the purposes of this assessment a 'significant' adverse effect is one which will have an adverse effect on the ecological feature at the site level or higher.
[2] In accordance with CIEEM Ecological Impact Assessment guidance (CIEEM, 2018) a sequential process is adopted to address impacts on features of ecological interest, with 'Avoidance' prioritised at the top of the hierarchy and Compensation/Enhancement' at the bottom. This is often referred to as the 'mitigation hierarchy'.

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2.0 PLANNING POLICY CONTEXT

2.1 Introduction

This section summarises the planning policy in relation to ecology and biodiversity within the Arun District Council administrative area. This information is then used to assess the compliance of the scheme in relation to relevant planning policy and where necessary used to inform the necessary mitigation, compensation and enhancement measures (see Section 5.0).

2.2 Planning Policy

2.2.1 National Policy

The National Planning Policy Framework (NPPF) sets out the government's requirements for the planning system in England. The original document was published in 2012 with the most recent revised NPPF published in July 2021. A number of sections of the NPPF are relevant when taking into account development proposals and the environment. As set out within Paragraph 11 of the NPPF "*Plans and decisions should apply a presumption in favour of sustainable development*". However, Paragraph 182 goes on to state that "*The presumption in favour of sustainable development does not apply where the plan or project is likely to have a significant effect on a habitats site (either alone or in combination with other plans or projects), unless an appropriate assessment has concluded that the plan or project will not adversely affect the integrity of the habitats site.*".

The NPPF sets out that development proposals should not only minimise the impacts on biodiversity but also to provide enhancement. Paragraph 174 states that the planning system should contribute to and enhance the natural environment by *"…minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures...".*

A number of principles are set out in Paragraph 180, including that where harm cannot be adequately avoided then it should be mitigated for, or as a last resort, compensated for. Where impacts occur on nationally designated sites, the benefits must clearly outweigh any adverse impact and incorporating biodiversity in and around developments should be encouraged. Specific reference is also made to the protection of irreplaceable habitats[3], including ancient woodland[4]. Where loss to irreplaceable

[3] The NPPF defines irreplaceable habitats as "*Habitats which would be technically very difficult (or take a very significant time) to restore, recreate or replace once destroyed, taking into account their age, uniqueness, species diversity or rarity. They include ancient woodland, ancient and veteran trees, blanket bog, limestone pavement, sand dunes, salt marsh and lowland fen."*

[4] Natural England defines ancient woodland as "An area that has been wooded continuously since at least 1600 AD. It includes ancient semi-natural woodland and plantations on ancient woodland sites (PAWS)."

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habitats occurs planning permission would normally be refused unless there are wholly exceptional reasons and an adequate compensation strategy is in place. Paragraph 180 also states "*development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to improve biodiversity in and around developments 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.*". Paragraph 181 also sets out that potential SPAs, SACs and listed or proposed Ramsar sites or sites acting as compensation for SPAs, SACs and Ramsar sites, should receive the same protection as habitat sites.

In addition to the NPPF, Circular 06/05 provides guidance on the application of the law relating to planning and nature conservation as it applies in England. Paragraph 98 states "*the presence of a protected species is a material consideration when a planning authority is considering a development proposal that, if carried out, would be likely to result in harm to the species or its habitat*". Paragraph 99 states "*it is essential that the presence or otherwise of a protected species, and the extent that they may be affected by the Proposed Project Development, is established before planning permission is granted*".

2.2.2 Local Policy

Local planning policy within Arun District, outside of the South Downs National Park, is provided by the Arun Local Plan 2011-2031, adopted July 2018. Five policies are of relevance to ecology and biodiversity:

- **Policies ENV SP1: Natural Environment** and **ENV DM1: Designated Sites of Biodiversity or Geological Importance**
  These policies refer to the Protection of Pagham Harbour Ramsar site, Special Protection Area and Site of Special Scientific Interest, Arun Valley Special Area of Conservation and Special Protection Area, Solent and Dorset Coast Special Protection Area, Bognor Reef Site of Special Scientific Interest, Felpham Site of Special Scientific Interest and Climping Beach Site of Special Scientific Interest;

- **Policy ENV DM2: Pagham Harbour**
  This policy states that development within 400 metres of Pagham Harbour will only be accepted in exceptional circumstances. New development within five kilometres of the site will require mitigation;

- **Policy ENV DM3: Biodiversity Opportunity Areas**
  This policy refers to the retention and incorporation of locally valued and important habitats, including wildlife corridors and for schemes to be designed to minimise disturbance to habitats; and

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- **Policy ENV DM5: Development and Biodiversity**

  This policy refers to the need of development schemes to achieve biodiversity net gain and to incorporate biodiversity features including green walls and roofs, bat and bird boxes.

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3.0 METHODS

3.1 Introduction

This section details the methods used during the field survey and desktop study carried out as part of the Ecological Impact Assessment. Any significant limitations to the assessment are also considered.

3.2 Zone of Influence

To define the total extent of the study area for this assessment (Zone of Influence[5]), the proposed scheme was reviewed to establish the spatial scale at which ecological features could be affected. The appropriate survey radii for the various elements of the assessment (i.e. desktop study and field survey) have been defined in the relevant sections below. These distances are determined based on the professional judgement of the ecologist leading the appraisal, taking into account the characteristics of the site subject to appraisal, its surroundings and the nature and scope of the proposals.

3.3 Scoping

Protected species considered within this appraisal are those species/species groups considered likely to be encountered given the geographical location and context of the site. These are discussed within the results section (Section 4.0) of the current report. Where such a species is unlikely to be present on site a justification for likely absence is provided. Species considered likely absent from the site are not then considered in the assessment of ecological effects and mitigation measures section (Section 5.0) of this report.

3.4 Desk Study

3.4.1 Biological Records Centre

Sussex Biodiversity Record Centre (SxBRC) was consulted on 18th November 2021 for the following data:

- Records of non-statutory designated sites (Local Wildlife Sites (LWSs), Sites of Importance for Nature Conservation (SINCs), Site of Nature Conservation Interest (SNCIs)) within one kilometre of the site boundary. See **Appendix 2** for details; and

- Records of legally protected and notable species (flora and fauna) within one kilometre of the site boundary, including priority species and Species of Principal Importance (**Appendix 3**); and

[5] The Zone of Influence (ZoI), as defined by CIEEM, is the area over which ecological features may be subject to significant effects as a result of the proposed project and associated activities.

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- Records of bats within two kilometres of the site boundary. Bat species are highly mobile and therefore the search radius is increased for this species group.

3.4.2 Multi-Agency Geographic Information for the Countryside

The Multi-Agency Geographic Information for the Countryside (MAGIC) (DEFRA, 2022) database was reviewed on 29th March 2022 to establish the location of statutory designated sites located within the vicinity of the site. This included a search for all internationally and nationally designated sites such as Special Protection Areas (SPAs), Special Areas of Conservation (SACs), Wetlands of International Importance (Ramsar sites), Sites of Special Scientific Interest (SSSIs), National Nature Reserves (NNRs) and Local Nature Reserves (LNRs) within one kilometre of the site. Where appropriate, the desk study search area has been extended to take account of any appropriate statutory designated sites which need consideration in terms of potential in-direct effects and which support particularly mobile species[6]. The Impact Risk Zones (IRZ) were also obtained from MAGIC, which are used to help guide and assess planning applications for likely effects on SSSIs.

Sites within two kilometres of the site boundary where European Protected Species Mitigation (EPSM) licences have been granted were reviewed. This information allows a greater understanding of the potential for European protected species to be present in the local area.

3.4.3 Other Sources of Information

Online mapping resources, at an appropriate scale, were used to identify the presence of habitats such as woodland blocks, ponds, watercourses and hedgerows, in the vicinity of the site. These habitats may offer resources and connectivity between the site and suitable habitat in the local area, which may be exploited by local species populations.

The presence of ponds or other waterbodies within a 500 metre radius of the site in particular are noted in relation to great crested newt. The 500 metre radius is a standardised search radius to assist in the assessment of the suitability of a site and its surrounding habitat to support this species, based on current Natural England guidance (English Nature, 2001).

The wider North Littlehampton development site has been extensively surveyed since 2008, and where relevant, the assessment of the on-site suitability for protected

[6] Search areas for bat records are based upon information contained within Collins, J. (Ed.) (2016) *Bat Surveys for Professional Ecologists: Good Practice Guidelines* (Third Edition). The Bat Conservation Trust, London. Relevant distances for consideration of impacts on SPAs, SACs, Ramsar sites have been based on current published guidance available through web-based sources.

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species will take into consideration the results of the previous ecological assessments surrounding the site boundary.

3.5 Field Survey

The field survey broadly followed standard Phase 1 habitat survey methodology (JNCC, 2010) and included a search for evidence of, and an assessment of the site's suitability to support, protected and notable species as recommended by CIEEM (CIEEM, 2017). The field survey covered all accessible areas of the site, including boundary features.

3.5.1 Phase 1 Habitat Survey

An assessment was made of all areas of vegetation within the site based on the standardised Phase 1 habitat survey methodology (JNCC, 2010)[7]. This involved identification of broad vegetation types, which were then classified against Phase 1 habitat types, where appropriate. A list of characteristic plant species for each vegetation type was compiled and any invasive species[8] encountered as an incidental result of the survey recorded.

3.5.2 Protected and Notable Species Appraisal

A preliminary appraisal of the site's suitability to support legally protected and notable species was carried out. The following species/species groups were considered during the appraisal.

Bats

The survey conformed to current Bat Conservation Trust guidelines (Collins, 2016). An assessment was made of the suitability of buildings and trees on the site and immediately on the site boundary to support roosting bats based on the presence of Potential Roosting Features such as loose or missing roof tiles or lifted lead flashing for buildings and holes, cracks, splits, loose bark and ivy cladding for trees.

An assessment was made of the suitability of the site and the surrounding landscape to support foraging and/or commuting bat species. The assessment of the suitability of the site to support roosting, foraging and commuting bats is based on a four-point scale as detailed in **Appendix 4**.

Otter

The otter appraisal was based on an assessment of the suitability of the habitat present within the site to support otter by reference to habitat type (such as rivers, streams,

[7] The standard JNCC Phase 1 habitat survey methodology involves the production of a Phase 1 map showing the location and extent of habitat types, however, given the limited size and complexity of the site surveyed a Phase 1 habitat map has not been produced in this instance.
[8] Plant species included on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended). The survey was not specifically aimed at assessing the presence of these species and further specialist advice may need to be sought.

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ditches, wetlands, reed beds, lakes, ponds and reservoirs), proximity of the site to freshwater and potential important feeding resources (such as fisheries), presence of habitat features which could provide opportunities for resting places and/or holts (such as tunnels, hollows at the base of trees and presence of dense, undisturbed habitat). During the survey attention was paid to the presence of evidence such as spraints, feeding remains, footprints and slides.

Badger

The survey involved an assessment of the suitability of the site to support badger. Evidence of the species was recorded as an incidental result of the Phase 1 habitat survey and included locating badger setts, paths, and signs of territorial activity such as latrine sites.

Hazel Dormouse

The appraisal for the suitability of the site to support hazel dormouse was based on an assessment of habitat features that may indicate that the species is present. This includes the presence of key food sources such as hazel and bramble, or plants used as nesting material such as honeysuckle and clematis. Additionally, the species requires a continuum of food supply so that habitat structure, diversity and connectivity to adjacent areas of woodland/scrub are important features in determining the suitability of the site for hazel dormouse.

Water Vole

The water vole appraisal was based on an assessment of the suitability of the habitat present within the site to support water vole by reference to habitat type (such as rivers, streams, ditches, wetlands, reed beds, lakes, ponds and reservoirs), bank structure and the bank side vegetation. Water voles generally require sloping banks in which to burrow and well-developed bank side vegetation to provide shelter and food. During the survey attention was paid to the presence of burrows, latrines, feeding remains, trails and footprints.

Birds

The appraisal of breeding birds on the site was based on the suitability of habitat present to support nesting bird communities, the presence of bird species that may potentially nest within the available habitat and evidence of nesting such as old or currently active nests.

The assessment of wintering birds was based on an assessment of the suitability of the habitat on site to support important wintering bird species and populations. Particular attention was paid to the suitability for the site to support wintering farmland bird species, waders and wildfowl.

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Reptiles

The reptile appraisal was based on an assessment of the suitability of the habitat present within the site to support a population of reptiles. Reptiles particularly favour scrub and rough grassland interfaces and the presence of these is a good indication that reptiles may be present on-site. In addition, reptiles may utilise features such as bare ground for basking, tussocky grassland for shelter and compost heaps and rubble piles for breeding and/or hibernating.

Great Crested Newt

The appraisal of the site to support great crested newt included establishing the presence of suitable aquatic habitats such as ponds, lakes or other waterbodies within or adjacent to the site and the presence of suitable terrestrial habitat. Waterbodies that are densely shaded, highly eutrophic or that contain fish are likely to be less suitable for this species. The suitability of on-site ponds and terrestrial habitat is considered in relation to the presence of ponds within the wider area, as identified within the desktop study (Paragraph 3.4.3), and their suitability to be used as a network.

Invertebrates

An assessment was made of the suitability of the site to support diverse communities of invertebrates. The assessment was based on the presence of habitat features which may support important invertebrate communities. These features include, for example, an abundance of dead wood, the presence of diverse plant communities, varied woodland structure, sunny woodland edges with a diverse flora, waterbodies and water courses and areas of free draining soil exposures. During the field survey there was no attempt made to identify species present as this is a more specialist area of ecological assessment reserved for targeted surveys.

Other Relevant Species

An assessment was made of site suitability for other notable species such as more rarely encountered protected species, Species of Principal Importance for the Conservation of diversity in England notified under Section 41 of the NERC Act 2006 and as listed in the England Biodiversity List, and Local Biodiversity Action Plan (LBAP) species[9], specific to the study region.

Invasive Species

During the field survey any incidental records of invasive species listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) were recorded. However, it

[9] LBAPs identify local priorities for biodiversity conservation by translating national targets for species into effective action at the local level and identifying targets for species important to the local area.

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should be considered that the survey was not specifically aimed at assessing the presence of these species and further specialist advice may need to be sought.

3.6 Field Survey Details

The field survey was carried out by Olivia Walton, Ecologist of ECOSA on 22nd March 2022. The weather conditions were dry and sunny with 0% cloud cover, an ambient temperature of 12°C and a moderate breeze.

During the survey, the surveyor was equipped with 10x40 binoculars, a high powered torch and a digital camera

3.7 Field Survey Limitations

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 field survey has therefore not produced a complete list of plants and animals and in the absence of evidence of any particular species should not be taken as conclusive proof that the species is absent or that it will not occur in the future.

Online mapping resources provide an indication of habitat features present in the wider area, but do not provide a detailed assessment of habitat types.

During the survey no internal assessment of the on-site shed buildings was undertaken given their poor state of repair, and it was deemed unsafe to enter on health and safety grounds.

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4.0 BASELINE ECOLOGICAL CONDITIONS

4.1 Introduction

This section details the results of the field survey and desktop study undertaken as part of the Ecological Impact Assessment for the site. It assesses the baseline ecological conditions of the site at the time the desktop study was completed and based on the ecological features recorded during the field survey carried out on 22nd March 2022

4.2 Statutory and Non-statutory Designated Sites

Details of designated sites are provided in the paragraphs below.

4.2.1 Statutory Designated Sites

Consultation with SxBRC and the MAGIC database did not reveal the presence of any statutory designated sites within the one kilometre desktop search radius.

4.2.2 Non-Statutory Designated Sites

Consultation with SxBRC did not return any non-statutory designated sites within the one kilometre desktop search radius.

4.3 Habitats

4.3.1 Desktop Study Results

Consultation with SxBRC and the MAGIC database did not reveal the presence of any Priority Habitats located within, or adjacent to, the site boundary.

Consultation with SxBRC did not return any records for rare or notable floral species within the vicinity of the site.

4.3.2 Field Survey Results

Habitats are described in general terms using standard Phase 1 habitat survey terminology. The main habitats recorded on site during the Phase 1 habitat survey were as follows:

Dense/Continuous Scrub

Areas of dense unmanaged scrub are associated with boundary vegetation and located within the north-eastern corner (**Figure 1**) and along the southern site boundary (**Figure 2**). Bramble *Rubus fruticosus* species dominates the northern patch of scrub, with common nettle *Urita diocia*, cleavers *Galium aparine* and soft rush *Juncus effusus*, whilst the southern scrub is dominated by blackthorn *Prunus spinosa* stands, with buddleia *Buddleja davidii* and bramble interspersed. Perennial ryegrass *Lolium perenne,* common nettle and lesser celandine *Ficaria verna* were noted as present within the understorey.

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Figure 1: Bramble dominated scrub in north-eastern corner

Figure 2: Blackthorn dominated scrub along the southern site boundary

Poor Semi-improved Grassland

Areas of unmanaged poor semi-improved grassland are present throughout the site, and associated with the boundaries. The grassland within the north of the site is shorter in length (**Figure 3**) however further south within the site the grassland becomes longer and more tussocky, and fewer herbaceous species were noted to be present (**Figure 4**). The grassland was dominated by perennial ryegrass, cock's foot *Dactylis glomerata* Yorkshire fog *Holcus lanatus*, with herbaceous species present including broadleaved dock *Rumex obtusifolius*, dandelion *Taraxacum officinale*, yarrow *Achillea millefolium*, and common mouse-ear *Cerastium fontanum*.

Figure 3: Grassland along the northern site boundary

Figure 4: Tussocky species poor semi-improved grassland further south within the site

Ruderal/Ephemeral Vegetation

Patches of ruderal/ephemeral vegetation are present alongside the newly built bypass infrastructure along the western site boundary (**Figure 5**), in addition to surrounding the acoustic barrier which has been built within the south-western corner of the site (**Figure 6**). Species recorded within this habitat include broadleaved dock, stinging nettle, ribwort plantain *Plantago lanceolata,* creeping thistle *Cirsium arvense* , common sorrel *Rumex acetosa*, germander speedwell *Veronica chamaedrys*, and wild mustard *Sinapis arvensis*.

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Figure 5: Vegetation along the bypass

Figure 6: Vegetation associated with the acoustic barrier to the south-west

Bare Ground

The site is dominated by bare ground which has been subject to recent clearance (**Figure 7**).Opportunistic species such as broadleaved dock, ribwort plantain and dandelion were noted to be present within cracks in the ground.

Figure 7: Bare ground facing west

Treeline

The eastern site boundary lies adjacent to residential development and contains non-native ornamental species such as Leyland cypress *Cupressus x leylandii* and staghorn sumac *Rhus typhina* (**Figure 8**), in addition to a number of young ash *Fraxinus excelsior* trees within the south-eastern corner (**Figure 9**).

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Figure 8: Staghorn sumac along the eastern site boundary

Figure 9: Young ash trees

To the west of the acoustic barrier, new native tree planting has been undertaken with species noted as present including blackthorn, dogwood, birch and field maple within an area of amenity grassland (**Figure 10**).

Figure 10: Native tree planting to the west of the acoustic barrier

Other Habitats

A single dilapidated wooden shed is located within the north-east of the site, with its suitability for bat roosting potential discussed in Paragraph 4.4.1. Metal fencing is present along the northern boundary, whilst the areas of the western boundary not adjacent to the bypass infrastructure are bound by a metal and wire fence.

Summary

The site is dominated by bare ground with vegetation present along the site boundaries comprising unmanaged poor semi-improved grassland, dense scrub, ruderal/ephemeral and lines of trees. Fence lines demark the northern and western site boundaries, and a single dilapidated wooden shed is present within the north-east.

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4.4 Notable and Legally Protected Species

4.4.1 Bats

Desktop Study Results

Consultation with SxBRC returned records for a number of bat species within the two kilometre desktop search radius including serotine *Eptesicus serotinus*, *Myotis*[10] bat species, Alcathoe bat *Myotis alcathoe*, Daubenton's bat *Myotis daubentonii,* Whiskered/Brandt's bat *Myotis mystacinus/brandtii*[11], Natterer's bat *Myotis nattereri,* noctule *Nyctalus noctula*, *Pipistrellus*[12] bat species, Nathusius' pipistrelle *Pipistrellus nathusii*, common pipistrelle *Pipistrellus pipistrellus*, soprano pipistrelle *Pipistrellus pygmaeus* and brown long-eared bat *Plecotus auritus.*

Consultation with the MAGIC database revealed the presence of six recently granted EPSM licences with respect to bats within the two kilometre desktop The closest is EPSM2012-4965 located approximately 150 metres east and granted in 2012 for the destruction of a resting place for common pipistrelle, brown long-eared bat and Natterer's bat.

The other EPSM licences granted within the two kilometre radius are in relation to the damage and destruction of resting places for common pipistrelle, and licence EPSM2009-946 located approximately 300 metres east and granted in relation to common pipistrelle, brown long-eared bat and soprano pipistrelle for the destruction of a breeding site for these species.

All of the buildings within the wider North Littlehampton development site were assessed to have negligible bat roosting suitability following the completion of bat emergence/re-entry surveys (where necessary) by WYG Ecology in 2014 (WYG, 2014), and were subsequently demolished. In addition, the trees within the site were surveyed by ECOSA in January 2017 for Potential Roosting Features (PRFs) however none were identified to contain bat roosting features.

[10] There are seven species of Myotis bats in Britain. Myotis bats are very difficult to identify specifically, this can generally only be done by examination of physical features and Phylogenetic Analysis Identification of bat droppings. Many of these bats are common and will utilise buildings for roosting often occupying small and inaccessible voids. For the purpose of this report all species shall be referred to as Myotis bats unless a specific identification has been possible.

[11] Whiskered bat and Brandt's bat cannot be distinguished from each other unless they are examined in the hand. For the purpose of Phase 2 bat survey, it is widely acceptable to use the category whiskered/Brandt's bat.

[12] There are three species of pipistrelle bat, the common pipistrelle *Pipistrellus pipistrellus*, the soprano pipistrelle *Pipistrellus pygmaeus* and the Nathusius' pipistrelle *Pipistrellus nathusii*. The species can be separated by their echolocations, examination of physical characteristics and Phylogenetic Analysis Identification of bat droppings. Unless confirmation of identification has been made by visual identification the three species shall be referred to in this report as pipistrelle bat. All three species will roost in similar locations within buildings. The soprano pipistrelle has a tendency to form larger roosts numbering 100's of bats and is associated with wetland habitat. Nathusius' pipistrelle bats frequently share maternity roosts with soprano pipistrelle bats.

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Building Assessment

A single dilapidated wooden shed is present within the north-east of the site (**Figure 11**). It is of timber infrastructure with timber beams and boards throughout, and noted during the field survey to be overgrown with bramble. The shed is in a poor state of repair with the roof missing on the western section, and open facing to the north. Given that the roofing material used renders the shed single skinned, no thermal stability would be provided to roosting bats if they were to utilise this structure. Taking the poor condition of the shed and lack of thermally suitable materials used into consideration, the building is assessed to be of negligible suitability for roosting bats.

Figure 11: Dilapidated wooden shed overgrown with bramble

Tree Assessment

Trees present within the site are young in age or have just been recently planted, and do not contain Potential Roosting Features (PRFs) such as splits in the bark or woodpecker holes given that their limbs/trunks have not developed enough to support these features. Given the lack of suitable features, the on-site trees are considered to be of negligible suitability for tree roosting bats.

Foraging and Commuting Habitat

The site provides limited foraging opportunities for the species group given that the vegetation is restricted to the site boundaries and generally species poor. The treeline along the eastern boundary, and linear features within the immediate surround such as the railway line and the newly constructed bypass, provide suitable wildlife corridors for individuals to commute into the wider landscape. It is likely that individuals pass through the site on occasion to reach further suitable habitat within the wider area.

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4.4.2 Otter

Desktop Study Results

Consultation with SxBRC returned no records of otter *Lutra lutra* within the desktop study area. Otter became extinct in Sussex in the late 1960s however over the last 20 years, signs of otter activity have been found in most of the Sussex river catchments (SxBRC, 2021). Otter surveys undertaken by WYG Ecology (WYG, 2009), and subsequent updating walkovers by ECOSA (ECOSA, 2022) did not record any evidence of the species utilising the Black Ditch – a watercourse situated along the northern boundary of the wider development site.

Field Survey Results

No aquatic habitat is present on, or adjacent to the site, and no signs of otter were recorded during the field survey. The closest riverine habitat is associated with the Black Ditch located approximately 775 metres north of the site, and there is no aquatic connectivity between this watercourse and the site. Physical barriers such as the new residential areas associated with the wider North Littlehampton development, and the railway line adjacent to the northern site boundary, would prohibit otter from using the site to commute to further suitable aquatic habitat within the wider landscape, and as a result the species is unlikely to pass through on occasion. Given the lack of suitable aquatic habitat within the site, and no connectivity to potential suitable otter habitat in the landscape, the species is not considered further within this report.

[redacted]

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4.4.4 Hazel Dormouse

Desktop Study Results

Consultation with SxBRC did not return any records for hazel dormouse *Muscardinus avellenarius* within the two kilometre desktop search radius. Consultation with the MAGIC database did not return any recently granted EPSM licences with respect to the species either. This lack of records however does not confirm the absence of the species in the local area.

In the context of the wider North Littlehampton development site, limited suitable habitat was recorded as present to support hazel dormouse, and where suitable habitat was identified this was isolated and not connected throughout the landscape (WYG, 2014)

Field Survey Results

Limited suitable habitat for hazel dormouse is present within the site, of note is the scrub containing suitable food species such as bramble and blackthorn. The scrub and eastern boundary vegetation are isolated from any further suitable hazel dormouse habitat within the surrounding area, and this lack of connectivity is unsuitable for the mobility requirements of the species. Given the isolation of the on-site habitats from suitable hazel dormouse habitat within the wider area, the site is considered unsuitable for hazel dormouse and therefore the species is not considered further in this report.

4.4.5 Water Vole

Desktop Study Results

Consultation with SxBRC returned fifteen records for water vole *Arvicola amphibius* within the desktop search radius between 2013 and 2019. Eleven of these records were associated with the Black Ditch which is a watercourse that flows along the northern boundary of the wider North Littlehampton development.

Surveys undertaken by WYG in 2008 and 2014 identified the presence of water vole within the Black Ditch, however subsequent updating surveys by ECOSA in 2017 and 2018 did not record any further evidence of the species (ECOSA, 2022).

Field Survey Results

No aquatic habitat is present on, or adjacent to the site, and no signs of water vole were recorded during the field survey. The closest riverine habitat is associated with the Black Ditch located approximately 775 metres north of the site, and there is no aquatic connectivity between this watercourse and the site. Water vole require watercourses for commuting through, and banksides for foraging on vegetation and digging burrows for sheltering. Given the lack of aquatic connectivity, the isolation of the site renders it

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unsuitable for water vole, and therefore the species is not considered further in this report.

4.4.6 Birds

Desktop Study Results

Consultation with SxBRC returned a number of bird species within the two kilometre radius of the site. Of note within West Sussex included the BTO Birds of Conservation Concern Red Listed[13] cuckoo *Cuculus canorus* to the east of the wider North Littlehampton development.

Extensive breeding bird surveys undertaken throughout the North Littlehampton development (WYG, 2014) recorded breeding species within the eastern and southern site boundaries comprising the Red Listed house sparrow *Passer domesticus*, starling *Sturnus vulgaris* and song thrush *Turdus philomelos*, and Amber Listed[14] dunnock.

Field Survey Results

During the field survey, a number of bird species were recorded including house sparrow, woodpigeon *Columba palambus*, magpie *Pica pica*, jackdaw *Corvus monedula*, and black-headed gull *Chroicocephalus ridibundus* individuals were recorded flying over. Of these species, house sparrow is Red Listed; whilst woodpigeon is on the Amber List. A barn owl *Tyto alba* box was recorded from the opposite side of the newly constructed Lyminster bypass running parallel to the site's western boundary.

The eastern boundary vegetation provides suitable nesting habitat for a number of species, and it is likely individuals breed within the site. The coverage of ground vegetation is limited in extent and it is therefore unlikely to be used by ground nesting species. Overwintering birds such as fieldfare *Turdus pilaris* and mistle thrush *Turdus viscivorus* may utilise the scrub/treeline vegetation on occasion when commuting through the local area.

[13] The UK's birds are split in to three categories of conservation importance - red, amber and green. Red is the highest conservation priority, with species needing urgent action. Amber is the next most critical group, followed by green. Red List criteria include species which are: globally threatened; have been subject to historical population decline in UK during 1800–1995; are in severe (at least 50%) decline in UK breeding population over last 25 years, or longer-term period, or; subject to severe (at least 50%) contraction of UK breeding range over last 25 years, or longer-term period.
[14] The UK's birds are split in to three categories of conservation importance - red, amber and green. Red is the highest conservation priority, with species needing urgent action. Amber is the next most critical group, followed by green. Amber list criteria include species which are: in unfavourable conservation status in Europe; subject to historical population decline during 1800–1995, but recovering; subject to moderate (25-49%) decline in UK breeding population or contraction of UK breeding range over last 25 years, or the longer-term period; subject to moderate (25-49%) decline in UK non-breeding population over last 25 years, or the longer-term period; rare breeders (1–300 breeding pairs in UK); rare non-breeders (less than 900 individuals), or; internationally important species with at least 20% of European breeding or non-breeding population in UK.

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4.4.7 Reptiles

Desktop Study Results

Consultation with SxBRC returned records for slow-worm *Anguis fragilis*, common lizard *Zootoca vivipara* and grass snake *Natrix helvetica* within the two kilometre search radius. Of note, five records of common lizard were returned from the allotments on the opposite side of the Lyminster Bypass just to the west of the site.

Extensive reptile surveys have been undertaken across the wider North Littlehampton development, with the most recent surveys undertaken by ECOSA in 2017 recording low populations of slow-worm and common lizard from within suitable reptile habitat to the north of the site (ECOSA, 2018). A reptile destructive search undertaken of the Southern Allotments in mid-2019 by ECOSA recorded a single common lizard, which was subsequently relocated to vegetation on the opposite side of the reptile exclusion fencing in the north-eastern corner of the site.

Field Survey Results

During the field survey, personal communication with residents south of the site revealed that four common lizards were recorded from within the site following the removal of a fallen fence panel in 2021.

Reptile exclusion fencing which had previously been erected around the perimeters of the site was noted during the field survey to have been ripped and in places buried by spoil (**Figure 12**). The suitable habitat which was previously fenced off from the site has now encroached into the site boundary, and the unmanaged grassland with a long sward and extensive tussocky areas may provide reptile individuals with suitable foraging and sheltering habitat. A timber pile was recorded within the north-eastern corner of the site which would provide the species group with suitable basking and sheltering habitat (**Figure 13**).

Figure 12: Destroyed reptile fencing along the northern boundary

Figure 13: Timber pile in north-eastern corner

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4.4.8 Great Crested Newt

Desktop Study Results

Consultation with SxBRC did not return any records of great crested newt *Triturus cristatus* within the desktop study search, however, this does not confirm the absence of the species in the local area.

Consultation with the MAGIC database did not return any recently granted EPSM licences with respect to great crested newt within the two kilometre search radius.

An assessment of aerial photography and 1:25,000 OS mapping revealed the presence of three drainage streams and two waterbodies within a 500-metre radius of the site. The closest waterbody is located approximately 285 metres to the east.

Great crested newt surveys of the wider North Littlehampton development were undertaken by WYG Ecology in 2014 for all of the accessible waterbodies located within a 500 metre radius of the development site (WYG, 2014). Despite the extensive survey effort in accordance with best practice guidelines (English Nature, 2001), no evidence of the species was recorded within the 500 metre survey radius.

Field Survey Results

The closest waterbody to the site is located approximately 285 metres east, with no waterbodies located on, or adjacent to, the site. Given that extensive great crested newt surveys did not record the species as present within a 500 metre radius of the wider North Littlehampton development scheme, it is unlikely that the species breeds within the immediate surrounds of the site and is therefore considered absent. As a result, the habitat on-site is unsuitable for great crested newt and therefore the species is not considered further in this report.

4.4.9 Invertebrates

Desktop Study Results

Consultation with SxBRC returned records for a number of invertebrate assemblages, with notable records returned for stag beetle *Lucanus cervus* and brown hairstreak *Theca betulae*, however the exact location of these records has been withheld due to the legislation protecting these species.

Entomological surveys undertaken within the wider development site in 2008 (WYG, 2008) returned only two records of scarce or threatened species comprising a mining bee *Andrena labialis* and a soldier beetle *Cantharis fusca*.

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Field Survey Results

The site contains common habitats which are likely to support common and widespread invertebrate assemblages. The timber pile in the north-eastern corner may be superficially suitable for stag beetle however it has been recently placed within the site given its condition, and the lack of woodland habitat in the wider surrounds renders it unlikely that stag beetle may utilise the site. Despite the presence of the brown hairstreak butterfly's food plant blackthorn, the blackthorn dominated scrub in the south-eastern corner of the site is isolated from further suitable habitat and therefore does not provide the habitat structure required by the butterfly to lay its eggs within.

4.4.10 Other Relevant Species

Desktop Study Results

Consultation with SxBRC returned records for a number of other relevant species, including European hedgehog *Erinaceus europaeus*, brown hare *Lepus europaeus*, harvest mouse *Micromys minutus*, and European rabbit *Oryctolagus cuniculus*.

Field Survey Results

During the field survey, personal communication with residents south of the site revealed that a fox *Vulpes vulpes* den has been active within the south-eastern corner of the site for approximately twenty years. Evidence of fox passing through the site was noted by the presence of footprints tracked across the central bare ground within the site (**Figure 14**). Additionally, the residents have recorded European hedgehog foraging and commuting along the southern site boundary adjacent to the fence lines.

Figure 14: Fox print recorded in the centre of the site

The poor semi-improved grassland, albeit limited in extent, provides suitable foraging and commuting habitat for European hedgehog who may pass through on occasion to reach further suitable habitat within the wider landscape.

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4.5 Summary of Key Ecological Features

The following features are those with greatest ecological value that lie within the site's Zone of Influence:

- Suitability for foraging and commuting bats;
- Suitability for commuting badger;
- Suitability for breeding birds;
- Suitability for reptiles;
- Suitability for fox; and
- Suitability for European hedgehog

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5.0 ASSESSMENT OF ECOLOGICAL EFFECTS AND MITIGATION/COMPENSATION/ ENHANCEMENT MEASURES

5.1 Introduction

This section assesses the ecological effects of the proposed development scheme on the identified ecological features as identified in Section 4.0. Methods for addressing potential impacts and effects on ecological features have been approached in accordance with the mitigation hierarchy[15] with avoidance of impacts prioritised where possible. Where significant adverse effects cannot be avoided other forms of mitigation are prioritised over compensation. Enhancement measures have been detailed, where relevant, in order to not only minimise the impacts on biodiversity but also to provide enhancement in accordance with Paragraph 170 of the NPPF (Paragraph 2.2.1). It is anticipated that mitigation, compensation and enhancement measures will be secured through the planning process.

5.2 Scheme Design

The proposals entail the construction of 36 allotment plots, with the provision for additional wheelchair accessible ground level planting beds. An access track is proposed for the centre of the site which will extend from the west off the new Lyminster Bypass and connect to Holly Drive to the east. A metered water supply is proposed to be installed. New grassland, tree and hedgerow planting is proposed for the site boundaries. It is currently unknown whether lighting will form part of the proposals.

The potential ecological impacts and effects of these proposals, in the absence of mitigation, are described for each ecological feature below. For each ecological feature, measures to mitigate and/or compensate for significant effects are described.

5.3 Designated Sites

5.3.1 Potential Impacts and Effects

No designated sites are located within one kilometre of the site boundary, nor will any of the designated sites listed within the Arun District Local Plan be affected as a result of the proposals. As a result, no potential impacts are anticipated in relation to designated sites.

5.3.2 Mitigation and Compensation Measures

Given that no potential impacts on designated sites are anticipated, no mitigation or compensation measures are required.

[15] In accordance with CIEEM Ecological Impact Assessment guidance (CIEEM, 2018) a sequential process is adopted to address impacts on features of ecological interest, with 'Avoidance' prioritised at the top of the hierarchy and Compensation/Enhancement' at the bottom. This is often referred to as the 'mitigation hierarchy'.

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5.3.3 Enhancement

No enhancement measures are required in relation to designated sites.

5.4 Habitats

5.4.1 Potential Impacts and Effects

The current proposals will result in the loss of the on-site grassland, scrub, treelines and ruderal/ephemeral vegetation. Policy ENV DM5 of the Arun Local Plan, refers to the need for development schemes to achieve biodiversity net gain, however this will be covered as part of the wider North Littlehampton development scheme and therefore does not propose a potential impact to the development of the Southern Allotments.

5.4.2 Mitigation and Compensation Measures

Any boundary vegetation not to be removed during construction will follow protective measures in line with BS 5837:2012 *Trees in Relation to Design, Demolition and Construction – Recommendations* (BSI, 2012). This document outlines the use of tree protection barriers to be used for the duration of the construction phase. These barriers are proposed to shield the retained vegetation from damage during construction.

The loss of the current on-site habitats will need to be compensated for through the provision of new grassland and native hedgerow planting. Native species planting should be incorporated, rather than non-native or cultivar specimens, with species recommended including field maple *Acer campestre*, pedunculate oak *Quercus robur*, hazel *Corylus avellana*, hawthorn *Crataeugus monogyna*, crab apple *Malus sylvestris* and wild cherry *Prunus avium*. Grassland to be incorporated into the landscaping design will be sown with a suitable seed mix which will increase species diversity within the habitat. Prior to the selection of the seed mixture to be utilised, it may be necessary to undertake soil testing to establish the current pH, phosphorus and nitrogen levels of the soil. A seed mix such as Emorsgate EM2 Standard General-Purpose Meadow Mixture, is recommended as it is suitable for a wide range of soil types, and contains a 1:4 ratio of wildflower and grass species.

5.4.3 Enhancement

Enhancement opportunities will include the incorporation of species which are of benefit to pollinating invertebrates, such as *Lavandula* and *Viburnum* species, listed on the Royal Horticultural Society ‘Plants for Pollinators’ list (RHS, 2019).

5.5 Bats

5.5.1 Potential Impacts and Effects

The introduction of new lighting into the site may be a potential constraint on the development through the disturbance to foraging and commuting bats utilising the site.

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In England, bats and their habitat are fully protected under the Wildlife and Countryside Act 1981 through inclusion in Schedule 5. In addition, all bat species are protected under the Conservation of Habitats and Species Regulations 2017. Refer to **Appendix 3** for details.

5.5.2 Mitigation and Compensation Measures

No additional lighting is recommended within the site. However, if this is not possible then where lighting is to be introduced this will comprise directional lighting in order to minimise any spill on to both retained and newly created habitat. Ideally the bulbs will be LED and at the warmer end of the spectrum (e.g. avoiding blue or white light). LED lights emit much lower levels of UV and therefore have a lower impact on wildlife[16]. New lighting will be task related, and associated with entry/exit points of the allotments and any additional on-site facilities. The lux level will be as low as possible to allow the task to be carried out safely and effectively. Guidance on task related lighting levels and mitigation options as described within the Bats and Artificial Lighting in the UK report will be followed (Institution of Lighting Professionals, Bat Conservation Trust, 2018).

5.5.3 Enhancement

Given that the residential dwellings proposed within the wider North Littlehampton development will have additional bat roosting features incorporated into the fabric of the properties, no further enhancement opportunities in relation to bats are recommended at this time. Native species planting, and shrub planting of species for pollinating invertebrates will enhance the site for bats through increased species diverse invertebrate foraging and linear wildlife corridors for commuting.

[redacted]

[16] *Wildlife and Artificial Lighting Seminar*, 21st – 22nd March 2014, Arup London, Bat Conservation Trust.

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5.6.2 Mitigation and Compensation Measures

To avoid any badger individuals being harmed during the construction works, any excavations will be covered overnight to prevent individuals falling in. A timber ramp will be inserted to ensure badger can escape at their own accord.

New grassland planting as detailed within Paragraph 5.4.2 will compensate for the loss of the existing suitable foraging and commuting habitat for badger.

5.6.3 Enhancement

No enhancement measures in relation to badger are considered necessary.

5.7 Birds

5.7.1 Potential Impacts and Effects

The removal of vegetation to facilitate the proposals has the potential to injure and/or kill breeding birds, their nests and chicks, if present during the works, and as a result nesting birds have been identified as a potential impact on the development.

All birds, their nests, eggs and young are legally protected, with certain exceptions, under the Wildlife and Countryside Act 1981 (as amended). Refer to **Appendix 3** for details.

5.7.2 Mitigation and Compensation Measures

Any vegetation within the site proposed for removal will be cleared outside of the breeding bird season which extends from March to August, inclusive. If this is not possible, prior to the commencement of works the vegetation will be checked by a suitably qualified ecologist for any signs of nesting birds. If any evidence is discovered, a suitable buffer (minimum five metres) will be enforced and delays to the work schedule may incur until nesting has ended and chicks have fledged.

5.7.3 Enhancement

Given that the residential dwellings proposed within the wider North Littlehampton development will have additional bird nesting features incorporated into the fabric of the properties, no further enhancement opportunities in relation to birds are recommended at this time. Native species planting, and shrub planting of species for pollinating invertebrates will enhance the site for birds through the provision of additional nesting habitat and foraging opportunities from native, fruit bearing trees.

5.8 Reptiles

5.8.1 Potential Impacts and Effects

The unmanaged grassland and dense scrub within the site has the potential to support common reptile individuals within the site. Given that the reptile fencing which had

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previously been installed to exclude reptiles from the site is now damaged and non-functional, there is the potential that individuals have recolonised the site. The removal of this vegetation may kill and/or injure individuals present within the site during the development works, and lead to long-term loss of suitable reptile habitat.

Widespread reptile species (slow-worm *Anguis fragilis*, common lizard *Zootoca vivipara*, grass snake *Natrix helvetica* and adder *Vipera berus*) are protected under the Wildlife and Countryside Act 1981 against harm. Refer to **Appendix 3** for details.

5.8.2 Mitigation and Compensation Measures

Given that the damage to the reptile fencing may have allowed reptiles to recolonise the site, a hybrid approach will be adopted in order to remove any reptiles from the construction area. Reptile refugia (approximately 500 millimetres x 500 millimetres in size) will be distributed within the boundary vegetation approximately two weeks prior to vegetation clearance works. As the refugia heat up using sunlight, they provide a thermal source for reptile individuals, and the deployment will encourage reptiles to utilise the vegetation underneath, or bask on top of the refguia.

Immediately prior to the clearance works, the reptile refugia will be inspected and subsequently removed by a suitably qualified ecologist. Any reptiles encountered will be translocated by hand to the Central Wetland Area, or into areas of retained open space south of the Black Ditch. A precautionary method of works will then be followed to avoid injury or harm to any further reptile individuals who are present but not utilising the reptile refugia. This will involve a suitably qualified ecologist supervising two-stage vegetation removal, with an initial cut down to 150mm before the top soil is stripped. Any reptile individuals encountered during the destructive search works will be relocated to the previously identified areas of retained open space. The works will need to be undertaken during the reptile active season which extends from April to October, inclusive.

5.8.3 Enhancement

The creation of a hibernacula or log pile would provide additional basking and foraging opportunities for reptiles and as a result enhance the site for the species group.

5.9 Other Relevant Species

5.9.1 Potential Impacts and Effects

The removal of the habitats within the south-eastern corner of the site has the potential to harm fox individuals and their cubs if present during the clearance works. Foxes are protected under the Wild Mammals Act 1996 which makes it an offence to crush or asphyxiate the species, which has been identified as a potential impact.

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Any grassland and scrub removal has the potential to harm European hedgehog, in addition the potential for long-term habitat loss and fragmentation as a result of new barriers erected at the site. European hedgehog is protected under Schedule 6 of the Wildlife and Countryside Act 1981 against killing or capturing them using certain methods (**Appendix 3**).

5.9.2 Mitigation and Compensation Measures

The fox den will be excluded using one-way exclusion gates on all den entrances, and the gates will be installed by an experienced ecologist between September and February once any cubs have dispersed and left in place for 21 days. The installation of camera traps directed towards the entrances will record any activity, and monitored on a weekly basis. Once 21 days have passed with no activity, then the den can be destroyed using an excavator and supervised by a suitably qualified ecologist.

A watching brief will be undertaken by on-site contractors during the clearance works for European hedgehog. Should any individuals or their nests be encountered as part of the clearance works, then these should be relocated to retained habitat.

If any new barriers are to be erected within the site, they will comprise post and rail fences, and not closed board fences or brick walls, to ensure the continued permeability of the site for European hedgehog. If post and rail fences are not possible, gaps should be created within the wooden boards or brick walls measuring a minimum of 13 by 13 centimetres to allow safe passage of individuals across the site, termed ‘Hedgehog Highways’ (Peoples Trust for Endangered Wildlife, 2018)

5.9.3 Enhancement

No enhancement opportunities in relation to fox and European hedgehog are recommended.

5.10 Residual and Cumulative Effects

Given the mitigation and compensation measures outlined above, no significant residual effects are anticipated on any of the species considered. Therefore, there will be no cumulative effects on local populations as a result of the development.

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6.0 CONCLUSIONS

6.1 Conclusion

The site has been assessed to be of suitability for foraging and commuting bats, badger, breeding birds, reptiles, fox and European hedgehog. A hybrid precautionary method of works will be adopted in relation to reptiles. One-way exclusion gates will be installed on the fox den and 21 days monitoring undertaken to exclude any indiviauls from the den. A watching brief will then be required for den destruction and habitat removal within the south-eastern corner of the site to ensure no fox individuals or their cubs are harmed during the works. Mitigation and compensation measures will include the incorporation of new native species planting, a sensitive lighting strategy and sensitively timed works. Opportunities for enhancement, including the installation of bat roosting and bird nesting boxes, have been highlighted. As such it is considered that the proposals will accord with all relevant national and local planning policy in relation to ecology including Policies ENV DM3 and DM5 of the Arun Local Plan and the NPPF (see Section 2.0).

6.2 Updating Site Survey

If the planning application boundary changes or the proposals for the site alter, a re-assessment of the scheme in relation to ecology may be required. Given the mobility of animals and the potential for colonisation of the site over time, updating survey work may be required, particularly if development does not commence within 18 months of the date of the most recent relevant survey.

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Map 1 Site Location Plan

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SOUTHERN ALLOTMENTS, NORTH LITTLEHAMPTON, TODDINGTON LANE, LITTLEHAMPTON, WEST SUSSEX

ECOLOGICAL IMPACT ASSESSMENT

Map 1 - Site Location Plan

Client:	Persimmon Homes Thames Valley
Date:	June 2022
Status:	Final

KEY

Site Boundary

Scale at A4: 1:10,000

0 100 200 400 Metres

N

Prepared by: OW	Date: 200522
Last amended by: N/A	Date: N/A

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Appendix 1 Site Proposals Plan

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PLANTING SPECIFICATION

General Guidance

All plant material to be in accordance with the NTA 'Handling and establishing landscape plants Part 1 Part 2 and Part 3' (obtainable from the Horticultural Trades Association) and the FTPS publication 'Plant Handling and its packing, to conform to National Planting Specification Guidelines.

The individual addressees of the plans or site shall be the responsibility of the contractor and should follow closely the material shown in the detailed planting proposal drawings supplied by the landscape architect. Contractor to ensure that plants are equally spaced within individual planting groups.

Contractor to ensure that samples plants are located in the form of a plant specimen pursuant as shown on detailed planting plans.

Contractor shall maintain existing levels around the base of existing trees and shall undertake all planting within excavating within root protection areas (RPs) in accordance with BS5837:2012. Contractor shall not excavate or relocate any tree protection fencing without prior consent of the client.

Contractor to check the locations of all underground services, existing and proposed, prior to the excavation of any root pits or shrub beds and identify any potential conflicts to the client / landscape architect.

All storage shall be undertaken from site and the contractor shall at all times keep the site free from rubbish and debris.

For the sections of site where the contractor shall keep the site free from excessive weeds as stated in the Details (ie. RB).

All plants should be supplied at the same time and of the same species as specified in the planting schedule on the landscape proposal plan. Any proposed replacement species or variations from the planting schedule should be highlighted to and agreed with the client prior to installation.

All plants shall be hardened off to the Contractor's own content or at the source prior to planting out.

All field grown and containerised trees must have been transplanted or undergone the process no less than 18 months prior to supply.

The Contractor shall carry out the work strictly and with excellent conditions are suitable. Planting is not to take place during periods of frost or strong winds.

The contractor is to ensure that adequate watering and weed control is provided at the time of planting.

Any impact informed to site is responsible for use in planting works is to be stored in accordance with the BS4428 publication 'Code of practice for the establishment use of tools on construction sites'.

Do not use tools in adult based solvents.

Prior to planting planting areas shall be cleared of grass and weed growth physically and/or chemically with a proprietary manufacturer material and a period of time shall be allowed for degrade as recommended by the manufacturer before commencement of soil preparation for planting.

Alkaline and or the material thoroughly before planting stage to ensure contact is thoroughly soaked and not that handling.

Tree Planting

Generally plant trees in pits with minimum dimensions of:

- 1000 x 1000 x 750 Without stage for trees in soft paved areas including geotextiles and weed and root guidance.

Backfill the pit in layers as specified below from subsoil up:

Drainage layer

- 250mm depth of compacted inert free draining gravel or stone/aggregate, wrapped in geo textile membrane
- 100m layer of washed material coarse sand to act as the draining layer between geotextile and soil

Tested layer

- 100-300mm layer of material site excavated topsoil (free from weeds) or imported topsoil (BS3882/screen grade to BS3882:2015) spread, depth dependent on use of rootball.

Depth of topsoil varied and as we deep as the rootball or (suspect that is a stop, depth of 300-350mm. Should the rootball be larger (i.e. 400mm height) then this will should be increased in depth to suit, but with the difference in depth from the 400-500mm topsoil layer and the drainage layer made up of quality imported Manufacturing material to BS8601:2012 to avoid impact occurring of depths of greater than 300mm.

As stated above, the top 300 and for trees (planted in newly created planting areas should be 1m x 1m (measure shown planting) is proof top in trees, underplanted ground, will should be dug to depths 300mm greater than the rootball to limit satisfaction of surrounding and structure.

Break up surface of new pit to a depth of 250mm and ensure ground is free/loosing. Loosen edges of new pit or lines of planting by hand, using a fork to ensure good drainage. The should be excavated to greater than 300mm and in planting and standard as required.

Incorporate a well conditioned/amendment in the form of peat-free (see above compost or well rotted green material) compost or 'Rootmaster' by Greenfield Ltd (01424 224154) well decomposed organic material and the ratio of 1m: 3m.

Incorporate and improve 'Compaction Relief' by Greenfield Ltd (01342 832150) at a rate of 1kg per m2. Mixed thoroughly into backfilling material.

Backfill topsoil mix in layers of 150mm, firming at each layer and treading the pit ready to set drainage. This surface mass of the pit should be 100mm above the surrounding ground.

Trees shall be planted in the centre of the excavated hole.

Trees in well planted areas to be staked with a minimum 75mm round stake, consisting of only tidal Stake, particular size 75-80mm x 2.4m, sources of FSC-100mm where appropriate.

Ratchet tie/s and heavy standard trees shall be stated and supported with a tree, double stake (including of 80m 75mm diameter x 4m, 2400mm length, crucifix tie/tree guard above into the ground. 400mm above ground level and fixed to the tree by a proprietary rubber tree tie horizontally cross support.

Standard trees shall be stated and supported with a tree, single stake consisting of tree 75mm diameter x 4m, 2400mm length, crucifix tie/tree guard 400mm above ground level and fixed to the tree by a proprietary rubber tree tie horizontally cross support.

Heavy standard trees shall be stated and supported with a tree, single stake consisting of tree 75mm diameter x 4m, 2400mm length, crucifix tie/tree guard 400mm above ground level and fixed to the tree by a proprietary rubber tree tie horizontally cross support.

Tree ties to installed with proprietary flexible particular irrigation/protection pipe with integral cap. Pipe to be installed and firmly equally around rootball in the top layer of planting pit, with the free top section installed just above ground level and rolled laterally in place to the adjacent tether stake.

All trees in grass areas to be protected by ties. 400mm high (finished) x 30mm depth proprietary biodegradable plastic guard, by Greenfield Ltd or equal and approved. Where trees have a rootball much diameter greater than this, e.g. semi-mature, then use or more guards should be stated together using pinning stays and then secured in place.

Maintenance Maintenance

Where trees are composted in areas accessible to hard paved areas or proposed service runs, a root barrier membrane is to be installed as specified below.

For all proposed trees varmint in or location within 5m of an adjacent hard standing/footpath or carriageway, each tree, a compulsory root barrier contractors will be installed to protect the hard standing and any underground services located rootball from future damage by tree roots.

Root barrier membranes to be installed on the tree side along the back edge of the kerb / edging adjacent to the adjacent hard standing and are to extend a minimum 3m in open locations from a point taken anywhere from the tree trunk to the adjacent edge.

Root barrier membranes are to extend to a depth of a minimum below:

- For trees adjacent to hard standings only (no underground services): Root Barrier 600 by GreenMax Urban (01424 777700) or equal and approved. Where root barrier membrane is to a depth of 600mm, the tree, some there with pinning stays length 150mm above root to ensure root is well displacing.
- For trees adjacent to hard standings incorporating underground services: Install the following dependent on the depth of underground services.

For services 250mm deep:

- Root Barrier 600 by GreenMax Urban (01424 777700) or equal and approved. Where root barrier membrane is to a depth of 600mm, the tree, some there, some there with pinning stays. Install 150mm above root surface level to will be displacing.

For services 500mm deep:

- Root Barrier 600 by GreenMax Urban (01424 777700) or equal and approved. Where root barrier membrane is to a depth of 600mm, the tree, some there with pinning stays. Install 150mm above root surface level to will be displacing.

For services 750mm deep:

- Root Barrier 600 by GreenMax Urban (01424 777700) or equal and approved. Where root barrier membrane is to a depth of 600mm, the tree, some there with pinning stays. Install 150mm above root surface level to will be displacing.

For locations where a root barrier/tie with or without underground services exists on both sides of the tree (e.g. grass verge, then a root barrier is to be installed against both kerb / edging stones.

For trees located within root surface interaction (i.e. surrounded by hard paved surfaces, Under Root Cleaner by GreenMax Urban (01424 777700) or equal and approved, ref 1001002, 600mm x 1000mm x 600mm, please root deviation will integral tree.

Ornamental Bed Planting

Plant shrubs and groundcover into compacted planting beds consisting of topsoil to a depth of no greater than 300mm, contains stone free/working subsoil. Topsoil to be either existing material site excavated topsoil (free from weeds) or imported topsoil (imported topsoil BS3882/screen grade to BS3882:2015) spread, depth or in combination of the two (as necessary).

Spread topsoil to the fully finished up to ensure adequate demarcation and delineate the drainage. Turf right and and contours suitably, when ground conditions are reasonably dry, broken thoroughly to a depth of 300mm (300mm for soft clay / compacted clay). Remove all stones and debris greater than 50mm, including roots and cuttings of grass. Top 300mm of topsoil to be cultivated to a coarse tilth suitable for free draining using a planting fork.

Where applicable the use of a small tracer mounted tringe that tiger is discouraged (unless ripper sufficiently).

Incorporate a well conditioned/amendment in the form of peat free (preferred) compost, where compost or well rotted organic mushroom compost across the planting bed to a 300mm layer (to a ratio of 100kg per m2) and incorporated to a depth of 300mm.

Install a proprietary gas-soluble weed suppressant herbicides into the surface of the pre-cultivated whole planting bed with minimum 300mm depth. Prior planting bed is prepared, the planting holes for shrubs to be a depth of 300mm and a width of 300mm greater than the shrub root ball, ensuring the root ball is not compacted to ensure good drainage.

Shrub planting operation shall be undertaken in accordance with the planting standard details to complete to the landscape drawings.

All shrub shall to be treated with a minimum 75mm round stake, consisting of tradition stepped tree stake, composted for 3m stake, particular size 75-80mm, also heavy and stated supplemented contractors.

The contractor shall take the necessary precautions to ensure all shrub stems are protected throughout the establishment period by standard fencing.

Ornamental Hedge Planting (i.e. hedge species select hedges)

Plant hedges into compacted planting trenches, 300-600mm wide for double rows. Planting depth in excess of topsoil to a depth of 300-600mm, mixed with soil conditioner as specified below.

Topsoil to be either existing material site excavated topsoil (free from weeds) or imported topsoil (BS3882/screen grade to BS3882:2015) spread, depth or in combination of the two (as necessary).

Incorporate a well conditioned/amendment in the form of peat free (preferred) compost, where compost or well rotted organic mushroom compost across planting bed to a 300mm layer (to the ratio of 100kg per m2) and incorporated to a depth of 300mm.

Install a proprietary gas-soluble weed suppressant herbicides into the surface of the pre-cultivated whole planting bed with minimum 300mm depth. Prior planting bed is prepared, the planting holes for shrubs to be a depth of 300mm and a width of 300mm greater than the shrub root ball, ensuring the root ball is not compacted to ensure good drainage.

Shrub planting operation shall be undertaken in accordance with the planting standard details to complete to the landscape drawings.

All shrub shall to be treated with a minimum 75mm round stake, consisting of tradition stepped tree stake, composted for 3m stake, particular size 75-80mm, also heavy and stated supplemented contractors.

The contractor shall take the necessary precautions to ensure all shrub stems are protected throughout the establishment period by standard fencing.

Grass Seeding

Amenity grass seed mixture will be of 50-50 cocoon and grass. All grass material to be sourced from reputable suppliers with good horticultural and phytosanitary procedures.

ALLOTMENT SPECIFICATION

In addition to the planting specification, the allotment shall deliver the following:

Cultivation

- Plot shall extend to 10 rod, the approximately demarcated.
- The soil should be to good condition, i.e. free of the stones, structural compaction, fertility, organic matter, pH, chemical (present (PHBg).
- Plots are should be relatively level.

Water

- Sponsorship of all plots, to take place prior to occupation.
- Connection of the plots, as follows:
  - HC: 1 supply after the first sponsorship
  - HA: 1 supply after the second sponsorship
  - HB: further sponsorship and inter-plot activity, if requires 10 people to sponsorship without 6 weeks as a result of digging activity.
- Installation of a concreted hydrant on the plots, to be linked with standard pipework.
- Lance fetter over the tender (Consultee).
- All above contractor costs to occur prior to tender (consultee).

Fencing

- Water supply to be given with supply via a tap and a water.

LEGEND

APPLICATION BOUNDARY

EXISTING TREES / VEGETATION

Softworks

EXTRA HEAVY STANDARD TREE

STANDARD TREE

NATIVE HEDGE PLANTING

ORNAMENTAL SHRUB / HERBACEOUS / GRASS PLANTING

AMENITY GRASS SEEDING - NJZ (Low Maintenance) seed mix by Germinal Seeds Ltd or equal and approved. 50gm²

Hardworks

BITUMINOUS MACADAM SURFACE - to engineers specification - to access track and 3m cycleway/footway

HOGGIN FOOTPATH Compacted, fine-screened 'hoggin' surfacing, nominal 50mm compacted layer over min. 150mm DoT Type 1 sub-base, softwood treated timber edgings, pegged in place.

Furniture

WATER TROUGH Self filling water trough with ball valve fed from 30mm metered water supply. ~600mm wide x 2000mm long

METERED WATER SUPPLY - to engineer's details.

Boundary Treatment

SECURITY FENCING Metal weldmesh fencing, 1.8m high. 50x50mm spacing. Green PVC coated welded mesh. Rivaton mesh fencing added to the interior base of security fencing and gates

DOUBLE LEAF ACCESS GATE 1.8m high, hot dip galvanized steel to BS EN1461, polyester powder coated to BS14439 - Black. To be double-leaf with 1.2m wide pedestrian gate & 1.80m lockable vehicular gate/extension

SQUARE TIMBER BOLLARD - 150 x 150 x 900mm high square timber bollard by Jackborne Fencing Ltd or equal and approved.

BOLLARDS - Fold Down Stainless Steel Post by Broxap Ltd. ref 304/7 0060 00-FD, 1000mm high, 60mm diam., rod fixed, or equal and approved.

Rev	Date	By	Description
B	08/06/22	LJC	Amendment to Dawn Council comments
A	18/12/21	LJC	Amended to Dawn Council comments

Revisions

FOR INFORMATION

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Project: Littlehampton Road

DRAFT

Title: Allotment Landscape Proposals

Client: Persimmon Homes

Scale:	1:250 at A0	Drawn:	SW
Date:	January 2021	Checked:	DC
Drawing No:	CSA/3110/08	Rev:	B

Appendix 2 Sites Designated for Nature Conservation

Statutory Sites

Internationally Designated Sites - Ramsar Sites, Special Areas of Conservation and Special Protection Areas

Special Protection Areas (SPAs) and Special Areas of Conservation (SACs) form a network of protected sites across the European Union and United Kingdom. In the United Kingdom the primary legislative protection is afforded to these sites under the Conservation of Habitats and Species Regulations 2017 (as amended).

Ramsar sites are designated as wetlands of international importance which are afforded similar legislative protection to SPAs and SACs.

SACs are sites which support internationally important habitats or internationally important assemblages or populations of species. SPAs are designated for supporting internationally important populations of birds . SACs, SPAs and Ramsar sites are generally also designated as Sites of Special Scientific Interest.

Under Regulation 63 of the Conservation of Habitats and Species Regulations 2017 (as amended) there is a legal requirement that competent authorities, such as local planning authorities, need to consider whether plans or projects are likely to have a significant adverse effect on SPAs, SACs or Ramsar sites, either alone, or in combination with other plans or projects. In the event that a likely significant effect cannot be ruled out, on the basis of objective information, then the competent authority must undertake an “Appropriate Assessment” to fully assess the plan or project against the site’s conservation objectives. Unless certain defined derogation tests can be met, the competent authority may not authorise nor undertake any plan or project which adversely affects the integrity of a SPA, SAC or Ramsar site.

Nationally Designated Sites – Sites of Special Scientific Interest and National Nature Reserves

Sites of Special Scientific Interest (SSSI) receive legal protection under the Wildlife and Countryside Act 1981 (as amended). Such sites are designated to protect specific areas of biological or geological interest of national importance. Such sites also generally receive strict protection through the planning system.

National Nature Reserves (NNR) are also usually designated as SSSIs and are specifically managed for their wildlife value. They receive legal protection through the National Parks and Access to the Countryside Act 1949 and the Wildlife and Countryside Act 1981 (as amended). As with SSSIs, these sites generally receive strict protection through the planning system.

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Locally Designated Sites – Local Nature Reserves

Local Nature Reserves (LNR) are designated by local authorities under the National Park and Access to the Countryside Act 1949. These are generally designated not only for their local wildlife value but also for education, scientific and recreational purposes. These sites generally receive protection from development through the planning system.

Non-Statutory Sites

Locally Designated Sites

In addition to statutory designations, local authorities often designate sites of nature conservation importance at the local level. Such designations are named differently by each local authority and may be referred to as Local Wildlife Sites (LWS), Sites of Importance for Nature Conservation (SINC) or Sites of Nature Conservation Importance (SNCI), amongst others. The exact level of protection afforded to these sites varies and is normally defined through local planning policy.

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Appendix 3 Relevant Legislation

Bats

All UK bat species are listed in Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and Schedule 2 of the Conservation of Habitats and Species Regulations 2017. They are afforded full protection under Section 9(4) of the Act and Regulation 43 of the Regulations. These make it an offence to:

- Deliberately capture, injure or kill any such animal;
- Deliberately disturb any such animal, including in particular any disturbance which is likely:
- To impair its ability to survive, breed, or rear or nurture their young;
- To impair its ability to hibernate or migrate;
- To affect significantly the local distribution or abundance of that species;
- Damage or destroy a breeding site or resting place of any such animal;
- Intentionally or recklessly disturb any of these animals while it is occupying a structure or place that it uses for shelter or protection; or
- Intentionally or recklessly obstruct access to any place that any of these animals uses for shelter or protection.

In addition, five British bat species are listed on Annex II of the Habitats Directive. These are:

- Greater horseshoe bat *Rhinolophus ferrumequinum*;
- Lesser horseshoe bat *Rhinolophus hipposideros*;
- Bechstein's bat *Myotis bechsteinii*;
- Barbastelle *Barbastella barbastellus*; and
- Greater mouse-eared bat *Myotis myotis*.

In certain circumstances where these species are found the Directive requires the designation of Special Areas of Conservation (SACs) by EC member states to ensure that their populations are maintained at a favourable conservation status. Outside SACs, the level of legal protection that these species receive is the same as for other bat species.

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[redacted]

Breeding Birds

With certain exceptions, all wild birds, their nests and eggs are protected by Section 1 of the Wildlife and Countryside Act 1981 (as amended). Therefore, it is an offence, to:

- Intentionally kill, injure or take any wild bird;
- Intentionally take, damage or destroy the nest of any wild bird while it is in use or being built; or
- Intentionally take or destroy the egg of any wild bird.

These offences do not apply to hunting of birds listed in Schedule 2 subject to various controls. Bird species listed on Schedule 1 of the Act receive further protection, thus for these species it is also an offence to:

- Intentionally or recklessly disturb any bird while it is nest building, or is at a nest containing eggs or young; or
- Intentionally or recklessly disturb the dependent young of any such bird.

Reptiles

The four widespread species of reptile that are native to Britain, namely common or viviparous lizard *Zootoca vivipara*, slow-worm *Anguis fragilis*, adder *Vipera berus* and grass snake *Natrix helvetica*, are listed in Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and are afforded limited protection under Section 9 of this Act. This makes it an offence to:

- Intentionally kill or injure any of these species.

The remaining native species of British reptile (sand lizard *Lacerta agilis* and smooth snake *Coronella austriaca*) receive a higher level of protection via inclusion under Schedule 2 of the Conservation of Habitats and Species Regulations 2017. They are afforded full protection under Section 9(4) of the Act and Regulation 43 of the Regulations (in England and Wales only) and

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the Wildlife and Countryside Act 1981 (as amended). The distribution of these species are restricted to only a few sites in England.

Species and Habitats of Principal Importance in England

The Natural Environment and Rural Communities (NERC) Act came into force on 1st October 2006. Section 41 (S41) of the Act requires the Secretary of State to publish a list of habitats and species which are of principal importance for the conservation of biodiversity in England. The England Biodiversity List is used to guide decision-makers such as public bodies, including local and regional authorities, in implementing their duty under section 40 of the NERC Act 2006, to have regard to the conservation of biodiversity in England, when carrying out their normal functions. There are currently 943 species of principal importance and 41 habitats of principal importance included on the England Biodiversity List.

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Appendix 4 Appraisal Criteria for Bats

The criteria used to assess the suitability of roosting and foraging/commuting habitat for bats is based on industry guidelines and outlined in **Table 1**[17].

Table 1: Criteria used to Assess Suitability of Roosting and Foraging/Commuting Habitat for Bats

Suitability	Description of roosting habitats	Commuting and foraging habitats
High	A structure or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat.	Continuous, high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by commuting bats such as river valleys, streams, hedgerows, lines of trees and woodland edge. High-quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such as broadleaved woodland, tree-lined watercourses and grazed parkland. Site is close to and connected to known roosts.
Moderate	A structure of tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status.	Continuous habitat connected to the wider landscape that could be used by bats for commuting such as lines of trees and scrub or linked back gardens. Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water.
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically/structure that does not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for maternity or hibernation). A tree of sufficient size and age to contain potential roost features but with none seen from the ground or features seen with only very limited roosting potential.	Habitat that could be used by small numbers of commuting bats such as a gappy hedgerows or un-vegetated stream, but isolated (i.e. not very well connected to the surrounding landscape by other habitat). Suitable, but isolated, habitat that could be used by small numbers of foraging bats such as a lone tree or a patch or scrub.
Negligible	Negligible habitat features on site likely to be used by roosting bats.	Negligible habitat features on site likely to be used by commuting or foraging bats.

[17] Table adapted from (Collins, 2016)

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