Alderholt Meadows, Fordingbridge

Technical Appendix 9.1: Ecology Baseline

Prepared on behalf of

Dudsbury Homes (Southern)

ALDERHOLT MEADOWS

Final Report

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Alderholt Meadows, Fordingbridge

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1. INTRODUCTION

Brief

1.1 This document has been prepared by Ecological Planning & Research Ltd (EPR) on behalf of Dudsbury Homes (Southern) in connection with an outline planning application for a proposed residential development on land at Alderholt, in East Dorset.

1.2 This document is a Technical Appendix (TA) to the Environmental Statement (ES) Chapter 9: Ecology being submitted as part of the Environmental Impact Assessment (EIA) which accompanies the planning application.

1.3 This TA presents the ecological baseline referred to in the Ecology Chapter.

Site Location and Context

1.4 The Proposed Development is at Alderholt in East Dorset (hereafter the Site) (see **Map 1a**).

1.5 The Site extends to approximately 122ha and is predominantly occupied by farmland.

Outline of the Proposed Development

1.6 The Proposed Development description is as follows:

> *"Outline application for a mixed use development of up to 1700 dwellings including affordable housing and care provision; 10,000sqm of employment space in the form of a business park; village centre with associated retail, commercial, community and health facilities; open space including the provision of Suitable Alternative Natural Greenspace (SANG); biodiversity enhancements; solar array; and new roads, access arrangements and associated infrastructure. (All matters reserved apart from access off Hillbury Road)."*

1.7 Please refer to **Chapter 3 Background to Development** and **Chapter 5 Development Description** for full details of the Site and the Proposed Development.

Relevant Legislation, Planning Policy and Guidance

1.8 Various articles of legislation, planning policy, and key guidance documents of relevance to biodiversity and nature conservation have been referred to. A summary is presented below but for further details see **Annex 1** of this TA.

1.9 Legislation of primary relevance include:

- The Environment Act 2021;
- The Conservation of Habitats and Species Regulations 2017 (as amended);

- The Wildlife and Countryside Act 1981 (as amended);
- The Countryside and Rights of Way (CRoW) Act 2000;
- The Natural Environment and Rural Communities (NERC) Act 2006; and
- The Protection of Badgers Act 1992.

1.10 Planning policy documents of primary relevance to this report include:

- The National Planning Policy Framework (NPPF, 2021), and in particular Section 15 of this document, which provides national policy on conserving and enhancing the natural environment through the planning process;
- The Christchurch and East Dorset Local Plan Core Strategy (Adopted 2014), and in particular policies:

  - ME1 Safeguarding Biodiversity and Geodiversity, and

  - ME2 Protection of the Dorset Heathlands.
- The Dorset Heathlands Planning Framework 2020-2025 Supplementary Planning Document; and
- The Dorset Heathlands Interim Air Quality Strategy 2020-2025.
- Due regard has also been afforded to draft Policies of the consultation draft Dorset Council Local Plan (2021):

  - ENV1 Green Infrastructure,

  - ENV2 Habitats and Species, and

  - ENV3 Biodiversity and Net Gain.

1.11 In addition to the above, biodiversity objectives detailed in the following documents have been considered:

- Biodiversity 2020: A Strategy for England's Wildlife and Ecosystem Services; and
- The 25 Year Environment Plan.

2. ASSESSMENT METHODOLOGY

Introduction

2.1 This section presents details of the overall ecological impact assessment methodology. The technical methodologies used to assess sites, habitats and species are presented in the relevant sections.

2.2 The underlying approach to Ecological Impact Assessment (EcIA) taken in this assessment accords with guidance presented in the Chartered Institute of Ecology and Environmental Management (CIEEM) *Guidelines for Ecological Impact Assessment in the United Kingdom and Ireland* (CIEEM, 2019).

2.3 In summary, EPR takes the following step-wise approach to EcIA:

- Prediction of the activities associated with a proposed scheme that are likely to generate biophysical changes which may lead to significant effects (either positive or negative) upon ecological features of importance;
- Identification of the likely Zone of Influence (ZoI) of those activities;
- Scoping to select the ecological features (habitats, species, ecosystems and their functions/processes) that are likely to fall within the predicted ZoIs and be affected by the activities;
- Evaluation of ecological features likely to be affected – both negatively and positively – to determine their level of importance and likely sensitivity;
- Identification and characterisation of likely impacts (positive and negative) on important ecological features, together with an assessment of the geographic scale at which effects are likely to be significant;
- Refinement of the proposed scheme to incorporate impact avoidance and/or mitigation measures for negative effects on important ecological features, and enhancements to deliver net gains in biodiversity;
- Assessment of the significance of residual effects and identification of compensation in the event of residual significant negative effects; and
- Advice on conformance with applicable nature conservation related policy and legislation.

Identification of the Zone of Influence

2.4 The Zone of Influence (ZOI) of a proposed development is defined by the EcIA Guidelines as *"… the area(s) over which ecological features may be affected by the biophysical changes caused by the proposed project and associated activities".*

2.5 In order to predict the potential ZOI of the Development, the spatial and temporal extent of biophysical changes likely to be generated by the Development with the potential to lead to ecological effects upon ecological features were predicted.

2.6 For the Development, the activities and resultant biophysical changes are predicted for each of the two main development phases for each important ecological feature in the Appendices.

Ecological Evaluation Method

2.7 The evaluation method used in the ES Chapter and the supporting Technical Appendices refers to the following geographic scale of importance for ecological features:

- International/European;
- National;
- Regional;
- County (or Metropolitan or Local Authority-wide area);
- Local; and
- Within the Zone of Influence.

2.8 To more accurately define the level of importance of an ecological feature within this assessment the methodology has partially reverted back to the original 2006 version of the Guidelines for Ecological Impact Assessment to separate out Local importance further to include District and Within the Zone of Influence as additional values of importance.

2.9 Determining the importance of ecological receptors makes use of any international/European, national and local government and specialist organisation identified sites, habitats and species that provide the key focus for biodiversity conservation in the UK, supported by policy and legislation. The determination of importance may also be based on expert judgement taking into consideration various characteristics such as rarity, naturalness, diversity, functionality, fragility and "typicalness".

2.10 With this in mind, features taken forward for detailed impact assessment are those which:

- Are evaluated as being of at least 'Local' ecological importance or have the potential to be so; and
- Are likely to be affected, positively or negatively, by the proposals.

2.11 Features deemed to be of less than 'Local' importance are considered throughout the EcIA process in the context of the emerging 'Biodiversity Net Gain' principle outlined in national and local policy. The implications of nature conservation legislation are also discussed where relevant, regardless of whether the protected feature meets the threshold for detailed impact assessment.

Impact Assessment Method

2.12 The ecological features selected to be included in the assessment are those which both meet the importance threshold and are likely to be affected by the Proposed Development.

2.13 The first stage of the assessment is to determine the potential impacts upon each important ecological feature, with reference to the likely biophysical changes arising from the proposals. Impacts can be characterised according to their extent, magnitude, duration, timing, frequency, reversibility, and whether they are positive or negative.

2.14 An assessment is then made of whether the effect(s) of an impact upon an important ecological feature is likely to be considered 'significant' in EcIA terms.

Significant Effects

2.15 The EcIA Guidelines state that:

> *"Significance is a concept related to the weight that should be attached to effects when decisions are made. For the purpose of EcIA, 'significant effect' is an effect that either supports or undermines biodiversity conservation objectives for 'important ecological features' or for biodiversity in general…….in broad terms, significant effects encompass impacts on structure and function of defined sites, habitats or ecosystems and the conservation status of habitats and species (including extent, abundance and distribution)."* [our emphasis].

2.16 Put simply, an effect is considered significant if it is likely to change the structure and function of defined sites and ecosystems or the conservation status of habitats and species.

2.17 Professional judgement about significance is informed by conservation objectives for the affected feature, where available (for example conservation objectives set by Natural England for European designated sites, or in habitat and species action plans). The 'conservation status' (habitats and species) or the degree to which a feature is exhibiting 'integrity' in terms of structure, function and condition (defined sites or ecosystems) is also considered. The predicted effect of natural and man-made trends in the absence of development is also taken into account in determining the conservation status or integrity of a feature and in considering whether otherwise insignificant effects may contribute to a significant cumulative effect.

Opportunities for Mitigation and Compensation to Achieve No Net Loss and for Biodiversity Net Gain

2.18 Pursuant to national and local policy objectives, the ES Ecology Chapter and supporting appendices assess the significance of both negative and positive residual effects; describe measures that can be adopted to deliver biodiversity net gain; and summarise the resultant degree of compliance with applicable legislation and policy.

Likely Biophysical Changes and Zone of Influence

2.19 The activities associated with the Proposed Development which are likely to lead to biophysical changes, and could accordingly give rise to ecological impacts, are set out in **Table 2.1** below, which is drawn from Box 9 of the EcIA Guidelines (CIEEM, 2018 v1.2).

2.20 In this case, the ZOI of the Proposed Development will encompass different areas, and thus potentially impact upon different ecological receptors, depending upon the spatial extent of the relevant biophysical change (e.g. light, noise, habitat loss, recreational disturbance). The ZOI(s) relevant to the overall assessment are summarised in **Table 2.1** below.

Table 2.1: Activities and Biophysical Changes associated with the Proposed Development which may give rise to ecological impacts, and associated Zone(s) of Influence.

Activity	Potential Impact	Zone of Influence
Construction Phase		
Access and travel on / off site	Noise / visual / lighting disturbance of vulnerable species	Site and immediate surrounding area
Assembly and storage areas for machines and materials; construction compounds	Loss and fragmentation of habitats Noise / visual / lighting disturbance to vulnerable species	Site and immediate surrounding area
Vegetation clearance, ground, excavation and structural works, demolition and alteration operations	Loss and fragmentation of habitats Damage to vulnerable habitats Direct harm to vulnerable species Noise / visual /vibration/ lighting disturbance to vulnerable species Change to surface and ground water flows Dust deposition	Site and immediate surrounding area
Lighting of work area	Disturbance to vulnerable species	Site and immediate surrounding area
Drainage	Change of surface water / groundwater flows Change of water quality in surface water / groundwater Change in habitats fed by surface water / groundwater flows	Site and immediate surrounding area, functionally linked watercourses
Operational Phase		
Drainage	Hydrological changes to existing habitats within and beyond the Site (drying, flooding, levels of pollution)	Site and immediate surrounding area, functionally linked watercourses
Access and travel on / off site	Noise / visual / lighting disturbance to vulnerable species Increased particulate pollution resulting in air quality changes	Site and immediate surrounding area Up to 200m from affected roads
Occupation of new houses: urban effects	Noise / visual / lighting disturbance to vulnerable species Loss and fragmentation of habitats by trampling Increased risk of cat predation Degradation and pollution of vulnerable habitats through urban effects (such as fly tipping, introduction of non-native species, arson)	Site and immediate surrounding area, most prevalent within 400m
Recreation	Fragmentation of habitats by trampling Noise / visual disturbance to vulnerable species by members of the public and/or dogs	Site and surrounding area out to c10km

Ecological Baseline

2.21 The remaining sections of this TA include details of the ecological baseline which has been compiled following desktop research and a programme of surveys.

Desktop Research

2.22 A desk study was carried out in order to gather and refer to existing biodiversity and contextual information with respect to the zone of influence and the wider area. This involved interrogation of internet resources, including the Multi-agency Geographic Information for the Countryside (MAGIC), the National Biodiversity Network (NBN) Atlas, and Dorset Explorer which provides freely available information on Dorset's geology, hydrology, topography and soils, habitats,

ecological networks, and historic maps. Reference was also made to local planning policies and biodiversity strategies.

2.23 Existing information was requested from both Dorset Environmental Records Centre (DERC) and Hampshire Biodiversity Information Centre (HBIC), including information about non-statutory designated sites, habitats and species records.

Fieldwork

2.24 The surveys were carried out by Lindsay Carrington Ecological Services (LCES) in 2019 and by ABR Ecology in 2021/22. The invertebrate survey was carried out by EPR in 2022. See **Table 2.2** below.

2.25 Further information regarding the survey work carried out, including methodologies, metadata and results is provided in the following sections of this TA and in the survey reports in **Annexes 2** and **3**.

Table 2.2: Overview of ecological surveys

Survey Type	First	Last
Phase 1 habitat survey	2019	2022
Bats – Phase 1 (buildings/trees/habitat)	2019	2022
Bats – Activity transects and statics	2019	2022
Badgers	2019	2021
Hazel Dormouse	2019	2021
Birds - Breeding	2019	2021
Birds – Barn Owl	2021	2021
Birds - Nightjar	2019	2021
Reptiles	2019	2021
Amphibians (including Great Crested Newts)	2019	2022
Invertebrates	2022	2022

Consultation

2.26 The Proposed Development was discussed with Natural England during a meeting on 17 June 2022.

3. DESIGNATED SITES

Introduction

3.1 This section presents details of the baseline evaluation of designated nature conservation sites within the ZOI of the Proposed Development.

3.2 The Site lies wholly within Dorset but with Hampshire adjacent to the south and east. Records of designated sites were returned by DERC and HBIC for their respective area.

3.3 **Map 1a** shows internationally and nationally designated sites out to 5km radius and Local Wildlife Sites out to 2km. **Map 1b** shows the same information but within a frame of 2km only, for clarity.

Internationally and Nationally Designated Sites

3.4 **Table 3.1** lists internationally and nationally designated sites are within 5km of the Site:

Table 3.1: Internationally and nationally designated sites within 5km of the Site

Site name	Distance	Summary description
Dorset sites		
Dorset Heaths SAC	0.2km W	Designated for: Annex I habitats – purple moor-grass (*Molinia caerulea*) meadows on calcareous, peaty or clayey-silt-laden soils, calcareous fens with great fen-sedge (*Cladium mariscus*) and species of the *Caricion davallianae*, as well as alkaline fens and old acidophilous oak woods with pedunculate oak (*Quercus robur*) on sandy plains, and Annex II species: the southern damselfly (*Coenagrion mercuriale*).
Dorset Heathlands SPA	0.2km W	Qualifies for breeding Dartford warbler (*Sylvia undata*), nightjar (*Caprimulgus europaeus*), and woodlark (*Lullula arborea*), and overwintering hen harrier (*Circus cyaneus*) and merlin (*Falco columbarius*).
Dorset Heathlands Ramsar Site	0.2km W	The heathland contains numerous examples of dry heath, wet heath and acid valley mire, these sites include a large assemblage of nationally rare and scarce species, especially invertebrates, reptiles and birds. Other habitats on these sites include woodland, grassland, pools, salt marshes and reed swamp.
Cranborne Common SSSI	0.2km W	The nearest component SSSI of the Dorset Heathlands internationally designated sites above. A complex of heathland and acidic grassland supports sand lizard and smooth snake, breeding Dartford warbler, heath grasshopper (*Chorthippus vagans*) and large marsh grasshopper (*Stethophyma grossum*), as well as bog bush-cricket (*Metrioptera brachyptera)*, small red damselfly (*Ceriagrion tenellum*) and the silver-studded blue (*Plebejus argus*).
Verwood Heaths SSSI	2.4km SW	Three pieces of heathland in the vicinity of Verwood including dry, humid and wet heathland types. The site supports sand lizard and smooth snake and heath grasshopper.
Bugden's Copse and Meadows SSSI	3.0km SW	The site has several adjoining meadows which lie close to Verwood. There is a high diversity of herbs on site including

Site name	Distance	Summary description
		abundant devil's-bit Scabious (*Succisa pratensis*), heath spotted-orchid (*Dactylorhiza maculata*) and sneezewort (*Achillea ptarmica*). Betony (*Stachys officinalis*), pepper-saxifrage (*Silaum silaus*) and dyer's greenweed (*Genista tinctoria*) also occur and there is an unusual abundance of meadow thistle (*Cirsium dissectum*).
Moors River System SSSI	3.1km W	The Moors River is a small lowland river which supports an exceptional diversity of aquatic and wetland plants. The river supports a species rich assemblage of aquatic invertebrates and an outstanding dragonfly fauna. Fish recorded include bullhead, eel (*Anguilla anguilla*) and brook lamprey, breeding Schedule 1 birds including kingfisher, also supports otter and water vole.
Ebblake Bog SSSI	3.5km S	A rare acid mire, Ebblake Bog supports a large population of the bog bush-cricket and appears to be rich in dragonflies (*Odonata* sp.).
Boulsbury Wood SSSI	4.2km NW	A large varied wood with ten different identifiable stand-types including oak (*Quercus* sp.) standards with hazel (*Corylus avellana*) coppice. Several sections are ancient woodland. A small area of species-rich chalk grassland is included within the site boundary. The invertebrate fauna is extremely rich.
Holt and West Moors Heath SSSI	4.0km SW	A heathland SSSI. Breeding birds recorded on site include hobby (*Falco subbuteo*), nightjar (*Caprimulgus caprimulgus*) and stonechat (*Saxicola torquata*) and there are important populations of Dartford warbler (*Sylvia undata*) and woodlark (*Lullula arborea*). The site supports sand lizard (*Lacerta agilis*) and smooth snake (*Coronella austriaca*), strong populations of the rare heath grasshopper (*Chorthippus vagans*) and large marsh grasshopper (*Stethophyma grossum*). The site also contains Holt Forest, an area of former wood pasture, dominated by pedunculate oak (*Quercus robur*) which supports purple hairstreak (*Quercusia quercus*), white admiral (*Ladoga populi*) and purple emperor (*Apatura iris*).
Avon Valley sites		
River Avon SAC	1.6km E	The Avon is rich and diverse supporting over 180 species of aquatic plant, fish varieties and aquatic invertebrates are wide ranging here. The SAC is designated for the Annex I habitat "Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation" as well as Annex 2 Desmoulin`s whorl snail *(Vertigo moulinsiana),* Sea lamprey *(Petromyzon marinus),* brook lamprey *(Lampetra planeri),* Atlantic salmon (*Salmo salar*) and bullhead (*Cottus gobio*).
River Avon System SSSI	1.6km E	The SSSI is also notified for its significant populations of the nationally rare southern damselfly, and qualifying species white-clawed crayfish (*Austropotamobius pallipes*), Schedule 1 birds, kingfisher (*Alcedo atthis*) and Cetti's warbler (*Cettia cettia*), as well as water vole (*Arvicola amphibius*), and otter (*Lutra lutra*).
Avon Valley SPA	1.6km E	The SPA is designated for wintering populations of Bewick's swan (*Cygnus columbianus*) and gadwall (*Anas strepera*).
Avon Valley Ramsar Site	1.6km E	The valley has a greater range of habitats and a more diverse flora and fauna than any other chalk river in Britain. The valley includes one of the largest expanses of unimproved floodplain grassland in Britain.

Site name	Distance	Summary description
Bickton to Christchurch SSSI	1.6km E	One of the finest chalk rivers in Britain. The combinations of grassland, streams, small woods, scrub and willow carr create a varied landscape. These habitats support nationally and internationally important assemblages of breeding and wintering birds, an outstanding flora and many notable dragonflies, grasshoppers and snails.
New Forest sites		
The New Forest SAC	3.0km E	SAC primary habitats for selection are pools, wet and dry heaths, Molina meadows, beech (*Fagus sylvatica*) forest and wet woodland. SAC citation species include southern damselfly, stag beetle (*Lucanus cervus*) and great crested newt.
New Forest SPA	3.0km E	The SPA is designated for breeding nightjar, woodlark, honey buzzard (*Pernis apivorus*) and Dartford warbler as well as overwintering hen harrier.
New Forest Ramsar Site	3.0km E	Ramsar citation features include valley mires and wet heaths, rare wet plants and 65 British Red Data Book species of invertebrate. Breeding Dartford warbler, and great crested newt (*Triturus cristatus*), overwintering hen harrier as well as fish species.
The New Forest SSSI	3.0km E	The New Forest supports lowland heath, valley and seepage step mire, or fen, and ancient pasture woodland, including riparian and bog woodland. The woodland supports stag beetle and lichen (*Parmelia minarum*) as well as roosting for Bechstein's bat (*Myotis bechsteini*). Grassland supports small fleabane (*Pulicaria vulgaris*) and pennyroyal (*Mentha pulegium*). Within the mires and pools is slender cottongrass (*Eriophorum gracile*), and great crested newt and the rare southern damselfly. There are otters on the streams. The heathland supports sand lizard (*Lacerta agilis*) and smooth snake (*Coronella austriaca*).

SAC - Special Areas of Conservation

SPA – Special Protection Area

Ramsar – Designated as an internationally important wetland

SSSI – Site of Special Scientific Interest

3.5 **TA 9.2: Information for Habitats Regulations Assessment** includes further details regarding the International site designations and their component national sites.

Local Wildlife Sites

3.6 **Table 3.2** lists the Sites of Nature Conservation Importance (SNCIs) in Dorset within 2km to the north and west of the Site.

Table 3.2: Sites of Nature Conservation Importance (SNCIs) within 2km of the Site

SNCI Ref	SNCI Name	Distance	SNCI Criteria	Description of interest
SU01/053	Little and Crendle Commons	1.2km NW	Habitat: 2.21 road verge	Relict grassland and woodland along roadsides and bridleways
SU10/021	Boveridge Heath	1.0km S	Habitat: 2.23 forestry heathland	Two pieces of remnant heath under pylon wires bordered by conifers
SU11/011	Highwood	0.7km N	Habitat: 2.01 ancient woodland site	Deciduous woodland with grassland/scrub under pylons
SU11/012	Perry Copse/Ashford Water Meadows	1.4km N	Habitat: 2.01 ancient woodland site; Species: 3.03 Copse Bindweed	Woodland and grassland plus hedgerows with copse bindweed
SU11/013	Alderholt Heath	0.2km NW	Habitat: 2.10 heathland	Wet heath with a pond containing pillwort
SU11/014	Bullhill Lane	1km NW	Habitat: 2.21 road verge	A wooded lane with good flora
SU11/015	Bonfire Hill	0.5km N	Habitat: 2.02 wet woodland; 2.10 heathland	Dry heath being invaded by pines
SU11/016	Daggons Road Station	0.3km N	Species: 3.03 Marsh Clubmoss	Damp mixed woodland on acid soil, wet heath and surrounding scrub
SU11/017	Hawkmill Lane	1.8km N	Habitat: 2.21 road verge	Relict woodland and grassland along a gravel track
SU11/019	Strouds Firs Meadows	0.6km N	Habitat: 2.11 fen meadow/rush pasture	Semi-improved neutral grassland
SU11/021	Sleepbrook Farm	0km SW	Habitat: 2.02 wet woodland; 2.07 acid grassland	Unimproved marshy grassland with a small area of carr woodland.

3.7 **Table 3.3** lists the Sites of Importance for Nature Conservation (SINCs) in Hampshire within 2km to the south and east of the Site.

Table 3.3: Sites of Importance for Nature Conservation (SINCs) within 2km of the Site

SINC Ref	SINC Name	Distance	SINC Criteria	Description of interest
NF0041	Ringwood Forest & Home Wood	Adjacent to Site at SE corner	1A/3Bi/ 3Bii/6A	Ancient semi-natural woodland, which also contains and is contiguous to heathland habitat. This site supports European nightjar, smooth snake and UK BAP species annual knawel (*Scleranthus annuus*).
NF0045	Hamer Copse	0.9km S	1A	Ancient semi-natural woodland.
NF0046	Reeve's Copse	1.9km N	1A	Ancient semi-natural woodland.
NF0063	Lomer Copse	0.5km E	1A	Ancient semi-natural woodland.
NF0066	Lomer Meadow	0.6km SE	2B/5B	Semi-improved inundated grassland with element of unimproved grassland.
NF0067	Midgham Wood	0.8km NE	1B/1A	Woodland retaining some characteristics of ancient semi-natural woodland.
NF0068	Sedgemoor	1.6km NE	1A/5B	Ancient semi-natural woodland which also supports some wet element.
NF0073	Cobley Copse (Cobley Wood)	1.3km SE	1A	Ancient semi-natural woodland.
NF0076	Midgham Long Copse	0.9km E	1A/1B	Woodland retaining some characteristics of ancient semi-natural woodland.

Evaluation

3.8 The International Sites (SACs/SPAs/Ramsar sites) are of **International importance**. Refer to **TA 9.2: Information for Habitats Regulations Assessment** for a detailed assessment of impacts on International Sites.

3.9 The national sites (SSSIs/NNRs) are of **National importance**.

3.10 The Local Wildlife Sites (SNCIs/SINCs) are of **County importance**.

Air Quality Assessment for Local Sites

Introduction

3.11 During the operational phase of the Proposed Development there will be an increase in traffic on the local road network. This has the potential to contribute to significant air pollution impacts on nearby designated nature conservation sites, and this was further assessed through detailed air quality modelling undertaken by Waterman (further information is provided in ES Chapter 14). Potential effects on sites of international importance governed by assessment under The Conservation of Habitats and Species Regulations 2017 (as amended) (the Habitats Regulations Assessment (HRA) process) are covered separately in ES TA 9.2 'Information for Habitats Regulations Assessment'. Set out below is the methodology for, and results of, modelling undertaken for sites of national and county level importance, to include:

- SSSIs;
- SNCIs;
- SINCs; and
- Woodlands listed on Natural England's Provisional Ancient Woodland Inventory (PAWI).

3.12 SSSIs that are component SSSIs to SAC/SPA/Ramsar sites are assessed by virtue of assessment of the overarching higher-level International designations (as set out at ES TA 9.2), which cover the same site interest features, and are not covered again here.

Relevant Background Information

National Air Quality Strategy & Trends

3.13 Under the requirements of the Environment Act 1995, the UK government published an Air Quality Strategy (AQS). The AQS sets out the UK's national standards and objectives for ambient air quality, and measures to help achieve the objectives. The overall aim of the AQS is to achieve steady improvement in air quality into the long term. The objectives are transcribed into regulations in the Air Quality (England) Regulations 2000, as amended.

3.14 The deposition of both oxidised nitrogen (NOx, primarily NO_2) and reduced nitrogen (primarily from ammonia – NH_3 and ammonium ions – NH_4^+) contribute to total nitrogen deposition, via dry and wet deposition. National emissions of NO_X have decreased substantially over recent decades, and are expected to decline further in the future. Emissions of NH_3, which are dominated by the agricultural sector, have however only marginally decreased in recent years and even increased in some areas of the UK.

3.15 Under the National Emissions Ceilings Regulations, the UK is legally required to implement measures to reduce emissions of key pollutants, including NH_3 and NO_X, by 8% and 55% respectively by 2029 over 2005 base emissions, and by 16% and 73% respectively post 2030. The UK's National Air Pollution Control Programme (NAPCP), including the Clean Air Strategy in England, is expected to exceed these emission reduction targets. Whilst the decrease will not be uniform over all sites, it is reasonable to conclude that background NH_3 concentrations and N deposition rates will decrease in the future.

Critical Levels and Loads

European CAFE Directive (2008/50/EC) and Air Quality Standards Regulations 2010

3.16 The Directive details air quality limit values, target values, and Critical Levels for a number of air pollutants established by the European Parliament and Council for the protection of human health, vegetation and ecosystems. These have been transposed into UK legislation by the 2010 Regulations.

United Nations Economic Commission for Europe Critical Loads

3.17 The United Nations Economic Commission for Europe (UNECE) has set Critical Loads for N-Deposition for specific sensitive ecosystems (UNECE, 2003).

The Air Pollution Information System (APIS)

3.18 The Air Pollution Information System (APIS) is the UK's principal source of information on pollutant levels, including at designated nature conservation sites (SAC/SPA/SSSI), and on the sensitivity of their component habitats as well as habitats and species in general providing a continually updated web-based data resource.

3.19 APIS sets out the relevant environmental standards for pollutant types (as defined by the 2010 Regulations and UNECE), which vary by habitat type where Nitrogen (or N) deposition is concerned. 'Critical Levels' define the environmental standard for airborne gaseous pollutants (NOx and NH_3) and 'Critical Loads' define the environmental standard for deposited pollutants (N deposition).

3.20 Critical Levels and Loads (referred to collectively as the 'CL') are defined as:

> *Critical Level (ug/m^3): "concentrations of pollutants in the atmosphere above which direct adverse effects on receptors, such as human beings, plants, ecosystems or materials, may occur according to present knowledge".*
>
> *Critical Load (kg N/ha/yr): "a quantitative estimate of exposure to one or more pollutants, below which significant harmful effects on sensitive elements of the environment do not occur, according to present knowledge."*

3.21 For NOx, a standard Critical Level of 30µg/m^3 applies to all habitat types. For NH_3, a Critical Level of 1µg/m^3 applies to lichens and bryophytes, and a Critical Level of 3µg/m^3 applies to all other types of vegetation. For N deposition, the Critical Load is habitat specific, with lower and upper CLs cited for application in different circumstances (for example differing hydrological or management regimes); in practice there is rarely sufficient information to justify use of anything but the lower CL, and lower CLs are used throughout this assessment.

3.22 When pollutant loads (or concentrations) exceed the CL, it is considered that there is a risk of harmful effects. A value in excess of the CL is termed the 'exceedance'. A larger exceedance is often considered to represent a greater risk of damage, although other factors also influence this.

IAQM Guidance

3.23 Guidance from the Institute of Air Quality Management (IAQM) on the assessment of air quality impacts on designated nature conservation sites (June 2019) sets out the following broad stepwise approach for designated sites - not subject to HRA - which occur within around 200m of affected roads:

- Calculate / estimate Process Contribution* (PC) and compare with screening thresholds (1% of the specified Critical Load or Level, or a change of more than 1,000 Average Annual Daily Trips (AADT) (or 200 heavy duty vehicles (HDVs));
- Identify if insignificant OR if further assessment required (e.g. detailed modelling);
- Where detailed assessment is required, calculate PC and Predicted Environmental Concentration^ (PEC) and compare against critical levels/loads at relevant receptors;
- Identify and assess impacts and effects (project alone & cumulative);

- Where significant effects are identified, apply measures to address air quality impacts and associated ecological effects following a mitigation hierarchy, and the use of monitoring.

* Process Contribution is defined as *"the incremental impact of the proposed development on the concentration or deposition flux"*, i.e. pollution added by the proposed development, which can be indicated by the amount of traffic added to a road, set out as 'Average Annual Daily Trips' or AADT, or calculated directly and given as a concentration or deposition rate (depending on the pollutant type).

^ Predicted Environmental Concentration is defined as *"the concentration or deposition (i.e. process contribution (PC) plus baseline)"*, i.e. the total concentration or deposition rate of pollutants in the environment.

Methodology

3.24 The methodology used to assess the potential for significant effects from air quality changes impacting upon on ecological sites during the operational phase is based on the IAQM guidance described above (IAQM, 2019).

3.25 Designated sites within 200m of an "affected road", a road where increases of more than 1,000 AADT (or 200 HDV) are predicted, were defined as 'sensitive receptors' that could be affected by airborne NOx and NH_3 emissions arising from the additional traffic generated by the Proposed Development, and subsequent N deposition from air to the ground. These sites were taken forward for detailed air quality modelling.

3.26 200m is set as the potential ZoI for air pollution impacts because traffic-generated pollutant levels drop off significantly within the first 50m from the roadside and concentrations approach background levels by 200m (Laxen & Marner, 2008; Ricardo-AEA, 2016).

3.27 Traffic data provided by Paul Basham Associates assumed a complete and operational year of 2033. The assessed effects for the 'without Proposed Development' and 'with Proposed Development' future scenarios presented in Chapter 14: Air Quality are therefore based on the year 2033, albeit that Defra only predicts future pollutant concentrations to the year 2030. However, for consistency with the rest of the ES, the anticipated year of completion/operation has been presented as 2041. The year 2019 was used to assess the baseline, as this is the latest full year of representative monitoring data due to the Covid-19 pandemic.

3.28 For sites taken forward for detailed air quality modelling, the likely effect on local air quality from operational scheme traffic was assessed using the atmospheric dispersion model ADMS-Roads. The ADMS-Roads dispersion model predicts how emissions from roads combine with local background pollution levels, taking account of meteorological conditions, to affect local air quality. The model was run for the completion year, using background data and vehicle emission rates for 2041 as inputs. For the verification assessment, background data and vehicle emission rates for 2019 were used. Pollutant concentrations were modelled at representative site locations, although worst case scenario pollutant levels were modelled at the roadside. Further details regarding air quality modelling parameters are provided in Chapter 14.

Results

3.29 **Map 2** shows the road links predicted to experience an increase in traffic flows of more than 1,000 AADT (or 200 HDV) as a result of the Proposed Development either alone or in combination with other committed development - the 'affected road network' or 'ARN'. Sites located within 200m of these 'affected roads' requiring further detailed air quality modelling are also shown.

3.30 **Table 3.4** sets out further site details, their sensitivity to Nitrogen, and their relevant pollutant critical levels and loads. SSSIs covered by the air quality assessment included in ES TA 9.2 are listed for completeness, although results are not presented below.

3.31 **Tables 3.5-3.7** present the results of the NOx, NH_3 and N deposition (respectively) modelling for the 'with development' (DS) and 'without development' (DM) scenarios. The DS scenario includes emissions from the Proposed Development and other committed developments. The development process contribution (PC), calculated as the difference between the DS and DM scenarios, therefore represents the cumulative assessment. The PC for the Proposed Development alone has not been calculated. The impact assessment is presented in the main Ecology Chapter of the ES.

Results of Air Quality Modelling: NOx

3.32 The modelled PC exceeds 1% of the NOx CL for a number of sites at the roadside, however for most of these sites total future NOx concentrations under the DS scenario do not exceed the CL. Only at site 25a/b within the Avon Valley (Bickton to Christchurch) SSSI does the PC exceed 1% of the CL where the future concentrations under the DS scenario also exceed the CL. However, total NOx concentrations under the DM scenario are also exceeded in the absence of development, and NOx concentrations are well below levels associated with phytotoxic effects. The contribution of NOx to total nitrogen deposition is considered below.

Results of Air Quality Modelling: NH_3

3.33 The same can be reported with regards to NH_3 as has been above in respect of NOx. Only at sites 25a/b does the PC exceed 1% of the CL where the future concentrations under the DS scenario also exceed the CL. For these locations, the NH_3 CL is also exceeded under the DM scenario in the absence of development.

Results of Air Quality Modelling: Nitrogen Deposition

3.34 For nitrogen deposition there are a number of sites where the PC exceeds 1% of the CL under the future DS scenario where total deposition rates also exceed the CL. These include Bone Acre/Park Copses PAWI, Smallbridge Copse PAWI, Little and Crendle Commons SNCI, Ringwood Forest & Home Wood SINC, and Home Wood PAWI.

Table 3.4: List of sites subject to detailed air quality assessment, as cross referable to Map 2

ID	Site Name	Designation	Reason for Selection	Description	SSSI Condition	Sensitive to Nitrogen?	APIS N CL Class	NH_3 Critical Level	N dep Critical Load range	N dep Lower CL	AQA Req.?
1	Bone Acre/Park Copses	ASNW/ARW	Ancient woodland	None available	N/A	Yes	Broadleaved Mixed and Yew Woodland	3	10-20	10	Yes – EclA
2	Sutton Meadows	SSSI (U2)	NEUTRAL GRASSLAND – Lowland	MG5 - *Cynosurus cristatus - Centaurea nigra* grassland	Favourable	Yes	Low and medium altitude hay meadows	3	20-30	20	Yes – EclA
3	Smallbridge Copse	ASNW/ARW	Ancient woodland	None available	N/A	Yes	Broadleaved Mixed and Yew Woodland	3	10-20	10	Yes – EclA
4	Moors River System	SSSI (U1, 2, 3, 20, 21)	RIVERS AND STREAMS (U1 & 2) NEUTRAL GRASSLAND – Lowland (U20) FEN, MARSH AND SWAMP – Lowland (U21)	Eutrophic flowing water, wetland habitats (grassland, marsh, swamp and woodland) and invertebrate assemblage (esp. dragonfly spp.)	Unfavourable - No change (U1, 2 & 3) Favourable (U20) Unfavourable – Recovering (U21)	Yes	Low and medium altitude hay meadows Moist and wet oligotrophic grasslands: *Molinia caerulea* meadows Rich fens	3	20-30 15-25 15-30	15	Yes – EclA
5	East Hays	ARW	Ancient woodland	None available	N/A	Yes	Broadleaved Mixed and Yew Woodland	3	10-20	10	Yes – EclA
6	Gilhams Wood/Thanes Copse	ARW	Ancient woodland	None available	N/A	Yes	Broadleaved Mixed and Yew Woodland	3	10-20	10	Yes – EclA
7	Sammells Copse	ARW	Ancient woodland	None available	N/A	Yes	Broadleaved Mixed and Yew Woodland	3	10-20	10	Yes – EclA
8	Little and Crendle Commons	SNCI (DERC)	Habitat: 2.21 road verge	Relict grassland and woodland	N/A	Yes	Broadleaved Mixed and Yew Woodland	3	10-20	10	Yes – EclA

ID	Site Name	Designation	Reason for Selection	Description	SSSI Condition	Sensitive to Nitrogen?	APIS N CL Class	NH_3 Critical Level	N dep Critical Load range	N dep Lower CL	AQA Req.?
				along roadsides and bridleways			Low and medium altitude hay meadows		20-30		
9	Cranborne Common	SSSI (U5, 6, 10 & 11)	BOGS – Lowland (U10) DWARF SHRUB HEATH – Lowland (U5, 6, 11)	Wet and dry heath and associated reptiles and invertebrates	Unfavourable – Recovering (U5 & 6) Unfavourable - No change (U10 & 11)	Yes	Valley mires, poor fens and transition mires Dry heaths Northern wet heath: *Erica tetralix* dominated wet heath	1	10-15 10-20 10-20	10	Yes – see ES TA 9.2
10	Further Daggons Wood	ARW	Ancient woodland	None available	N/A	Yes	Broadleaved Mixed and Yew Woodland	3	10-20	10	Yes - EclA
11	Alderholt Heath	SNCI (DERC)	Habitat: 2.10 heathland	Wet heath with a pond containing pillwort	N/A	Yes	Northern wet heath: *Erica tetralix* dominated wet heath	3	10-20	10	Yes - EclA
12	Daggons Road Station	SNCI (DERC)	Species: 3.03 Marsh Clubmoss	Damp mixed woodland on acid soil, wet heath and surrounding scrub	N/A	Yes	Broadleaved Mixed and Yew Woodland	3	10-20	10	Yes - EclA

ID	Site Name	Designation	Reason for Selection	Description	SSSI Condition	Sensitive to Nitrogen?	APIS N CL Class	NH_3 Critical Level	N dep Critical Load range	N dep Lower CL	AQA Req.?
13	High Wood	ARW	Ancient woodland	None available	N/A	Yes	Broadleaved Mixed and Yew Woodland	3	10-20	10	Yes - EcIA
14	Strouds Firs Meadows	SNCI (DERC)	Habitat: 2.11 fen meadow/rush pasture	Semi-improved neutral grassland	N/A	Yes	Low and medium altitude hay meadows Rich fens	3	20-30 15-30	15	Yes - EcIA
15	Bonfire Hill	SNCI (DERC)	Habitat: 2.02 wet woodland; 2.10 heathland	Dry heath being invaded by pines	N/A	Yes	Broadleaved Mixed and Yew Woodland Wet/dry heaths	3	10-20 10-20	10	Yes - EcIA
16	Sedgemoor	SINC (HBIC)	1A/5B	ASNW/ Fens, flushes, seepages, springs and inundation grasslands of floodplains	N/A	Yes	Broadleaved Mixed and Yew Woodland Low and medium altitude hay meadows Rich fens	3	10-20 20-30 15-30	10	Yes - EcIA
17	Midgham Wood	SINC (HBIC)	1**B/1A**	Other woodland/ ASNW	N/A	Yes	BroadleavedMixed and Yew Woodland	3	10-20	10	Yes - EcIA
18	Midgham Long Copse	ASNW	Ancient woodland	None available	N/A	Yes	Broadleaved Mixed and Yew Woodland	3	10-20		Yes - EcIA
19	River Avon System	SSSI (U31 & 56)	RIVERS AND STREAMS	Riverside wet woodland & fen suitable for wetland fauna (U31)	Unfavourable - No change	U31, Yes U56, No – P limited system	Broadleaved deciduous woodland Rich fens	No info on APIS	10-20 15-30	10	Yes - EcIA

ID	Site Name	Designation	Reason for Selection	Description	SSSI Condition	Sensitive to Nitrogen?	APIS N CL Class	NH_3 Critical Level	N dep Critical Load range	N dep Lower CL	AQA Req.?
				Chalk river habitat and species special interest features (U56)							
20	Lomer Copse	SINC (HBIC)	1A	ASNW	N/A	Yes	Broadleaved Mixed and Yew Woodland	3	10-20	10	Yes - EcIA
21	Lomer Meadow	SINC (HBIC)	2B/5B	Semi-improved grasslands/Fens, flushes, seepages, springs and inundation grasslands of floodplains	N/A	Yes	Low and medium altitude hay meadows Rich fens		20-30 15-30	15	Yes - EcIA
22	Ringwood Forest & Home Wood	SINC (HBIC)	1A/3Bi/3Bii/6A	ASNW/afforested heathland/Sites which support one or more Hampshire Notable Species	N/A	Yes	Broadleaved Mixed and Yew Woodland Wet/dry heaths	3	10-20 10-20	10	Yes - EcIA
23	Home Wood	ARW	Ancient woodland	None available	N/A	Yes	Broadleaved Mixed and Yew Woodland	3	10-20	10	Yes - EcIA
24	River Avon System	SSSI (U56)	RIVERS AND STREAMS	Flowing waters, habitats and species assemblages of importance within the River Avon and its tributaries	Unfavourable - No change	No – P limited system					No
25	Avon Valley (Bickton to Christchurch)	SSSI (U43, 46, 47, 48, 49, 50, 51, 154)	NEUTRAL GRASSLAND – Lowland (37.9ha)	Habitats and species assemblages associated with	Favourable (U43, 47, 48, U50)	Yes	Rich fens	3	15-30 20-30	15	Yes - EcIA

ID	Site Name	Designation	Reason for Selection	Description	SSSI Condition	Sensitive to Nitrogen?	APIS N CL Class	NH_3 Critical Level	N dep Critical Load range	N dep Lower CL	AQA Req.?
			BROADLEAVED, MIXED AND YEW WOODLAND – Lowland (2.1ha) (U48) RIVERS AND STREAMS (105ha U154)	the lower reaches of the River Avon valley and floodplain	Unfavourable – Recovering (U51, U154) Unfavourable - No change (U46) Unfavourable – Declining (U49)		Low and medium altitude hay meadows				
26	St Leonards and St Ives Heaths	SSSI (U3 & 30)	DWARF SHRUB HEATH - Lowland	Dry heath and pine woodland	Unfavourable - Recovering	Yes	Dry heaths	3	10-20	10	Yes – see ES TA 9.2

Table 3.5: Results of NOx Modelling (figures in bold represent exceedances of the CL or PC>1% of CL; PC represents cumulative development)

ID	Receptor	CL	2041 Without Dev. (DM)		2041 With Dev. (DS)		PC (cum. dev.)	PC % of CL	PC >1% of CL & DS CL Exceeded
			Total NOx	CL Exceed.	Total NOx	CL Exceed.			
1	Bone Acre/Park Copses	30	8.29	-21.71	11.45	-18.55	3.16	10.52	No
2	Sutton Meadows	30	6.19	-23.81	6.33	-23.67	0.13	0.45	No
3	Smallbridge Copse	30	7.38	-22.62	8.24	-21.76	0.85	2.84	No
4a	Moors River System	30	8.21	-21.79	8.75	-21.25	0.54	1.79	No
4b	Moors River System	30	7.60	-22.40	7.99	-22.01	0.40	1.33	No
5	East Hays	30	7.62	-22.38	8.01	-21.99	0.39	1.30	No
6	Gilhams Wood/Thanes Copse	30	6.15	-23.85	6.20	-23.80	0.05	0.16	No
7	Sammells Copse	30	6.06	-23.94	6.10	-23.90	0.04	0.12	No
8	Little and Crendle Commons	30	9.67	-20.33	11.66	-18.34	1.99	6.62	No
10	Further Daggons Wood	30	6.49	-23.51	6.59	-23.41	0.10	0.34	No
11	Alderholt Heath	30	6.70	-23.30	6.93	-23.07	0.23	0.75	No
12	Daggons Road Station	30	7.22	-22.78	7.53	-22.47	0.31	1.04	No
13	High Wood	30	6.51	-23.49	6.63	-23.37	0.12	0.40	No
14	Strouds Firs Meadows	30	6.53	-23.47	6.61	-23.39	0.08	0.25	No
15	Bonfire Hill	30	6.97	-23.03	7.23	-22.77	0.26	0.87	No
16	Sedgemoor	30	9.33	-20.67	9.89	-20.11	0.56	1.87	No
17/18	Midgham Wood / Midgham Long Copse	30	7.38	-22.62	7.52	-22.48	0.14	0.47	No
20/21	Lomer Copse/Lomer Meadows	30	6.84	-23.16	7.01	-22.99	0.17	0.58	No
22a	Ringwood Forest & Home Wood	30	8.98	-21.02	10.51	-19.49	1.53	5.10	No
22b	Ringwood Forest & Home Wood	30	10.80	-19.20	11.86	-18.14	1.05	3.51	No
23	Home Wood	30	8.73	-21.27	10.09	-19.91	1.36	4.53	No
25a	Avon Valley (Bickton to Christchurch)	30	37.56	7.56	37.87	7.87	0.31	1.03	Yes
25b	Avon Valley (Bickton to Christchurch)	30	49.33	19.33	49.70	19.70	0.37	1.25	Yes

Table 3.6: Results of NH_3 Modelling (figures in bold represent exceedances of the CL or PC>1% of CL; shaded cells represent locations where APIS does not provide background NH_3 concentrations; PC represents cumulative development)

ID	Receptor	CL	2041 Without Dev. (DM)		2041 With Dev. (DS)		PC (in comb Dev.)	PC % of CL	PC >1% of CL & DS CL Exceeded
			Total NH_3	CL Exceed.	Total NH_3	CL Exceed.			
1	Bone Acre/Park Copses	3	0.83	-2.17	0.96	-2.04	0.13	4.44	No
2	Sutton Meadows	3	2.00	-1.00	2.04	-0.96	0.03	1.10	No
3	Smallbridge Copse	3	0.28	-2.72	0.49	-2.51	0.21	7.04	No
4a	Moors River System	3	2.90	-0.10	3.01	0.01	0.12	3.94	No
4b	Moors River System	3	2.76	-0.24	2.86	-0.14	0.10	3.35	No
5	East Hays	3	0.40	-2.60	0.50	-2.50	0.10	3.29	No
6	Gilhams Wood/Thanes Copse	3	0.05	-2.95	0.06	-2.94	0.01	0.41	No
7	Sammells Copse	3	0.03	-2.97	0.04	-2.96	0.01	0.30	No
8	Little and Crendle Commons	3	0.68	-2.32	1.03	-1.97	0.35	11.57	No
10	Further Daggons Wood	3	0.05	-2.95	0.08	-2.92	0.03	0.90	No
11	Alderholt Heath	3	0.11	-2.89	0.17	-2.83	0.06	1.99	No
12	Daggons Road Station	3	0.15	-2.85	0.23	-2.77	0.08	2.76	No
13	High Wood	3	0.06	-2.94	0.09	-2.91	0.03	1.04	No
14	Strouds Firs Meadows	3	0.04	-2.96	0.06	-2.94	0.02	0.59	No
15	Bonfire Hill	3	0.08	-2.92	0.14	-2.86	0.06	2.00	No
16	Sedgemoor	3	0.61	-2.39	0.75	-2.25	0.14	4.57	No
17/18	Midgham Wood / Midgham Long Copse	3	0.14	-2.86	0.17	-2.83	0.03	1.13	No
20/21	Lomer Copse/Lomer Meadows	3	0.06	-2.94	0.11	-2.89	0.05	1.53	No
22a	Ringwood Forest & Home Wood	3	0.54	-2.46	0.96	-2.04	0.42	13.93	No
22b	Ringwood Forest & Home Wood	3	0.39	-2.61	0.68	-2.32	0.30	9.84	No
23	Home Wood	3	0.49	-2.51	0.86	-2.14	0.37	12.37	No
25a	Avon Valley (Bickton to Christchurch)	3	14.01	11.01	14.07	11.07	0.06	1.84	Yes

25b	Avon Valley (Bickton to Christchurch)	3	17.41	14.41	17.45	14.45	0.05	1.53	Yes

Table 3.7: Results of Nitrogen Deposition Modelling (figures in bold represent exceedances of the CL or PC>1% of CL; PC represents cumulative development)

ID	Receptor	APIS CL Class	LCL (kgN/ha/yr)	2041 Without Dev. (DM)		2041 With Dev. (DS)		PC (in comb Dev.)	PC % LCL	PC >1% of CL & DS CL Exceeded
				Total N dep kg/ha/yr	LCL Exceed.	Total N dep kg/ha/yr	LCL Exceed.			
1	Bone Acre/Park Copses	Broadleaved Mixed and Yew Woodland	10	10.00	0.00	10.45	0.45	0.45	4.5	Yes
2	Sutton Meadows	Low and medium altitude hay meadows	20	20.00	0.00	20.02	0.02	0.02	0.1	No
3	Smallbridge Copse	Broadleaved Mixed and Yew Woodland	10	10.00	0.00	10.12	0.12	0.12	1.2	Yes
4a	Moors River System	Low and medium altitude hay meadows	20	15.00	-5.00	15.08	-4.92	0.08	0.4	No
		Moist and wet oligotrophic grasslands: *Molinia caerulea* meadows	15	15.00	0.00	15.08	0.08	0.08	0.5	No
		Rich fens	15	15.00	0.00	15.08	0.08	0.08	0.5	No
4b	Moors River System	Low and medium altitude hay meadows	20	15.00	-5.00	15.06	-4.94	0.06	0.3	No
		Moist and wet oligotrophic grasslands: *Molinia caerulea* meadows	15	15.00	0.00	15.06	0.06	0.06	0.4	No
		Rich fens	15	15.00	0.00	15.06	0.06	0.06	0.4	No
5	East Hays	Broadleaved Mixed and Yew Woodland	10	10.00	0.00	10.06	0.06	0.06	0.6	No

ID	Receptor	APIS CL Class	LCL (kgN/ha/yr)	2041 Without Dev. (DM)		2041 With Dev. (DS)		PC (in comb Dev.)	PC % LCL	PC >1% of CL & DS CL Exceeded
				Total N dep kg/ha/yr	LCL Exceed.	Total N dep kg/ha/yr	LCL Exceed.			
6	Gilhams Wood/Thanes Copse	Broadleaved Mixed and Yew Woodland	10	10.00	0.00	10.01	0.01	0.01	0.1	No
7	Sammells Copse	Broadleaved Mixed and Yew Woodland	10	10.00	0.00	10.01	0.01	0.01	0.1	No
8	Little and Crendle Commons	Broadleaved Mixed and Yew Woodland	10	10.00	0.00	10.29	0.29	0.29	2.9	Yes
		Low and medium altitude hay meadows	20	10.00	-10.00	10.29	-9.71	0.29	1.4	Yes
10	Further Daggons Wood	Broadleaved Mixed and Yew Woodland	10	10.00	0.00	10.01	0.01	0.01	0.1	No
11	Alderholt Heath	Northern wet heath: *Erica tetralix* dominated wet heath	10	10.00	0.00	10.03	0.03	0.03	0.3	No
12	Daggons Road Station	Broadleaved Mixed and Yew Woodland	10	10.00	0.00	10.04	0.04	0.04	0.4	No
13	High Wood	Broadleaved Mixed and Yew Woodland	10	10.00	0.00	10.02	0.02	0.02	0.2	No
14	Strouds Firs Meadows	Low and medium altitude hay meadows	20	15.00	-5.00	15.01	-4.99	0.01	0.1	No
		Rich fens	15	10.00	-5.00	10.01	-4.99	0.01	0.1	No
15	Bonfire Hill	Broadleaved Mixed and Yew Woodland	10	10.00	0.00	10.04	0.04	0.04	0.4	No
		Wet/dry heaths	10	10.00	0.00	10.04	0.04	0.04	0.4	No
16	Sedgemoor	Broadleaved Mixed and Yew Woodland	10	10.00	0.00	10.08	0.08	0.08	0.8	No
		Low and medium altitude hay meadows	20	10.00	-10.00	10.08	-9.92	0.08	0.4	No

ID	Receptor	APIS CL Class	LCL (kgN/ha/yr)	2041 Without Dev. (DM)		2041 With Dev. (DS)		PC (in comb Dev.)	PC % LCL	PC >1% of CL & DS CL Exceeded
				Total N dep kg/ha/yr	LCL Exceed.	Total N dep kg/ha/yr	LCL Exceed.			
		Rich fens	15	10.00	-5.00	10.08	-4.92	0.08	0.5	No
17/18	Midgham Wood / Midgham Long Copse	BroadleavedMixed and Yew Woodland	10	10.00	0.00	10.02	0.02	0.02	0.2	No
19a	River Avon System	Broadleaved deciduous woodland	10	10.00	0.00	10.04	0.04	0.04	0.4	No
		Rich fens	15	10.00	-5.00	10.04	-4.96	0.04	0.3	No
19b	River Avon System	Broadleaved deciduous woodland	10	10.00	0.00	10.08	0.08	0.08	0.8	No
		Rich fens	15	10.00	-5.00	10.08	-4.92	0.08	0.5	No
20	Lomer Copse	Broadleaved Mixed and Yew Woodland	10	10.00	0.00	10.02	0.02	0.02	0.2	No
21	Lomer Meadow	Low and medium altitude hay meadows	20	15.00	-5.00	15.02	-4.98	0.02	0.1	No
		Rich fens	15	15.00	0.00	15.02	0.02	0.02	0.2	No
22a	Ringwood Forest & Home Wood	Broadleaved Mixed and Yew Woodland	10	10.00	0.00	10.44	0.44	0.44	4.4	Yes
		Wet/dry heaths	10	10.00	0.00	10.44	0.44	0.44	4.4	Yes
22b	Ringwood Forest & Home Wood	Broadleaved Mixed and Yew Woodland	10	10.00	0.00	10.30	0.30	0.30	3.0	Yes
		Wet/dry heaths	10	10.00	0.00	10.30	0.30	0.30	3.0	Yes
23	Home Wood	Broadleaved Mixed and Yew Woodland	10	10.00	0.00	10.20	0.20	0.20	2.0	Yes
25a	Avon Valley (Bickton to Christchurch)	Rich fens	15	15.00	0.00	15.04	0.04	0.04	0.3	No
		Low and medium altitude hay meadows	20	15.00	-5.00	15.04	-4.96	0.04	0.2	No

ID	Receptor	APIS CL Class	LCL (kgN/ha/yr)	2041 Without Dev. (DM)		2041 With Dev. (DS)		PC (in comb Dev.)	PC % LCL	PC >1% of CL & DS CL Exceeded
				Total N dep kg/ha/yr	LCL Exceed.	Total N dep kg/ha/yr	LCL Exceed.			
25b	Avon Valley (Bickton to Christchurch)	Rich fens	15	15.00	0.00	15.05	0.05	0.05	0.4	No
		Low and medium altitude hay meadows	20	15.00	-5.00	15.05	-4.95	0.05	0.3	No

4. ENVIRONMENTAL AND HISTORICAL CONTEXT

Introduction

4.1 This section presents a summary of the environmental and historical context of the Site.

Desktop Research

4.2 A desk study was carried out in order to gather and refer to existing biodiversity and contextual information with respect to the ZOI and the wider area.

4.3 Information on topography, geology, soils, and hydrology was drawn from one or more of the following main sources:

- Dorset Explorer;
- The British Geological Survey (BGS);
- The Soil Survey of England and Wales (SSEW);
- The Environment Agency Catchment Explorer; and
- Information from other disciplines within the Design Team.

4.4 Research on the landscape/ecological history of the area was based primarily on examining historic maps. The following maps were examined:

- OS 1 inch to the mile OS map, from 1810;
- The 6" to the Mile Ordnance Survey Maps (c. 1871-1930s);
- Land Utilisation Survey of Britain c.1937; and
- Aerial imagery from the 1940s onwards.

Site Description and Present Use

4.5 The majority of the Site is in agricultural use, across three farms. There are large fields of arable land and improved grassland surrounded by a network of hedgerows. Full details about the Site are included in **Chapter 3**: **Background to Development.**

Geology & Soils

4.6 With reference to the British Geological Survey website, the solid geology underlying the Site comprises Parkstone Sand Member – Sand, and Broadstone Clay Member – Clay, silty. Superficial deposits are River Terrace Deposit, 6– Sand and gravel, and Head – Clay and silt.

4.7 With reference to the Soilscapes website, the soils in the centre of the Site (proposed for most of the residential development) are likely to be Soilscape 8: Slightly acid loamy and clayey soils with impeded drainage. Such soils have moderate to high fertility and could support a wide range of pasture and woodland types. The soils for the western part of residential development and SANG are likely to be Soilscape 15: Naturally wet very acid sandy and loamy soils. Such soils have very low fertility and could support mixed dry and wet lowland heath communities. Those across the southern part of the western SANG and much of the eastern SANG are likely

to be Soilscape 14: Freely draining very acid sandy and loamy soils. Such soils have very low fertility and could support lowland dry heath communities.

Topography

4.8 The Site is gently undulating ranging in height from approximately 60m Above Ordnance Datum (AOD) at the northern boundary to approximately 50m AOD on the southern and eastern boundaries.

Hydrology

4.9 The Site drains to the west (Sleep Brook) which drains into Hamer Brook to the south, and south to a pond which itself drains into Hamer Brook which eventually drains into the River Avon. There are four distinct drainage catchments across the Site. Full details are included in **Chapter 11: Drainage/Flood Risk**.

Landscape Character

4.10 The Site is within the Dorset Heaths National Character Area (NCA). The Site is south east of the Cranborne Chase and West Wiltshire Downs Area of Outstanding Natural Beauty (AONB).

Landscape History

4.11 Reference to the OS One Inch map from 1885-1900 shows how part of the western side of the Site was formerly known as Alderholt Common, which is shown as being contiguous with Cranborne Common further to the west. The eastern boundary of the former Alderholt Common is still represented by a wide boundary hedge and part of the land associated with a private house. Full details are included in **Chapter 8: Landscape and Visual Amenity**.

5. HABITATS, VEGETATION & FLORA

Introduction

5.1 This section presents details of the baseline evaluation of habitats, vegetation and flora within the ZOI of the Proposed Development.

Likely Biophysical Changes and Zone of Influence

5.2 The area over which the activities associated with the Proposed Development are considered to potentially affect habitats, vegetation and flora, the ZOI, has been predicted by considering the activities and resultant biophysical changes arising during the construction and operational phases, as summarised below.

Activities and Resultant Biophysical Changes During the Construction Phase

- Removal of vegetation and trees may lead to the loss and fragmentation of habitats and of important vegetation communities and individual species of plants;
- Excavation and movement of soils may lead to release of silt which may be carried in surface water run-off and deposited in watercourses resulting in siltation impacts;
- Pollution of aquatic habitats as a result of environmental accidents (chemical and fuel spills) or mishandling of chemicals; and
- Works may generate dust that could be deposited on vegetation.

Activities and Resultant Biophysical Changes During the Operational Phase

- Hydrological changes (in water quantity and/or quality) within and beyond the Site (drying, flooding, levels of pollution);
- Increased presence of people, which may lead to damage to plants, vegetation and soils through trampling, littering or fly-tipping, escape of non-native invasive species (for example from gardens), modification of nearby habitats by new homeowners, or damage to trees; and
- Implementation of habitat management plans, resulting in the enhancement of existing and creation of new habitats.

5.3 Some of the changes that could potentially affect habitats, vegetation and plants, such as trampling, have effects beyond the construction footprint, whilst others are likely to affect the vegetation communities through habitat changes. With this in mind, the potential ZOI that has been considered within this report for the construction phase is the Site and immediate surrounding area. For the operational phase this could include the Site but also sensitive habitats at designated nature conservation sites within their respective catchments of several kilometres (depending on the site).

Evaluation Methodology

5.4 The vegetation and flora of the Site are described and evaluated with reference to the following sources:

National Level:

- Schedules 8 and 9 of the Wildlife and Countryside Act 1981 (as amended);
- Habitats and Species of Principal Importance for the Conservation of Biodiversity in England under the NERC Act 2006 (the Section 41 List);
- Guidelines for the Selection of Biological Sites of Special Scientific Interest (SSSIs), Chapter 3 Grasslands (Jefferson et al., 2019);
- The Vascular Plant Red Data List for Great Britain (Cheffings & Farrell, 2005, as amended by Leach, Perman & Stroh, 2021));
- A Vascular Plant Red List for England (Stroh et al., 2014);
- Nationally Rare or Nationally Scarce species (JNCC, 2020); and
- The British Plant Community descriptions in Rodwell et al. (1990-2000) (the NVC).

County Level:

- Guidance for the Selection of Sites of Nature Conservation Importance (SINCs) in Hampshire (1996); and

5.5 The following indicator lists of habitat quality were referred to:

- Rose (1999) Indicators of ancient woodland - the use of vascular plants in evaluating ancient woods for nature conservation; and
- Sanderson (1998) A review of the extent, conservation interest and management of lowland acid grassland in England.

5.6 Nomenclature follows Stace, 4th edition (2019).

5.7 For woodland and scrub, the evaluation of nature conservation importance is also based on historic information and evidence, such as the presence of old growth (coppice stools and or mature trees).

5.8 Using the above guidance and professional judgement, the ecological feature assessed in this Technical Appendix – the habitats, vegetation and flora within the predicted ZOI – are evaluated according to the EcIA guidelines (CIEEM, 2018 v1.2) on a geographical frame of reference, at either a Within the Zone of Influence, Local, District, County, Regional, National, European or International level of importance.

Desktop Research

England Biodiversity 2020 Priority Habitats

5.9 With reference to the habitat information on MAGIC and the Dorset Explorer websites, the Site includes the following Priority Habitats (Habitats of Principal Importance under Section 41 of the NERC Act 2006):

- Deciduous woodland;

- Good quality semi-improved grassland; and
- No main habitat but additional habitats present.

5.10 Beyond the Site boundary but within the potential ZOI to the south and west are the following Priority Habitats:

- Woodpasture and Parkland;
- Lowland dry acid grassland;
- Lowland fens; and
- Lowland heathland.

Dorset Ecological Networks

5.11 The Dorset Local Nature Partnership website explains that DERC have updated the Ecological Network Maps, which are part of the evidence base for Local Plans in Dorset. The maps and guidance include maps for current and future networks for each Dorset region.

5.12 For East Dorset, the Existing Ecological Networks near Alderholt include a series of SNCIs and Priority habitats, including those listed above.

5.13 The Higher Potential Ecological Networks include much of the Site (see map at Appendix 6 of ABR Ecology report in **Annex 3**).

Field Survey

5.14 A survey was carried out by LCES in 2019. Full details are included in the appended report (**Annex 2**). The following habitats are present within the Site:

- **Woodland:** Broad-leaved, mixed and wet woodland (all areas qualify as UK BAP priority habitats).
- **Hedgerows:** Intact/defunct native species-rich and non-native species-poor hedges (including UK BAP and 11 hedgerows that are 'important' under The Hedgerow Regulations 1997).
- **Scattered trees and mature treelines**.
- **Grassland:** Wet semi-improved (SI) (marshy) grassland, rush pasture, SI neutral grassland, poor SI grassland, improved grassland and lowland dry acid grassland (outside the Site).
- **Heathland:** Dry and wet dwarf shrub heaths (outside the Site).
- **Arable land:** Arable land (crops) and arable leys.
- **Scrub:** Bramble, gorse and silver birch scrub.
- **Standing water:** Ponds and ditches.
- **Tall/short herb communities:** Tall ruderal and ephemeral/short-perennial vegetation.
- **Bare ground**.
- **Hardstanding**.

Summary

5.15 An update survey was carried out by ABR Ecology in 2022. Full details are included in the appended report (**Annex 3**) and a summary is included below.

5.16 The predominant habitat types across much of the Site are either arable crops/leys or improved/modified grassland. The more important habitats only occur in localised areas, or are linear features (hedgerows / treelines and ditches).

5.17 **Table 5.1** summarises the locations of the more important habitats based on the 'Field' and 'Parcel' they occur in. For a full list of habitat types, descriptions, Phase 1 habitat maps, photos and list of species present in each Parcel see Section 4 (paragraphs 4.19 to 4.62) and Appendix 8 of the ABR Ecology report in **Annex 3**.

Table 5.1: Important Habitats in each Field/Parcel

Field number	Parcel number	Parcel Name	Key Habitats in Parcel	Existing UK Habitats in Field
A1	10	Land to the north of Foxhill Farm	*Hedgerow and treeline	Temporary grass and clover leys
A2	11	Land to the northeast of Foxhill Farm	*Hedgerow and treeline	Temporary grass and clover leys
A3	12	Land to the east of Foxhill Farm	*Hedgerows and treelines	Temporary grass and clover leys
A4	13 (part)	Land around Oaktree Farm and Foxhill Farm	Semi-improved grassland, 5 of 7 *hedgerows and 4 ditches	Modified grassland (Poor semi-improved grassland)
A5	13 (part)	ditto	ditto	Modified grassland (Poor semi-improved grassland)
A6	13 (part)	ditto	ditto	Modified grassland (Poor semi-improved grassland)
A7	2 (part)	Land north of Sleepbrook Farm	*Broadleaved woodland, *hedgerows, treelines, ditches	Temporary grass and clover leys
A8	2 (part)	ditto	ditto	Cereal crops
A9	7	Land south of Cross Roads Plantation solar farm	Lower value habitats only	Non-cereal crops
A10	5 (part)	Land to the immediate west of Sleepbrook Farmhouse	^Semi-improved grassland, dense bramble and gorse scrub, treelines	^Other neutral grassland
A11	4	Land around Sleepbrook Farmhouse	*Wet woodland, *Mixed semi-natural woodland, treelines, *^Rush pasture, Semi-improved grassland, a *pond, ditches	Wet woodland Other woodland; mixed Modified grassland (Improved grassland) Purple moor grass and rush pastures

Field number	Parcel number	Parcel Name	Key Habitats in Parcel	Existing UK Habitats in Field
A12	3 (part)	Land around Sleepbrook Farm	Lower value habitats only	Modified grassland (Poor semi-improved grassland)
A13	3 (part)	ditto	ditto	Modified grassland (Poor semi-improved grassland)
A14 (not in red line)				
A15	6	Land to the far west of Sleepbrook Farmhouse	Treeline	Non-cereal crops
A16	5 (part)	Land to the immediate west of Sleepbrook Farmhouse	Lower value habitats only	Modified grassland (Improved grassland)
A17	18 (part)	Land to southwest of Sleepbrook Farm	*Rush pasture, *Mixed woodland, 2 *hedgerows, 2 ditches	Cereal crops
A18	18 (part)	ditto	ditto	Modified grassland (Improved grassland)
A19	18 (part)	ditto	ditto	Other woodland; mixed Other neutral grassland (Marshy grassland)
A20	17	Land to south of Sleepbrook Farm	*Hedgerow and ditch	Modified grassland (Improved grassland)
A21	16 (part)	Land to southeast of Sleepbrook Farm	*Broadleaved woodland, 2 *hedgerows, 3 treelines and 6 ditches	Modified grassland (Improved grassland)
A22	16 (part)	ditto	ditto	Modified grassland (Improved grassland)
A23	16 (part)	ditto	ditto	Modified grassland (Marshy grazed grassland)
A24	16 (part)	ditto	ditto	Modified grassland (Marshy grazed grassland)
A25	18 (part)	Land to southwest of Sleepbrook Farm	*Rush pasture, *Mixed woodland, 2 *hedgerows, 2 ditches	Modified grassland (Improved grassland)
A26	18 (part)	ditto	ditto	Modified grassland (Improved grassland)
A27	15	Land to east of Warren Park Farm	*Hedgerow, treeline and ditch	Cereal crops Modified grassland (Improved grassland)
A28	14 (part)	Land around Warren Park Farm campsite	^Amenity grassland, *Broadleaved woodland with	Cereal crops

Field number	Parcel number	Parcel Name	Key Habitats in Parcel	Existing UK Habitats in Field
			woodland ride, Hedgerow and Treeline, 4 *ponds	
A29	14 (part)	ditto	ditto	Modified grassland (Amenity grassland)
A30	14 (part)	ditto	ditto	Lowland mixed deciduous woodland Modified grassland (Amenity grassland) Ponds
A31	19	Land to southwest of Warren Park Farm	1 of 2 *ponds	Cereal crops Ponds
A32	1	Land east of Cross Roads Plantation	Semi-improved grassland	Other neutral grassland
A33	20 (part)	Cross Roads Plantation	*Broadleaved woodland, ^Semi-improved grassland, 2 Ponds, a *Stream	Lowland mixed deciduous woodland Other neutral grassland
A34	20 (part)	ditto	*Mixed woodland	Other woodland; mixed
A35	20 (part)	ditto	*Mixed woodland	Other woodland; mixed

*S41 Priority Habitat;

^DBCF qualifying – must avoid development

DBCF – Dorset Biodiversity Compensation Framework

Hedgerows

5.18 **Table 5.2** presents a summary of Hedgerows.

Table 5.2: Classification (and description) of Hedges and Locations

ABR Boundary number A	LCES Hedge number H	UK Habitats type (from ABR metric) and description from ABR report	Location
1.1	10	Line of Trees (Ecologically Valuable)	Land to the north of Foxhill Farm
1.2		Native Species Rich Hedgerow with trees	
2.1	11	Native Species Rich Hedgerow	Land to the northeast of Foxhill Farm
2.2		Native Species Rich Hedgerow with trees	
2.3		Native Species Rich Hedgerow with trees	
2.4		Line of Trees (Ecologically Valuable)	
3.1	16	Native Species Rich Hedgerow with trees - Associated with bank or ditch An intact, native species-rich hedgerow between 2-4m in height, 1.5-2.5m in width and C. 240m in length with a good, dense hedgerow structure and some smaller trees present; the hedgerow is generally well-managed and is intact.	Land to the east of Foxhill Farm
3.2		Native Species Rich Hedgerow A third intact, native species-rich hedgerow runs along the western boundary of 'Parcel 12' and is between 2-3m in height, 1.5-2m in width and c. 316m in length with a good, structure; the hedgerow is generally well-managed and is intact.	
3.3		Native Species Rich Hedgerow with trees - Associated with bank or ditch A native mature oak treeline runs along the northern half of the eastern boundary in 'Parcel 12'. A second native treeline runs along the northern boundary of 'Parcel 12', with 'Parcel 11' _to the immediate north of the treeline. Towards the western end, the treeline begins to transition into a more hedge-like structure, however, the boundary is regarded as a treeline due to the number of trees present.	
3.4		Native Species Rich Hedgerow with trees - Associated with bank or ditch A second intact, native species-rich hedgerow runs along the southeast end of the eastern boundary of 'Parcel 12' and is between 2-3m in height, 1-1.5m in width and c. 132m in length with a good, structure and some smaller trees	

ABR Boundary number A	LCES Hedge number H	UK Habitats type (from ABR metric) and description from ABR report	Location
		present; the hedgerow is generally well-managed and is intact.	
4.1	19	Native Species Rich Hedgerow - Associated with bank or ditch	Land around Oaktree Farm and Foxhill Farm
4.2	11	Native Species Rich Hedgerow - Associated with bank or ditch	
4.3			
4.4	17	Native Species Rich Hedgerow - Associated with bank or ditch	
5.1	20	Native Species Rich Hedgerow with trees - Associated with bank or ditch	Land around Oaktree Farm and Foxhill Farm
5.2	18	Native Species Rich Hedgerow with trees - Associated with bank or ditch	
5.3	18	Native Species Rich Hedgerow with trees - Associated with bank or ditch	
5.4			
6.1	12	Native Species Rich Hedgerow with trees	Land around Oaktree Farm and Foxhill Farm
6.2	13		
6.3	15	Hedge Ornamental Non Native	
6.6 extra		Native Hedgerow	
7.1		Native Species Rich Hedgerow - Associated with bank or ditch	Land north of Sleepbrook Farm
7.2		Line of Trees (Ecologically Valuable) - with Bank or Ditch	
7.3		Native Species Rich Hedgerow	
7.4		Native Species Rich Hedgerow	
8.1		Native Species Rich Hedgerow	Land north of Sleepbrook Farm
8.2		Native Species Rich Hedgerow - Associated with bank or ditch	
9.3		Native Species Rich Hedgerow with trees - Associated with bank or ditch	Land south of Cross Roads Plantation solar farm
10.2	1	Native Species Rich Hedgerow with trees - Associated with bank or ditch	Land to the immediate west of Sleepbrook Farmhouse
12.1	5	Native Species Rich Hedgerow with trees - Associated with bank or ditch	Land around Sleepbrook Farm
12.2	6	Native Species Rich Hedgerow with trees - Associated with bank or ditch	
13.1		Line of Trees - Associated with bank or ditch	Land around Sleepbrook Farm
15.1	2	Native Species Rich Hedgerow	Land to the far west of Sleepbrook Farmhouse

ABR Boundary number A	LCES Hedge number H	UK Habitats type (from ABR metric) and description from ABR report	Location
18.1	3	Native Species Rich Hedgerow with trees - Associated with bank or ditch	Land to southwest of Sleepbrook Farm
20.1	7	Native Species Rich Hedgerow with trees - Associated with bank or ditch	Land to south of Sleepbrook Farm
20.2	8	Native Species Rich Hedgerow with trees - Associated with bank or ditch	
20.3		Native Species Rich Hedgerow with trees - Associated with bank or ditch	
21.1		Native Species Rich Hedgerow with trees - Associated with bank or ditch	Land to southeast of Sleepbrook Farm
21.2		Native Species Rich Hedgerow with trees - Associated with bank or ditch	
21.3		Line of Trees - Associated with bank or ditch	
21.4		Line of Trees - Associated with bank or ditch	
21.5		Line of Trees - Associated with bank or ditch	
22.1	9	Native Species Rich Hedgerow	Land to southeast of Sleepbrook Farm
22.3		Line of Trees (Ecologically Valuable)	
23.1		Native Species Rich Hedgerow	Land to southeast of Sleepbrook Farm
24.2		Line of Trees (Ecologically Valuable)	Land to southeast of Sleepbrook Farm
25.1	4	Native Species Rich Hedgerow with trees - Associated with bank or ditch	Land to southwest of Sleepbrook Farm
25.2		Native Species Rich Hedgerow with trees	
27.1		Line of Trees (Ecologically Valuable)	Land to east of Warren Park Farm
27.2	10	Native Species Rich Hedgerow	
28.1		Line of Trees (Ecologically Valuable)	Land around Warren Park Farm campsite

Evaluation

5.19 The main habitats present within the Site are summarised in **Table 5.2** below along with each habitat/feature's conservation importance. For a summary of UKHabs habitats see **Map 3**.

Table 5.2 Summary of Evaluation of Habitats at Alderholt

*Phase 1 Habitat	UK Habitat	Comment	Importance
Woodland and Trees			
Broadleaved woodland	Lowland mixed deciduous woodland		Local
Mixed woodland	Other woodland; mixed		Within ZOI
Wet woodland			Local
Scattered trees			Within ZOI
Hedgerows and Treelines			
Native species-rich	e.g. Native species-rich hedgerow with trees associated with a bank or ditch, etc		Local
Non-native species-poor			Negligible
Mature treelines	e.g. Line of trees (ecologically valuable)		Local
Grassland			
Semi-improved (SI)	Neutral grassland	Meeting DNET SNCI/Local interest criteria	Local
Semi-improved (SI)	Other neutral grassland	Not meeting the SNCI criteria	Within ZOI
Poor SI	Other neutral grassland		Negligible
Improved	Modified	Ryegrass/Clover dominant. Present across much of the Site.	Negligible
Amenity	Modified	Meeting DNET local interest criteria	Within ZOI
Amenity	Modified	Not meeting the DNET criteria	Negligible
Rush pasture	Other neutral grassland; Secondary level code 119 – seasonally wet	Where meets species-richness criteria then Local	Within ZOI to Local
Scrub			
Dense/scattered Bramble/Gorse	Bramble/Gorse scrub		Within ZOI
Tall/short herbs			
Tall ruderals			Within ZOI
Ephemeral/Short-perennial			Within ZOI
Bare ground			Negligible
Cropland			
Arable (Ley/Crop)		Present across much of the Site.	Negligible
Standing Water			
Ponds		Clustered in 2 parcels only.	Within ZOI to Local
Ditches	Ditches		Within ZOI
Buildings and Hardstanding			
Buildings and Hardstanding	Developed land; sealed surface		Negligible

*Based on ABR Ecology report (2022).

6. BATS

Introduction

6.1 This Section presents details of the baseline evaluation of bat populations within the ZOI of the Proposed Development.

Likely Biophysical Changes and Zone of Influence

6.2 The area over which the activities associated with the Proposed Development are considered to potentially affect bat populations, the ZOI, has been predicted by considering the activities and resultant biophysical changes arising during the construction and operational phases, as summarised below.

Activities and Resultant Biophysical Changes During the Construction Phase

- Removal of structures, vegetation and trees leading to the loss and fragmentation of habitats which support bats (chiefly either for foraging, commuting or roosting); and
- Noise and lighting which may cause disturbance to bats and prevent access to their roosting, foraging or commuting sites.

Activities and Resultant Biophysical Changes During the Operational Phase

- Implementation of habitat management plans, resulting in the enhancement of existing and creation of new habitats;
- Increased presence of people, cats and traffic, which may lead to disturbance or harm to bats; and
- Operational lighting, which may lead to disturbance of bats and prevent access to their roosting, foraging or commuting sites.

6.3 Bats are mobile species that commute between roosts and foraging areas, sometimes over considerable distances (several kilometres) and covering a wide area and a variety of habitats during night-time activity, dependent on species and time of year. The potential ZOI of the Proposed Development for any bat species affected will therefore include the Site itself but is also considered likely to extend up to around 5km beyond the Site boundary to include any off-site bat roosts, the bats from which are supported by the affected habitats at the Site.

Evaluation Methodology

6.4 Surveys and evaluation have been carried out in accordance with current guidance, including that produced by the Bat Conservation Trust (2016).

6.5 Full details are included in ABR Ecology's report in **Annex 3**.

Desktop Study

6.6 Records of bats within a 2km radius of the Site were provided by DERC and HBIC. DERC also provided confidential records of Annex II bat roosts within 8km. A summary is presented below in **Table 6.1**.

Table 6.1: Bat records within a 2km radius of the Site (8km for Annex II species)

Common name	Scientific name	Provider	Occurrences in date range
Greater Horseshoe Bat	*Rhinolophus ferrumequinum*	DERC	Roost
Western Barbastelle	*Barbastella barbastellus*	DERC	Roost
Serotine	*Eptesicus serotinus*	DERC	4 in 2018
Natterer's Bat	*Myotis nattereri*	DERC	1 in2011
	Myotis sp	DERC	4 in 2018
Leisler's Bat	*Nyctalus leisleri*	DERC	1 in 2018
Noctule Bat	*Nyctalus noctula*	DERC	1 in 2018
Nathusius's Pipistrelle	*Pipistrellus nathusii*	DERC	1 in 2018
Common Pipistrelle	*Pipistrellus pipistrellus*	DERC	12 in 20111-18
Soprano Pipistrelle	*Pipistrellus pygmaeus*	DERC	7 in 2011-18
Brown Long-eared Bat	*Plecotus auritus*	DERC	4 records in 2013-18
	Plecotus sp	DERC	7 in 2011-18

Field Survey

6.7 A survey was carried out by LCES in 2019. Full details are included in the appended report (**Annex 2**).

6.8 A survey was carried out by ABR Ecology in 2021/22. Full details are included in the appended report (**Annex 3**) and a summary is included below.

Methodology

6.9 Details of the bat survey methods carried out by ABR Ecology in 2021/22 are included in their report in **Annex 3**. In summary this included update building and tree surveys and a series of bat transects, emergence/re-entry, statics surveys.

Summary of Results

6.10 **Map 4** presents a summary of key species data, including bats.

6.11 The following bat roosts are present on the Site and/or within the ZOI:

- A maternity roost/hibernation roost for Brown Long-eared Bats in building B2;
- A day roost for Greater Horseshoe Bat in B2;
- Day roosts for Brown Long-eared Bat and Common Pipistrelle in B5; and
- A day roost for Soprano and Common Pipistrelles in B14.

6.12 A high number of trees on the Site possess Potential Roosting Features (PRFs) for bats. These trees require further investigation at Reserved Matters stage.

6.13 The Site was assessed to hold 'high potential' for foraging and commuting bats. At least 10 species of bat were recorded using the Site including:

- Greater Horseshoe Bat, Barbastelle, Myotis sp., Long-eared Bat sp., Common, Soprano and Nathusius' Pipistrelle and Serotine, Noctule and Leisler's Bat.

6.14 The Site supports an excellent assemblage of bat species, including at least two rare Annex II bat species, Greater Horseshoe Bat and Barbastelle.

6.15 Key habitats are considered to be the areas of woodland, treelines and hedgerows around the boundaries.

Analysis and Evaluation

6.16 The ZOI supports a relatively diverse bat assemblage comprising 10 species or species groups. However, the greater part of the Site is occupied by intensively managed farmland and has relatively limited importance for bats. Notable levels of foraging activity are largely confined to marginal areas, particularly including the woodland fringe between the Site and Cranborne Common to the west.

6.17 The most notable components of the bat assemblage are two rarer species, the Greater Horseshoe Bat and Barbastelle – both of which are listed under Annex II of the Habitats Directive. Scattered records of the former species occur across Dorset (Dorset Mammal Atlas), whereas the latter is "widely distributed — although never common — across the rural landscape of southern Britain" (Matthews et al., 2018).

6.18 The Greater Horseshoe Bat and Barbastelle were recorded in boundary habitats across various parts of the Site. Individuals of both species were encountered at three locations during transect surveys; the Greater Horseshoe Bat was recorded at all but one of 14 automated sampling locations, and the Barbastelle at all but two.

6.19 However, the overall level of activity attributed to these rarer species was very low. The Greater Horseshoe Bat was recorded at an average rate of just 2.14 passes per night (across all automated detectors) and an average rate of just 0.14 passes per detector per night. Barbastelle was recorded at an average rate of just 2.31 passes per night and an average rate of just 0.15 passes per detector per night.

6.20 Greater Horseshoe Bat activity was limited to a very low rate of no more than ten passes in any month (i.e. an average of one pass per night) at all but two of the automated sampling locations. The two exceedances of this rate only occurred in one of the seven sampling months: in August 2021, 29 passes were recorded at a sampling location beyond the western boundary, and 18 passes were recorded on the site's northern wooded boundary. Even during these relative 'peaks', activity levels remained very low: an average of less than three passes per night at both locations.

6.21 Barbastelle activity was limited to a rate of no more than ten passes in any month at all but one of the automated sampling locations. Again, this exceedance only occurred in one of the seven sampling months: in April 2022, 53 passes were recorded at the off-site sampling location beyond the western boundary. Even during this relative 'peak', the average detection rate was just five passes per night.

6.22 Although these two rarer species were encountered across much of the ZOI, the level of their activity and utilisation of site habitats and features was found to be very limited: no such features can be considered particularly important as foraging and commuting resources for either species. In this respect, the diversity of the bat assemblage is considered to be more attributable to the location of the Site in relation to high quality off-site foraging resources – such as Cranborne Common to the west, Ringwood Forest to the south, and the Avon Valley to the east - than to the inherent characteristics and habitat quality of the Site itself.

6.23 On balance, the bat assemblage within the ZOI are considered to be of **County** importance with a **favourable, stable** conservation status.

6.24 The conservation status is considered to be favourable since it is likely that the bat populations have good access to a range of foraging habitats and roosting sites within the potential ZOI, and access to further foraging and roosting resources beyond the ZOI, especially to the east along the Avon valley.

6.25 The conservation status is considered to be stable, since disturbance from existing levels of activity is likely to continue at a similar level in the absence of development.

7. BADGERS

Introduction

7.1 This Section presents details of the baseline evaluation of European Badger *Meles meles* within the ZOI of the Proposed Development.

Ecological Background and Implications

7.2 The Badger is a social animal, living in distinct groups known as clans, each of which occupies and defends a territory against neighbouring clans (NE, 2007; Woods, 1995 and The Mammal Society, 1991). Within its territory, the clan resides within one or more setts, which are complexes of underground tunnels and chambers (Woods, 1995). Badgers forage at night on a variety of food resources, but usually concentrating on earthworms that are most efficiently captured from the surface of short mown or grazed grassland (Clark, 2001 and Woods, 1995).

7.3 However, due to their complex ecology, Badgers can be badly affected by development (The Mammal Society, 1991) and effects may constitute a legal offence (NE, 2015). The removal, damage, obstruction or disturbance of setts are the key effects that would constitute a legal offence under Section 3 of the Protection of Badgers Act 1992. Therefore, guidance from NE (2007) on the effects of development on Badgers, promotes the design of a scheme that includes mitigation for potential effects, advising that *"development should not be permitted unless it is possible to take steps to ensure the survival of the Badgers in their existing range and at the same population status, with provision of alternative habitats if setts and foraging areas are destroyed".* Providing such measures are incorporated into a development scheme to minimise effects on Badgers, licences can usually be issued to permit unavoidable development activities.

Likely Biophysical Changes and Zone of Influence

7.4 The area over which the activities associated with the Proposed Development are considered to potentially affect Badgers, the ZOI, has been predicted by considering the activities and resultant biophysical changes arising during the construction and operational phases, as summarised below.

Activities and Resultant Biophysical Changes During the Construction Phase

- Activity of construction operatives and machinery leading to noise, visual or lighting disturbance of Badgers in setts;
- Removal of vegetation and trees leading to the loss or damage to setts, and harm or mortality of Badgers;
- Ground excavations and demolition leading to loss or damage to setts, and harm or mortality of Badgers;
- Loss and fragmentation of habitats leading to restricted access between setts and foraging areas; and
- Lighting of the work area overnight leading to disturbance to Badgers.

Activities and Resultant Biophysical Changes During the Operational Phase

- Increased presence of people, cats and traffic, which may lead to disturbance, harm or mortality of Badgers; and
- Implementation of habitat management plans, resulting in the enhancement of existing and creation of new habitats of benefit to Badgers.

Desktop Research

7.5 Records of Badger within a 2km radius of the Site were provided by DERC and HBIC and a summary of records is presented below in **Table 7.2**.

Table 7.2: Badger records within a 2km radius of the Site

Common name	Scientific name	Provider	Occurrences in date range
European Badger	*Meles meles*	DERC	Sett in 2010 onwards <1km W
		DERC	Sett in 1990-2009 in 2x 1km squares corresponding with E half of Site
		DERC	6 records in 2013-18 in Alderholt to N of Site.

Field Survey

7.6 A survey was carried out by LCES in 2019. Full details are included in the appended report (**Annex 2**).

7.7 An update survey was carried out by ABR Ecology in 2021. Full details are included in the appended report (**Annex 3**) and a summary is included below.

Methodology

7.8 A direct search was conducted looking for signs of Badgers and their setts. Any setts encountered were classed as main, annexe, subsidiary or outlier, dependent upon the number of holes and apparent extent of their use. A search was also conducted for any other evidence of Badger including faeces or latrines, pathways, scratching posts at the base of trees, snuffle holes, day nests, hair or footprints.

Summary of Results

7.9 A summary of the setts is shown on **Map 5**. When surveyed for in 2021, evidence of Badgers was found across the Site. This included the presence of a number of active setts:

- Two active main setts (one breeding);
- One subsidiary sett;
- Two annex setts; and
- Four outlier setts.

7.10 Evidence of Badgers commuting and foraging was also found across the Site.

7.11 See ABR Ecology (2022) report in **Annex 3** for details of evidence in a series of maps included in the report's appendix.

7.12 Since the setts are clustered in two separate areas in the north west and north east of the Site it is unclear whether this involves one or two clans. However, this will be resolved by undertaking a bait marking study at the Reserved Matters stage, should the information be required to inform a licence application to Natural England to close any of the setts to facilitate elements of the Proposed Development.

Evaluation

7.13 Badgers are widespread and relatively common in England and are therefore not a species of conservation concern. Due to the low nature conservation value of Badgers, the Badger population within the ZOI of the Proposed Development is evaluated as being of no more than **Within the ZOI importance**.

7.14 However, in view of the legal protection afforded Badgers and their setts under the Protection of Badgers Act 1992 they are considered in the EcIA in terms of ensuring legal compliance.

8. HAZEL DORMOUSE

Introduction

8.1 This Section presents details of the baseline evaluation of Hazel Dormice *Muscardinus avellanarius* within the ZOI of the Proposed Development.

8.2 Since the Site includes habitats that are considered potentially suitable for supporting Hazel Dormice, a targeted survey was undertaken, initially in 2019 and this was updated in 2021. Hazel Dormice were not recorded in either survey. Details of the survey are reported on below.

Desktop Research

8.3 Records of Hazel Dormice and other protected and notable species occurring within 2km of the Site were commissioned from DERC and HBIC in 2021. Reference was also made to the MAGIC website for locations of any granted European Protected Species Licence applications for Hazel Dormice in the area.

8.4 Records of Hazel Dormouse within a 2km radius of the Site provided by DERC and HBIC and are presented below in **Table 8.1**.

Table 8.1: Hazel Dormouse records within a 2km radius of the Site

Common name	Scientific name	Provider	Occurrences in date range
Hazel Dormouse	*Muscardinus avellanarius*	DERC	1990-2009 record in a 1km square c1.5km W of the Site
		HBIC	8 sensitive records in 2006-15

Field Survey

8.5 A survey was carried out by LCES in 2019. Full details are included in the appended report (**Annex 2**).

8.6 An update survey was carried out by ABR Ecology in 2021. Full details are included in the appended report (**Annex 3**) and a summary is included below.

Methodology

8.7 A total of 148 Dormouse nest tubes were deployed in suitable habitat (within hedgerows/treelines) across the Site in June 2021.

8.8 Monthly survey visits were conducted by licensed Dormouse ecologists from ABR Ecology between May and November 2021, to check the tubes for evidence of Dormice including woven nests, feeding remains and the presence of Dormice themselves.

8.9 A score was then devised as an indicator of the thoroughness of the survey effort in accordance with the methodology of Bright et al. (2006).

8.10 See report in **Annex 3** for other results.

Summary of Results and Evaluation

8.11 Hazel Dormice are not known to be present in the ZOI following surveys in 2019 and 2021 despite there being eight records from within 2km (in Hampshire) and an EPS licence obtained to disturb breeding habitat within 1km to the south east.

8.12 The network of hedgerows within the Site have the potential to provide suitable habitat for Dormice, although these hedgerows surround intensively farmed land and are likely to be cut annually and so this may reduce the quality and hence their value to Dormice.

8.13 As such Dormice are unlikely to be present within the ZOI currently. As there are no negative impacts to Dormouse populations to assess they are not taken through the impact assessment.

8.14 However, opportunities to enhance habitat quality and improve connectivity as part of the green infrastructure design of the Proposed Development, and through the long-term management of the new and existing habitats in a manner which is sensitive to wildlife might also benefit Dormice should their populations recover in the wider local area and they colonise the Site in the future.

9. BREEDING BIRDS, BARN OWL AND NIGHTJAR

Introduction

9.1 This Section presents details of the baseline evaluation of the breeding bird assemblage (and separately Barn Owl and Nightjar) within the ZOI of the Proposed Development.

Likely Biophysical Changes and Zone of Influence

9.2 The area over which the activities associated with the Proposed Development are considered to potentially affect the breeding bird assemblage, the ZOI, has been predicted by considering the activities and resultant biophysical changes arising during the construction and operational phases, as summarised below.

Activities and Resultant Biophysical Changes During the Construction Phase

- Removal of buildings, vegetation and trees may lead to direct harm and/or disturbance to birds and their dependent young, or damage to nests and eggs;
- Removal of vegetation and trees may lead to the loss and fragmentation of habitats which support birds; and
- Noise and lighting which may cause disturbance to birds and prevent access to their nesting or foraging sites.

Activities and Resultant Biophysical Changes During the Operational Phase

- Implementation of habitat management plans, resulting in the enhancement of existing and creation of new habitats;
- Predation by domestic cats may cause injury or death to birds; and
- Increased presence of people and traffic, which may lead to disturbance or harm to birds.

9.3 Some of the changes that could potentially affect breeding birds, such as disturbance, have effects beyond the construction footprint, whilst others are likely to affect the bird assemblage through habitat changes. With this in mind, the potential ZOI that has been considered within this report is the Site and immediate surrounding area.

Evaluation Methodology

9.4 The ecological feature assessed in this Technical Appendix – the breeding bird assemblage within the predicted ZOI of the Proposed Development – is assessed according to the EcIA guidelines (CIEEM, 2018, v1.2 updated 2019) on a geographical frame of reference, at either a Within the Zone of Influence, Local, District, County, Regional, National, European or International level of importance.

9.5 The principal attributes of bird communities that are considered when evaluating the importance of an area for birds are:

- Presence of conservation priority species (such Red or Amber listed Birds of Conservation Concern, or those listed under Section 41 of the NERC Act 2006);

- Overall diversity of species supported;
- Relative population sizes with reference to published sources such as County Bird Reports; and
- Presence of rare species.

Conservation Priority Species

9.6 The Birds of Conservation Concern (BoCC) list (Stanbury et al., 2021) assigns all UK bird species a status of either Green, Amber or Red depending on a number of factors such as changes in population size or distribution over the last 25 years. This information is determined by a partnership of nature conservation organisations including the Royal Society for the Protection of Birds (RSPB) and British Trust for Ornithology (BTO) and is updated every three to six years. The BoCC list carries no legal weight in itself but is used to set priorities for conservation and guide policy and decision making, and it provides a useful tool for assessing the value of breeding and wintering bird assemblages. Many Red and Amber BoCC species are also listed on S41 of the NERC Act.

9.7 Bird species that are listed as Species of Principal Importance for Conservation under Section 41 of the NERC Act 2006, or as Red/Amber-listed BoCC, are considered to be particularly vulnerable due to factors such as serious population declines or reductions in their natural range. These species are therefore given special consideration when assessing the conservation importance of bird assemblages.

Diversity

9.8 The number of species recorded in an area (species richness) is a simple and effective measure of diversity, which can be used as part of the assessment of a bird assemblage. **Table 9.1** below shows the thresholds commonly used to measure diversity for breeding birds (Fuller, 1980).

9.9 However, since the publication of the criteria in 1980, species diversity has declined significantly, and it is considered that Fuller's thresholds are too high for today's breeding bird populations. For this reason, it is therefore judged appropriate to recalibrate the categories slightly downward, as shown. This is achieved by splitting the 'local' category into two and adding a 'district' category, which also fits with the geographical scale set out in the CIEEM guidelines.

Table 9.1: Breeding bird assessment using the diversity of breeding bird species

Level of Importance	Number of Breeding species	
	Fuller (1980)	*Adapted criteria*
Local	25-49 species	<25
District	-	25-49
County	50-69	50-60
Regional	70-84	70-84
National	85+	85+

9.10 According to these criteria, an assemblage comprising fewer than 25 breeding bird species would therefore be considered as of Local importance or less, when considered in terms of diversity alone.

Relative Population Size

9.11 This is evaluated by assessing the percentage of a population size unit (e.g. national, county) that occurs within the study site. The standard criterion upon which evaluation of population is based is that if 1% or more of the defined geographical unit of a species regularly uses a site, then the site is important at that geographical scale. This means, for example, that if 1% of the county population occurs, then the site is of county level importance for that species.

9.12 Sources of population data include Woodward et al. (2020) at the UK level, the BTO's annual 'BirdTrends' reports, Wetland Bird Survey (WeBS) alerts (where relevant), and recent county bird reports and atlases.

Rarity

9.13 Several measures of rarity can be used. Species with fewer than 1,000 breeding pairs in Britain are described as Nationally Rare (Fuller, 1980). A species with a County population of up to 25 pairs might therefore be treated as being rare in the County (depending on the species and its status).

9.14 Rarity can also be recorded by distribution rather than population size. The Bird Atlas 2007-11 (Balmer et al., 2013) records breeding and wintering distributions of birds in Britain and Ireland by 10x10 km grid squares. This makes it possible to describe the frequency of occurrence of individual species in terms of the proportions of squares in which they occur. A 30% level forms a useful line below which species can be described as 'Scarce'.

9.15 The occurrence of species which are specially protected by law or otherwise listed as threatened, although not necessarily strictly rare, can also be helpful in establishing the conservation importance of sites. Species listed on Schedule 1 of the Wildlife and Countryside Act 1981 or on Annex 1 of the Birds Directive are worthy of special consideration. These lists take into account measures such as population size and distribution.

Desktop Research

9.16 A biological records search was commissioned from Dorset Environmental Records Centre (DERC) and Hampshire Biodiversity Information Centre (HBIC) in 2022 in order to obtain existing records of birds within a 2km radius of the Site boundary, thereby incorporating the potential ZOI and providing context with any other bird populations in the local area.

9.17 Records of birds within a 2km radius of the Site provided by DERC and HBIC and a summary is presented below in **Table 9.2**.

Table 9.2: Bird records within a 2km radius of the Site

Common name	Scientific name	Provider	Occurrences in date range
Red Kite	*Milvus milvus*	DERC	2 in 2015-16
Hen Harrier	*Circus cyaneus*	DERC	1 in 2012
Merlin	*Falco columbarius*	DERC	1 in 2012
Cuckoo	*Cuculus canorus*	DERC	4 in 2012-18
Swift	*Apus apus*	DERC	1 in 2018
Skylark	*Alauda arvensis*	DERC	1 in 2018
House Martin	*Delichon urbicum*	DERC	3 in 2012-16

Common name	Scientific name	Provider	Occurrences in date range
Tree Pipit	*Anthus trivialis*	DERC	2 in 2016-18
Mistle Thrush	*Turdus viscivorus*	DERC	1 in 2018
Dartford Warbler	*Sylvia undata*	DERC	7 in 2012 (Plumley Heath), & 2 in 2018 Stephens Castle
		HBIC	6 in 2005-17
Greenfinch	*Chloris chloris*	DERC	1 in 2017
Linnet	*Linaria cannabina*	DERC	1 in 2016
Woodlark	*Lullula arborea*	HBIC	17 in 2001-17

9.18 The records from DERC include single records of Hen Harrier and Merlin at Cranborne Common in 2012. Dartford Warbler at Plumley Heath in 2012. Several records from Stephens Castle in 2018. Some farmland species such as Skylark and Linnet in 2016-18.

9.19 HBIC returned a large number of records of wetland birds associated with the Avon Valley, including many migratory species. Otherwise some records from Ringwood Forest were of note including Woodlark, Dartford Warbler and Nightjar, although some records may again relate only to migrants (e.g. Redstart, Wood Warbler).

9.20 None / few of the bird records relate directly to the Site and therefore a targeted breeding bird survey was carried out in 2019 and updated in 2021.

Field Survey

9.21 A survey was carried out by LCES in 2019. Full details are included in the appended report (**Annex 2**).

9.22 An update survey was carried out by ProVision Ecology in 2021 (PV 2022) on behalf of ABR Ecology.

9.23 The standard Common Bird Census methodology as developed by Marchant (1983) for the British Trust for Ornithology (BTO) was adopted. A set route was followed on five occasions during May, June and July 2021 by experienced ornithologist from ABR Ecology.

9.24 Full details are included in the appended report (**Annex 4**) and a summary is included below.

Summary of Results

9.25 **Map 4** presents a summary of key species data, including breeding birds, Barn Owl and Nightjar.

9.26 The Site comprises habitat suitable to support a range of breeding bird species including arable land with hedgerows and trees, grassland and woodland habitats, with extensive areas of heathland adjacent to the west and woodland to the south.

9.27 The surveys recorded a total of 58 species, with 37 breeding species. Of the breeding species, the following are red-listed BoCC: Cuckoo, Greenfinch, House Sparrow, Linnet, Skylark and Yellowhammer.

9.28 Two Schedule 1 species were possibly breeding in adjacent suitable habitat, Dartford Warbler on the edge of heathland to the west and Firecrest in woodland to the southwest.

9.29 The western half of the Site also supported populations of farmland species such as Yellowhammer and Linnet. Skylark were recorded breeding within the arable sections. Of these the most significant is Skylark and Yellowhammer, each with 3 confirmed territories and 3 probable territories.

Evaluation of Breeding Bird Assemblage

9.30 The breeding bird assemblage supported by the ZOI has been assessed with reference to the criteria set out in the Evaluation Methodology above.

- Conservation Priority Species: Six Red-listed and six Amber-listed species were considered to be breeding within the ZOI at the time of the survey in 2021. Eight of these are also Section 41 species.
- Diversity: The total assemblage of 37 breeding species equates to a District level of importance according to the criteria adapted from Fuller (1980).
- Population Size: None of the species within the ZOI were recorded in sufficient numbers to meet the 1% threshold of importance at County level or above. The numbers recorded are considered to be typical of a site of this size in this locality.
- Rarity: Barn Owl are a Schedule 1 species found roosting (but not nesting currently) on the Site (see below).

9.31 Taking all of the above into account, the assemblage of breeding birds within the ZOI is assessed as being of no more than **Local** importance according to the CIEEM (2019) levels of importance. Although the assemblage is diverse, only a small proportion of the species recorded are conservation priority species.

9.32 The conservation status of the breeding bird assemblage is likely to be **unfavourable and declining** in view of the intensive land use for agriculture, a situation that is unlikely to change in the absence of the Proposed Development.

Barn Owl

Summary of Results

9.33 Following a thorough search of buildings in May 2021, ABR Ecology reported finding an active Barn Owl roost in building B4 at Foxhill Farm (see **Map 4**). No other evidence was found in buildings.

9.34 The Site includes suitable foraging habitat for Barn Owls, particularly around field margins where a longer sward is available.

Evaluation

9.35 Barn Owl are listed on Schedule 1 of the Wildlife and Countryside Act (WCA) 1981 (as amended) and as such are protected from disturbance while nesting, in addition to the standard protection offered by the WCA.

9.36 The presence of a Barn Owl roost is of **Local** importance.

9.37 Whilst there is currently no evidence of breeding the possibility remains in the future. An update survey at Reserved Matters stage will be required.

Nightjar

9.38 Cranborne Common SSSI is a component SSSI of the Dorset Heathlands SPA, designated for supporting significant populations of heathland birds, including European Nightjar *Caprimulgus europeaus* (hereafter referred to as Nightjar) (see **Figure 9.1b**).

9.39 Nightjars are known to regularly utilise habitats beyond the heathlands and forests where they nest for foraging (e.g. Evens et al., 2018). As such, consideration must be given to the potential effects of the Proposed Development on Nightjar foraging and commuting (access to foraging resources off the heath), and therefore on one of the key qualifying features of the SPA.

Desktop Study

9.40 Records of Nightjar within a 2km radius of the Site were provided by DERC and HBIC and a summary is presented below in **Table 9.3**.

Table 9.3: Nightjar records within a 2km radius of the Site

Common name	Scientific name	Provider	Occurrences in date range
Nightjar	*Caprimulgus europaeus*	DERC	5 records in 2010-13

Field Survey 2021

9.41 A survey for Nightjar within the Site was carried out by ProVision Ecology in 2021 (PV 2022), on behalf of ABR Ecology.

9.42 Full details are included in the appended report (**Annex 4**) and a summary is included below.

Methodology

9.43 Nocturnal surveys for Nightjar were conducted on three occasions with surveys conducted in line with the methods set out in Gilbert et al (1998). The surveys required two transects to cover the required areas at the correct time. Surveys began shortly before dusk and continued for up to 2 hours or until light levels negated survey.

Summary of Results

9.44 Nightjar were recorded 'churring' from the heathland to the west of the Site. They were also foraging across the western and northern fields and flying along the hedgerows within the Site (see **Map 4**).

9.45 Further details of Nightjar records are included in **TA 9.2: Information for Habitats Regulations Assessment**.

Evaluation

9.46 Nightjar are known to range widely beyond their breeding sites to forage and so individuals from nearby known breeding sites at Cranborne Common, Ringwood Forest and Home Wood will no doubt include the Site within their wider foraging range.

9.47 It is likely that the prey utilised by Nightjar (principally moths and beetles) will be caught over woodland, scrub, hedgerows and semi-natural grassland rather than over arable land.

9.48 Foraging Nightjar with the ZOI is regarded as a feature of **Local** importance.

10. AMPHIBIANS (INCLUDING GREAT CRESTED NEWTS)

Introduction

10.1 This Section presents details of the baseline evaluation of amphibians populations (including Great Crested Newts (GCN) within the ZOI of the Proposed Development.

Likely Biophysical Changes and Zone of Influence

10.2 The area over which the activities associated with the Proposed Development are considered to potentially affect amphibian populations, the ZOI, has been predicted by considering the activities and resultant biophysical changes arising during the construction and operational phases, as summarised below.

Activities and Resultant Biophysical Changes During the Construction Phase

- Ground remedial works, which may involve the excavation and movement of soils and vegetation may lead to disturbance, injury and/or death of amphibians;
- Removal of buildings and vegetation may lead to the loss and fragmentation of habitats which support amphibians; and
- Pollution of aquatic habitats supporting amphibians.

Activities and Resultant Biophysical Changes During the Operational Phase

- Increased presence of people, cars and pets, which may lead to disturbance or harm to amphibians;
- Predation from introduced pet cats may cause injury or death to amphibians;
- Hydrological alteration to/pollution of, or release of non-native invasive species (e.g. invasive plants) to aquatic habitats;
- Operational lighting may lead to disturbance of amphibians and/or increase the risk of predation; and
- Implementation of habitat management plans, resulting in the enhancement of existing and creation of new habitats;

10.3 Although the life cycles of amphibians are centred on breeding ponds, they have both aquatic and terrestrial phases. It is generally considered that GCN will use terrestrial habitat within 250m and potentially up to 500m from a breeding pond (English Nature, 2001). Therefore, GCN in any pond within 500m of the Site and not isolated by barriers to movement could be affected by the Proposed Development. However, surveys at a distance greater than 250m from a pond are considered to be only necessary when the following conditions are met:

- Maps, aerial photos, walk over surveys or other data indicate that the pond(s) has potential to support a large GCN population;
- The footprint has particularly favourable habitat for GCN;
- The development would have a substantial negative effect on that habitat; and
- There is an absence of dispersal barriers.

10.4 As the development is very unlikely to have a substantial negative effect on habitats outside of the Site boundary, the ZOI for GCN and other amphibians in this case is considered to include suitable terrestrial and aquatic habitat within the Site boundary that could be affected by the Proposed Development, as well as any breeding ponds within 250m of the Site boundary that are not separated from the Site by barriers to dispersal.

Desktop Study

10.5 Records of GCN and other amphibians within a 2km radius of the Site were provided by DERC and HBIC and a summary is presented below in **Table 10.1**.

Table 10.1: Amphibian records within a 2km radius of the Site

Common name	Scientific name	Status	Provider	Occurrences in date range
Great Crested Newt	*Triturus cristatus*	Habs Regs, WCA, EPS, NERC S41/ Priority	DERC	2018 record of GCN pond within 50-250m SSE of Site
Palmate Newt	*Lissotriton helveticus*	WCA	DERC	3 records in 2016
Common Toad	*Bufo bufo*	WCA, NERC S41/ Priority	DERC	2 records in 2016
Common Frog	*Rana temporaria*	WCA	DERC	1 record in 2014

10.6 The only existing GCN record in the search area was one returned by DERC, a positive GCN record from an eDNA sample taken in 2018 from a pond in Alderholt. The grid reference given is at one of the ponds to the south of Warren Park Farm to the south of Alderholt. This pond lies c 100m south of the Site boundary.

10.7 With respect to GCN risk zones, DERC identify that the Site is within the Dorset Council area, although is not within a Natural England GCN Red risk zone and is therefore eligible for District Level Licence.

Field Survey

10.8 A survey was carried out by LCES in 2019. Full details are included in the appended report (**Annex 2**).

10.9 An update survey was carried out by ABR Ecology in 2022. Full details are included in the appended report (**Annex 3**) and a summary is included below.

Methodology

Habitat Suitability Index (HSI) assessments

10.10 A desktop exercise using available mapping was carried out initially to identify waterbodies within 500m of the Site. Any accessible waterbodies were then visited and evaluated under the Habitat Suitability Index (HSI) assessment (Oldham et al, 2000, 2008) to determine the suitability of the waterbody for GCN. Locations of waterbodies surveyed are provided in Appendix 16 of the report (**Annex 3**).

eDNA Sampling

10.11 eDNA sampling was conducted on any waterbodies on Site and any accessible waterbodies within 500m of the site that received a HSI score of 0.5 or above (or was previously identified to support GCN during previous surveys (LCES, 2019)) to determine if GCN DNA were present/absent in the waterbodies. This technique involved taking 20 water samples from around the pond margins and these were transferred into sterilised sample tubes. The samples were then collected on 3rd June 2021 following a dry period without rain and sent to SureScreen Scientifics Ltd to determine if GCN DNA was present in the waterbodies; a 'negative' (no DNA present) or 'positive' (DNA present) was received for each batch of water samples.

Bottle trapping/torching/egg search surveys

10.12 Where GCN DNA was recorded present, GCN population size class surveys were conducted on 'positive' waterbodies in accordance with the Great Crested Newt Mitigation Guidelines (English Nature, 2001), which recommends a minimum of three survey techniques, ideally bottle trapping, torching survey and egg searches.

Survey Limitations and Constraints

10.13 Some ponds had dried up on several visits and therefore some survey methods were not possible.

10.14 See report in **Annex 3** for details of methods and weather conditions,

Summary of Results

10.15 **Map 4** presents a summary of key species data, including GCN.

10.16 11 ponds are present within the Site boundary with a further 20 ponds off-site within 500m.

10.17 eDNA sampling was conducted and revealed a 'positive' result for GCN presence in a pond in the southeast within the campsite.

10.18 Previous surveys also revealed GCN presence in a ditch running through Sleepbrook Farm.

10.19 GCN are therefore present within the Site in low numbers.

Evaluation

10.20 The low population of GCN is judged to be a feature of **Local** importance.

10.21 The conservation status of the GCN population is likely to be **unfavourable and declining** in view of the intensive land use for agriculture, a situation that is unlikely to change in the absence of the Proposed Development.

11. REPTILES

Introduction

11.1 This Section presents details of the baseline evaluation of reptile populations within the ZOI of the Proposed Development.

Likely Biophysical Changes and Zone of Influence

11.2 The area over which the activities associated with the Proposed Development are considered to potentially affect the reptile assemblage - the ZOI - has been predicted by considering the activities and resultant biophysical changes arising during the construction and operational phases, as summarised below.

Activities and Resultant Biophysical Changes During the Construction Phase

- Site clearance works involving the movement of vehicles, excavation and movement of soils and vegetation may lead to disturbance, injury and/or death of reptiles;
- Environmental accidents which could lead to injury and/or death of reptiles;
- Removal of vegetation leading to the loss of habitats which support reptiles; and
- Noise and dust emissions, which could disturb reptiles and prevent access to their basking, foraging or hibernation sites.

Activities and Resultant Biophysical Changes During the Operational Phase

- Implementation of habitat management plans, resulting in the enhancement of existing and creation of new habitats;
- Predation from domestic pets which may cause injury or death to reptiles; and
- Increased presence of people, cars and pets, which may lead to disturbance or harm to reptiles.

11.3 Some of the changes that could potentially affect reptiles, such as disturbance, have effects beyond the construction footprint, whilst others are likely to affect the reptile assemblage through habitat changes. With this in mind, the potential ZOI that has been considered within this report is the Site and immediate surrounding area.

Evaluation Methodology

11.4 A commonly used basic method for interpreting reptile survey data is provided in the Froglife (1999) guidelines, from which **Table 11.1** below is taken. Figures in the table refer to the maximum numbers of adults seen by observation and/or under artificial refugia (at a density of up to 10 per hectare) by one surveyor in a single survey visit. This data is then used with the table to produce a relative population estimate as well as a score, which can be used to determine whether the site may qualify as a 'Key Reptile Site'.

Table 11.1: Reptile Population Size Class Interpretation (Froglife,1999)

Species	Low Population *Score 1*	Good Population *Score 2*	Exceptional Population *Score 3*
Slow-worm	<5	5-20	>20
Common Lizard	<5	5-20	>20
Grass Snake	<5	5-10	>10

11.5 Sites which support a diversity or high density of reptiles may be considered as 'Key Reptile Sites'. This is not an official designation, but is described by Froglife as “a mechanism designed to promote the safeguard of important reptile sites”. A site may qualify for inclusion on the Key Reptile Site Register if any one of the following criteria apply:

- Supports an exceptional population of one species (see **Table 11.1** above);
- Supports three or more reptile species;
- Supports two snake species;
- Supports an assemblage of reptiles that scores 4 or more (see **Table 11.1** above); or
- Does not meet criteria 1-4, but is of particular importance due to local rarity.

11.6 The Key Reptile Site Register should be subject to a degree of interpretation based upon professional experience, as this method does not take into account the size of the survey area, or any localised distribution of reptiles within a survey area.

11.7 The Herpetofauna Groups of the British Isles Guidelines (HGBI, 1998) have also been taken into consideration within the evaluation in **Section 3**, along with advice set out in the Herpetofauna Workers Manual (Gent & Gibson, 2003).

11.8 Using the above guidance and professional judgement, the reptile population is also valued according to the CIEEM (2018 v1.2) Ecological Impact Assessment Guidelines on a geographical frame of reference, at either a Zone of Influence, Local/Parish, District, County, Regional, National, European or International level.

Desktop Research

11.9 A biological records search was commissioned from DERC and HBIC in 2021 in order to obtain existing records of reptiles within a 2km radius of the Site boundary, thereby incorporating the potential ZOI and providing context with any other reptile populations in the local area.

11.10 Records of reptiles within a 2km radius of the Site provided by DERC and HBIC are summarised below in **Table 11.2**.

Table 11.2: Reptile records within a 2km radius of the Site

Common name	Scientific name	Status	Provider	Occurrences in date range
Common Lizard	*Zootoca vivipara*	WCA, NERC S41/ Priority	DERC	50 records in 2011-15
			HBIC	66 records in 2001-04
Slow-worm	*Anguis fragilis*		DERC	18 records in 2011-18

Common name	Scientific name	Status	Provider	Occurrences in date range
		WCA, NERC S41/ Priority	HBIC	60 records in 2001-06
Grass Snake	*Natrix helvetica*	WCA, NERC S41/ Priority	DERC	10 records in 2011-18
			HBIC	20 records in 2001-06
Adder	*Vipera berus*	WCA, NERC S41/ Priority	DERC	8 records in 2011-15
			HBIC	43 records in 2001-06

Field Survey

11.11 A survey was carried out by LCES in 2019. Full details are included in the appended report (**Annex 2**).

11.12 An update survey was carried out by ABR Ecology in 2021. Full details are included in the appended report (**Annex 3**) and a summary is included below.

11.13 Whilst the ABR Ecology report includes survey of Smooth Snake, there was no rare reptile habitat in the revised Site boundary and therefore not within the ZOI. As a consequence, rare reptiles are not covered in the EcIA.

Methodology

Reptile Presence/Absence Surveys

11.14 The reptile surveys involved setting out approximately 704 felt and 'tins' in August 2021, which were strategically placed around the Site in areas of suitable habitat connectivity and vegetative cover.

11.15 A suite of seven presence/absence surveys were conducted in suitable survey conditions across the Site in 'Parcels 1-12'. The surveys were conducted to determine if reptiles are present/likely absent and if so, their distribution and population size class in line with current national guidance (Froglife, 1999).

Summary of Results

11.16 **Map 4** presents a summary of key species data, including reptiles.

11.17 The eastern side of the Site (east of Ringwood Road) supports 'low populations' of Slow-worm, Grass Snake and Common Lizard; the remainder of the Site supports overall 'good populations' of Common Lizard and Slow-worm, and a 'low population' of Grass Snake.

11.18 Land adjacent to the west of the Site supports an overall 'exceptional population' of Common Lizard, a 'good population' of Slow-worm and a 'low population' of Grass Snake.

Evaluation

11.19 Slow-worms, Common Lizards and Grass Snakes are common and widespread in Dorset. On this basis, the current reptile populations within the ZOI is considered to be of **Local** importance.

11.20 The conservation status of the reptile populations is likely to be **unfavourable and declining** in view of the intensive land use for agriculture, a situation that is unlikely to change in the absence of the Proposed Development.

12. INVERTEBRATES

Introduction

12.1 This Section presents details of the baseline evaluation of the invertebrate assemblage within the ZOI of the Proposed Development.

Likely Biophysical Changes and Zone of Influence

12.2 The area over which the activities associated with the Proposed Development are considered to potentially affect the invertebrate assemblage - the ZOI - has been predicted by considering the activities and resultant biophysical changes arising during the construction and operational phases, as summarised below.

Activities and Resultant Biophysical Changes During the Construction Phase

- Site clearance works involving the movement of vehicles, excavation and movement of soils and vegetation (including trees) may lead to damage to, or the loss of habitats which support invertebrates.

Activities and Resultant Biophysical Changes During the Operational Phase

- Implementation of habitat management plans, resulting in the enhancement of existing and creation of new habitats; and
- Scheme lighting.

12.3 Overall, the potential ZOI that has been considered within this report is the Site and immediate surrounding area.

Desktop Research

12.4 A biological records search was commissioned from Hampshire Biodiversity Information Centre (HBIC) in 2021 in order to obtain existing records of invertebrates within a 2km radius of the Site boundary, thereby incorporating the potential ZOI and providing context with any other invertebrate populations in the local area.

12.5 Records of invertebrates within a 2km radius of the Site provided by DERC and HBIC are summarised below in **Table 12.1**.

Table 12.1: Invertebrate records within a 2km radius of the Site

Common name	Scientific name	Status	Provider	Occurrences in date range
Stag Beetle	*Lucanus cervus*	Habs Regs, WCA, EPS, NERC S41/ Priority, NS	DERC	2 in 2016-18
Dingy Skipper	*Erynnis tages*	NERC S41/ Priority, VU-GB	DERC	1 in 2014
Small Heath	*Coenonympha pamphilus*	NERC S41/ Priority, NT-GB	DERC	11 in 2011-14

Common name	Scientific name	Status	Provider	Occurrences in date range
Grayling	*Hipparchia semele*	NERC S41/ Priority, VU-GB	DERC	16 in 2010-14
			HBIC	6 in 2014-20
White Admiral	*Limenitis camilla*	NERC S41/ Priority, VU-GB	DERC	4 in 2011-13
			HBIC	4 in 2001-20
Small Blue	*Cupido minimus*	WCA, NERC S41/ Priority, NT-GB	DERC	1 in 2014
Silver-studded Blue	*Plebejus argus*	WCA, NERC S41/ Priority, VU-GB	DERC	12 in 2010-17
			HBIC	3 in 2001-20
Dingy Mocha	*Cyclophora pendularia*	NERC S41/ Priority, NR	DERC	1 in 2010
Scarce Merveille du Jour	*Moma alpium*	NR	DERC	4 in 2010
Lobe-spurred Furrow Bee	*Lasioglossum pauxillum*	NS(A)	DERC	1 in 2012
Heath Potter Wasp	*Eumenes coarctatus*	NS(A)	DERC	2 in 2012

Habs Regs – Habitats Regulations 2017 European Protected Species

WCA – Wildlife & Countryside Act (1981)

NERC S41/ Priority– NERC Act 2006 Section 41 Priority Species

NR – Nationally Rare (occurs in less than sixteen 10km squares nationwide)

NS – Nationally Scarce (occurs in sixteen to one hundred 10km squares nationwide)

VU/NT-GB – National RDB Vulnerable/Near Threatened in GB

DR/DS/DN – Dorset Rare/Scarce/Notable

12.6 A good selection of butterflies has been recorded in the area, particularly at Cranborne Common to the west of the Site, and Ringwood Forest to the south.

12.7 A large number of the moth records returned comprised former 'Research only' species, those in need of further study to determine causes of declines. The only notable species are both associated with established woodland (Dingy Mocha and Scarce Merveille du Jour).

12.8 Some scarce bees and wasps recorded at Cranborne Common are of local interest only.

Field Survey 2022

Introduction

12.9 An assessment of the Site's value for invertebrates was carried out by Dr Jonty Denton on behalf of EPR on 23 July and 31 August 2022.

Methodology

12.10 Because it is impracticable to survey all the potential invertebrates within any given site, only specific groups of species were examined during fieldwork. These groups are sufficiently well known as to allow meaningful comparisons to be made with other sites, both locally and nationally. They are also important as indicators of the quality of a site and the habitats present (see Brooks 1993).

12.11 Groups covered during the survey were:

Order (common name)
Mollusca (slugs and snails)
Arachnida (spiders, harvestmen & pseudoscorpions)
Isopoda (woodlice)
Thysanura (bristletails)
Ephemeroptera (mayflies)
Odonata (dragonflies & damselflies)
Plecoptera (stoneflies)
Orthoptera (grasshoppers & crickets)
Dictyoptera (cockroaches)
Dermaptera (earwigs)
Hemiptera-Heteroptera (true-bugs)
Hemiptera-Homoptera (hoppers)
Neuroptera (lace-wings)
Mecoptera (scorpion-flies)
Lepidoptera (butterflies & moths)
Trichoptera (caddis flies)
Diptera (true flies)
Aculeate Hymenoptera (ants, bees & wasps)
Coleoptera (beetles)

12.12 Standard field techniques were employed to sample the invertebrate fauna across the Site. These included sweeping vegetation with a wide mouthed sweep net, beating trees and bushes over a beating tray, and grubbing amongst tussocks and key host plant rosettes.

Evaluation Methodology

Rapid Assessments of the Potential Value of Invertebrate Habitats

12.13 Using the method outlined by Dobson & Fairclough (2021) which divides sites by 11 habitat elements as set out in **Table 12.2**.

Table 12.2: Invertebrate Habitat Elements

No.	**Habitat Element**	**Comments**
HE1	Decaying Wood	In all its forms; from decaying wood on/in large trees to woodland floor debris
HE2	Rotational Management	Planned or serendipitous; and whether for nature conservation or other purposes

No.	Habitat Element	Comments
HE3	Nectar Resources	As a proxy for nectar- and pollen resources, as assessment of pollen resources is impracticable on a walk-through survey
HE4	Wet Substrates	Including marginal, marshy, muddy and seasonally inundated habitats, as well as flushes
HE5	Open Water Habitats	The open water element of rivers, lakes, ponds, streams, ditches, etc.
HE6	Structural Patchwork	Habitat mosaics, including, but by no means restricted to open mosaic habitats on previously developed land
HE7	Still Air (S)	Suntraps and still-air microclimates in open situations; the term 'still air' is used in preference to 'wind breaks' as many rigid wind breaks are likely to produce turbulent air in their lee
HE8	Still Air (H)	Humid still-air microclimates in sheltered and shaded situations
HE9	Connectivity	Landscape-scale connectivity between the site and external habitats
HE10	Ecoclines	A graded transition between two or more broad habitats
HE11	Bare Earth	Unshaded bare or sparsely vegetated well-drained substrate, regardless of soil type

12.14 The grading system applied to habitat elements is set out in **Table 12.3**.

Table 12.3: Grading System Applied to Habitat Elements

Grade	Description
Negligible/Absent (E)	Habitat element is absent or of insignificant (barely perceptible) quantity
Minor (D)	Habitat element is present but is insufficient quality to qualify as Moderate or above. For example, it may be of extremely limited extent, or very sparsely dispersed. Likely to support common and widespread, generalist species
Moderate (C)	A clear example of the habitat element is present, but which does not qualify as Major. Likely to be of sufficient quality to support a characteristic invertebrate fauna
Major (B)	Good quality examples of each habitat element which do not meet the criteria for Exceptional. Likely to be a predominant factor in supporting characteristic and specialised invertebrate assemblages. Considerations might include the extent, maturity and historic and current connectivity of the element
Exceptional (A)	Very high-quality examples of the habitat element, including but not restricted to those of potential regional significance. This may be for reasons of intrinsic quality, rarity, vulnerability or the perceived importance of its position in the wider landscape

Habitat Assessment Using Pantheon to Measure Site Quality

12.15 Although there is currently no standard framework for evaluating the invertebrate value of a site for the purpose of Ecological Impact Assessment, most active invertebrate ecologists have adopted the Pantheon database tool developed by Natural England and the Centre for Ecology & Hydrology. Pantheon is an on-line spreadsheet used to analyse invertebrate sample data and assess assemblage data for favourable versus unfavourable condition by SSSI standards. Hence, if an assemblage or suite of assemblages are found to be in favourable condition this

would indicate that the site is likely to be of significant importance for invertebrates. Further information on Pantheon is available here: http://www.brc.ac.uk/pantheon/about/pantheon

12.16 Users import lists of invertebrates (called "samples") into Pantheon, which then matches the species to the preferred name in the *UK species inventory* (a list of species maintained by the Natural History Museum). Not all macro-invertebrate taxa are included in the database. To date over c13,000 species have been assessed, this being about a quarter of the total macro-invertebrate fauna (estimated at 37,000). It remains limited to those taxa and families where there is enough ecological information to give a fair level of coding accuracy. These include species such as beetles, flies, bugs and hoppers, moths, ants, bees, wasps, spiders and molluscs.

12.17 The method for defining species resources was broadly similar to that followed in Natural England Research Report 024 (Webb *et al.*, 2010).

> *"For each species, a literature search was undertaken. All relevant ecological information was extracted and added to a spreadsheet. This included 'structural elements of the habitats that the species is generally associated with (e.g. emergent vegetation, seed heads) and/or other environmental factors that it requires, host plant and/or animal species alongside ecological guild of larvae as well as adults where these differed, (e.g. herbivore, carnivore). Only those resources which were considered important to the species in completing its life cycle were included".*

12.18 The assemblage types are labelled in terms that relate to their favoured habitats in order to make them accessible to non-specialists. However, they are actually defined by lists of characteristic species that are generally found together in nature. Three levels are recognised in the classification.

12.19 'Broad Biotopes' and 'Habitats' (which replace the original 'Broad assemblage types (BATs))'. These are a comprehensive series of assemblage types that are characterised by more widespread species. They can be expressed in lists from a wide range of sites.

12.20 Specific assemblage types (SATs) are characterised by ecologically restricted species and are generally only expressed in lists from sites with conservation value.

12.21 Since 2008 there has also been a third category of assemblage types that cut across this classification. They are mainly defined by lists of species dependent on a particular environmental resource, such as flowers as a source of pollen and nectar, or carrion and dung. The assemblage type classification is given below.

12.22 Textual descriptions of each assemblage type and its habitats have been prepared for incorporation into a web-based database (see **Table 12.4**).

12.23 The relevant Broad Biotopes, Habitats and SATs used in this report are set out in **Table 12.4**. These are the Pantheon categories and corresponding numbers of species (given in parentheses) from 2018 (these superseded the original Broad Assemblage Types (BATs) and SATs developed for ISIS).

Table 12.4: Pantheon Habitats and SATs of relevance to the Site

Broad Biotope	Habitat	Specific Assemblage Type (SAT)
T1 Tree associated (3784)	DW1 Decaying wood (1263)	A211 heartwood decay (179)
		A212 bark & sapwood decay (503)
F1 Open habitats (4356)	F21 Tall sward & scrub (2838)	
	F23 Short sward & bare ground (1331)	F111 bare sand & chalk (453)
		F112 open short sward (202)
		F001 scrub edge (202)
		F002 rich flower resource (219)
		F003 scrub-heath & moorland (174)
W1 Wetland (2795)	W24 Marshland (773)	W211 open water on disturbed mineral sediments (40)
	W25 Peatland (1026)	W311 open water in acid mire (20)

(***) Number of species within each habitat 'trait' in Pantheon database

Summary of Results

Rapid Assessments of the Potential Value of Invertebrate Habitats

12.24 **Table 12.5** presents a summary of scores for each habitat element present.

Table 12.5: Scores for Habitat Elements

Elements	Grades
HE1 (decaying wood)	B
HE2 (rotational management)	C
HE3 (nectar)	C
HE4 (wet substrates)	E
HE5 (open water)	E
HE6 (patchwork open mosaic)	D
HE7 (shelter sun traps)	C
HE8 (shelter damp shaded)	E
HE9 (connectivity)	C
HE10 (ecocline)	C
HE11 (bare ground)	D

Summary of Invertebrate Species Recorded

12.25 The survey took place on 23 July and 31 August 2022. During the scoping visit in July the weather conditions were warm and muggy but with little sunshine.

12.26 In all 221 species were recorded across the Site in 2022 (see list in Table A6.1 in **Annex 5**).

12.27 The Site supports a good range of invertebrate species with scrub edge, arboreal and saproxylic communities. There are pockets of herb rich grassland (including at Parcel 5) and around several field headlands and margins. However, the majority of the Site is dominated by species poor arable and pasture.

12.28 At least two areas have been highlighted as likely to be of importance for invertebrates.

12.29 Parcel 4 (see **Photo 1**) is the richest habitat with rush dominated damp ground with Greater Bird's-foot Trefoil *Lotus pedunculatus* and abundant Common Hemp-nettle *Galeopsis tetrahit*. The woodland in this area has some seasonally wet areas which were dry at the time of the survey.

Photo 1: Parcel 4 looking east across southern shelter belt

12.30 Parcel 5 (see **Photo 2**) is a mixed grass and scrub area with a range of Gorse *Ulex* sp. stands including low growing plants, with abundant Ragwort *Senecio* sp. and Common Sorrel *Rumex acetosa*. Some areas tend toward an acid grassland character.

Photo 2: Looking east across Parcel 5

12.31 The arable fields have ruderal areas in the corners and gateways. These yielded the (provisionally) nationally scarce squash bug *Rhopalus lepidus* (a recently established species in Britain that seems well established in East Dorset).

12.32 Overall, the woodlands and scattered trees are dominated by native species with Oak *Quercus* sp., sallows *Salix* sp., Hawthorn *Crateagus monogyna* and Blackthorn *Prunus spinosa*.

Limitations

12.33 Survey visits were only made in July and August in a year where prolonged high temperatures resulted in drought conditions in mid-summer. Ditches and pools were desiccated.

Habitat Assessment using Pantheon

12.34 **Table 12.6** shows the scores generated by Pantheon from sampling invertebrates in 2022 (see Evaluation Methodology above).

Table 12.6: SAT Scores for Habitat Elements

Code	SAT	No. of species	Reported condition
F001	scrub edge	9	Unfavourable (9 species, 11 required)
A212	bark & sapwood decay	7	Unfavourable (7 species, 19 required)
F002	rich flower resource	5	Unfavourable (5 species, 15 required)
A211	heartwood decay	4	Unfavourable (4 species, 6 required)
F003	scrub-heath & moorland	2	Unfavourable (2 species, 9 required)
A215	epiphyte fauna	1	Unfavourable (1 species, 3 required)
A213	fungal fruiting bodies	1	Unfavourable (1 species, 7 required)

Evaluation

12.35 Since the vast majority of the Site is modified grassland or arable with only some additional minor areas likely to be supporting important invertebrates it is considered that the overall invertebrate assemblage is of no more than **Local** importance.

12.36 The conservation status of the invertebrate assemblage is likely to be **unfavourable and declining** in view of the intensive land use for agriculture, a situation that is unlikely to change in the absence of the Proposed Development.

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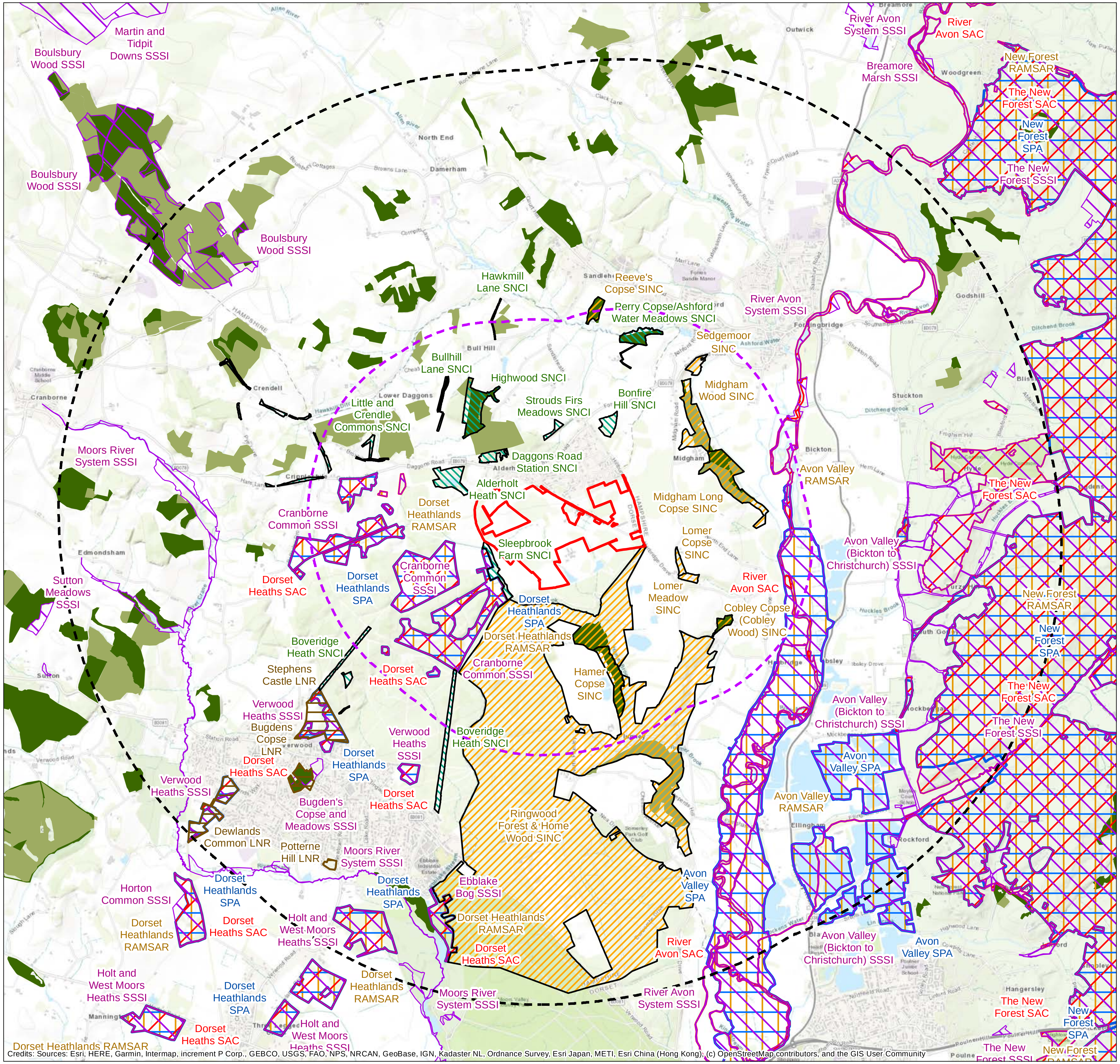

MAP 1a Site Location & Nature Conservation Designations

KEY

- Site boundary
- 2km linear distance from site boundary
- 5km linear distance from site boundary

Non-Statutory Sites

- Sites of Nature Conservation Interest (SNCI)
- Sites of Importance for Nature Conservation (SINC)
- Ancient & Semi-Natural Woodland
- Ancient Replanted Woodland

Statutory Sites

- Special Protection Areas (SPA)
- Special Areas of Conservation (SAC)
- Sites of Special Scientific Interest (SSSI)
- Ramsar
- Local Nature Reserves (LNR)

SCALE: 1:45,000 at A3

0 500 1,000 1,500 2,000 Metres

N

EPR

CLIENT: Dudsbury Homes (Southern)

PROJECT: Alderholt Meadows, Fordingbridge

DATE: 29 November 2022

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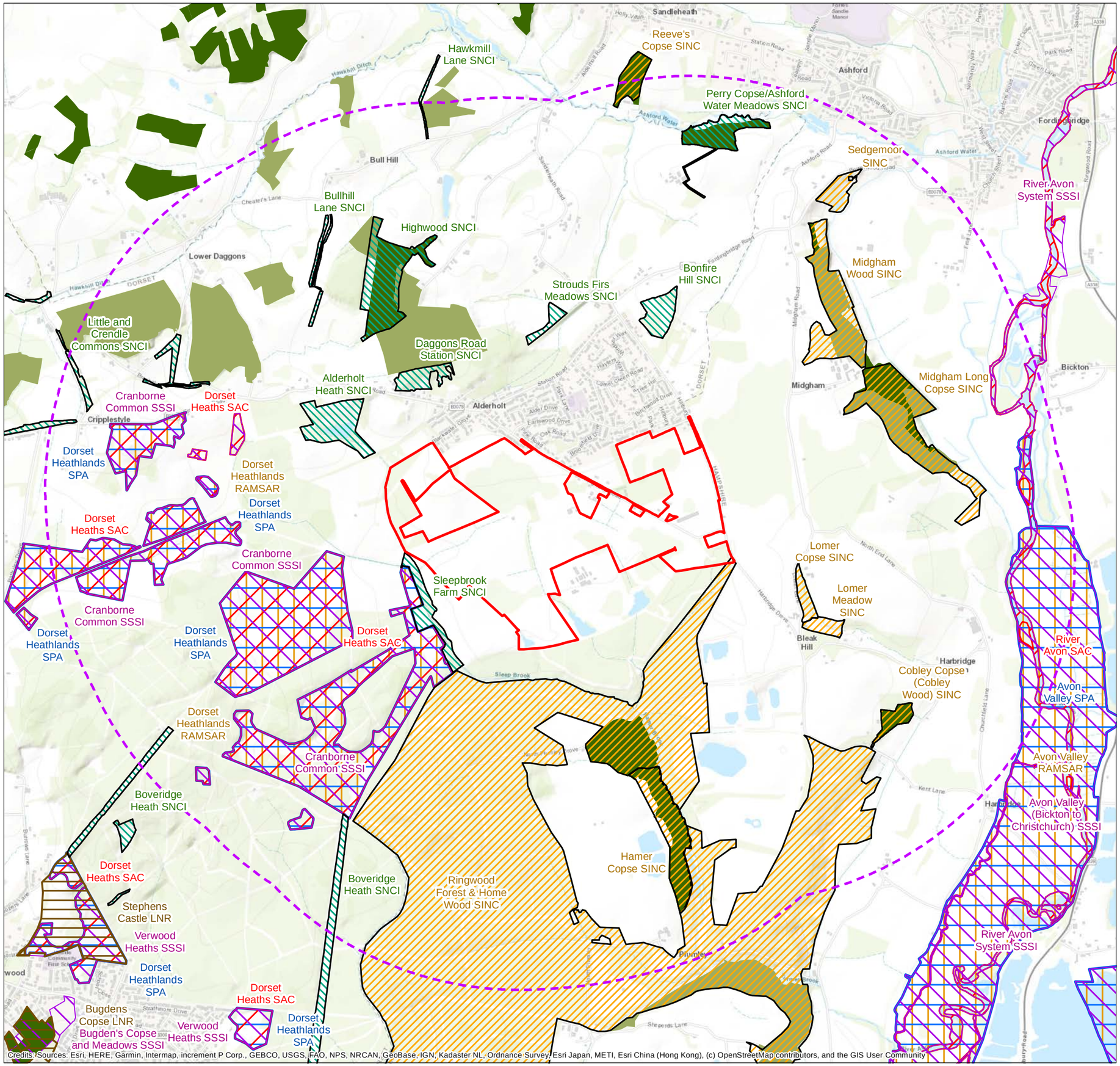
SNCI: Dorset Environmental Records Centre, SINC: Hampshire Biodiversity Information Centre



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MAP 1b Site Location & Nature Conservation Designations

KEY

- Site boundary
- 2km linear distance from site boundary

Non-Statutory Sites

- Sites of Nature Conservation Interest (SNCI)
- Sites of Importance for Nature Conservation (SINC)
- Ancient & Semi-Natural Woodland
- Ancient Replanted Woodland

Statutory Sites

- Special Protection Areas (SPA)
- Special Areas of Conservation (SAC)
- Sites of Special Scientific Interest (SSSI)
- Ramsar
- Local Nature Reserves (LNR)

SCALE: 1:22,000 at A3

0 250 500 750 1,000 Metres

N

EPR

CLIENT: Dudsbury Homes (Southern)

PROJECT: Alderholt Meadows, Fordingbridge

DATE: 29 November 2022

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SNCI: Dorset Environmental Records Centre, SINC: Hampshire Biodiversity Information Centre

MAP 2 Designated Sites Requiring Air Quality Modelling

KEY

- Site boundary
- ADMS Roads
- ADMS Roads 200m Buffer

Statutory Sites

- Special Protection Areas (SPA)
- Special Areas of Conservation (SAC)
- Ramsar
- Sites of Special Scientific Interest (SSSI)
- Local Nature Reserves (LNR)

Non-Statutory Sites

- Sites of Nature Conservation Interest (SNCI)
- Sites of Importance for Nature Conservation (SINC)
- Ancient Woodland

SCALE: 1:50,000 at A3

0 500 1,000 1,500 2,000 Metres

N

EPR

CLIENT: Dudsbury Homes (Southern) Ltd

PROJECT: Land at Alderholt, Fordingbridge

DATE: 06 December 2022

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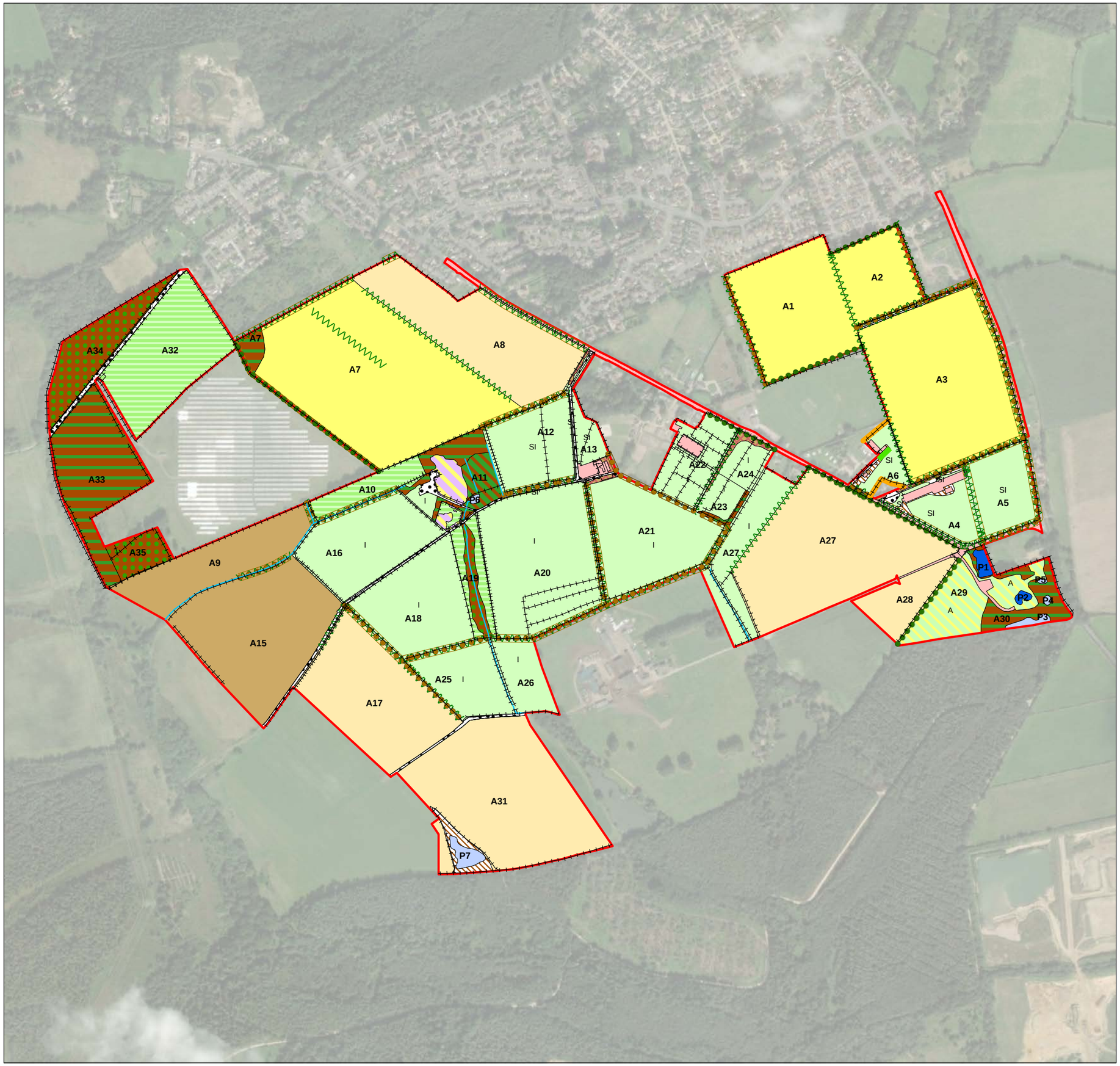
SNCI: Dorset Environmental Records Centre, SINC: Hampshire Biodiversity Information Centre

MAP 3 Baseline Habitats



KEY

- Site boundary
- Ditches
- Fences
- Hedge Ornamental Non Native
- Line of Trees - Associated with bank or ditch
- Line of Trees (Ecologically Valuable)
- Line of Trees (Ecologically Valuable) - with Bank or Ditch
- Native Hedgerow
- Native Species Rich Hedgerow
- Native Species Rich Hedgerow - Associated with bank or ditch
- Native Species Rich Hedgerow with trees
- Native Species Rich Hedgerow with trees - Associated with bank or ditch
- Temporary grass and clover leys
- Cereal crops
- Non-cereal crops
- Purple moor grass and rush pastures
- Other neutral grassland
- A — Modified grassland (Amenity grassland)
- I — Modified grassland (Improved grassland)
- SI — Modified grassland (Poor semi-improved grassland)
- Bramble scrub
- Ruderal/Ephemeral
- Ponds (Priority Habitat)
- Ponds (Non- Priority Habitat)
- Developed land; sealed surface
- Vacant/derelict land/ bareground
- Lowland mixed deciduous woodland
- Other woodland; mixed
- Wet woodland

SCALE: 1:7,500 at A3

0 100 200 300 400 500 Metres

N

EPR

CLIENT: Dudsbury Homes (Southern)

PROJECT: Alderholt Meadows, Fordingbridge

DATE: 06 December 2022

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Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

MAP 4 Key Species Summary

KEY

Site boundary

Bats

- B2 - Bat roost for 9 Brown Long-eared - maternity roost; Low no. Brown Long-eared hibernation; 1 Greater Horseshoe day roost
- B5 - Bat (day) roost for 1 Brown Long-eared and 2 Common Pipistrelles
- B14 - Bat (day) roost for 1 Common Pipistrelle, 1 Soprano Pipistrelle
- Habitat of relative importance for bats (based on consistency & abundance of observed activity)

Great Crested Newts

- P2 +ve Great Crested Newt eDNA in 2019
- P3 +ve Great Crested Newt eDNA in 2019
- P12 +ve Great Crested Newt eDNA in 2019. Great Crested Newt present in 2021 survey

Reptiles

- Common Lizard/Slow-worm
- Common Lizard/Slow-worm - Low numbers
- Grass Snake/Common Lizard/Slow-worm
- Smooth Snake

Birds

- B4 - Barn Owl roost
- Frequent Nightjar activity in this general area in 2021
- Occasional Nightjar activity in this general area in 2021
- Skylark territory in 2021
- Yellowhammer territory in 2021

SCALE: 1:7,500 at A3

N

0 100 200 300 400 500 Metres

EPR

CLIENT: Dudsbury Homes (Southern)

PROJECT: Alderholt Meadows, Fordingbridge

DATE: 06 December 2022

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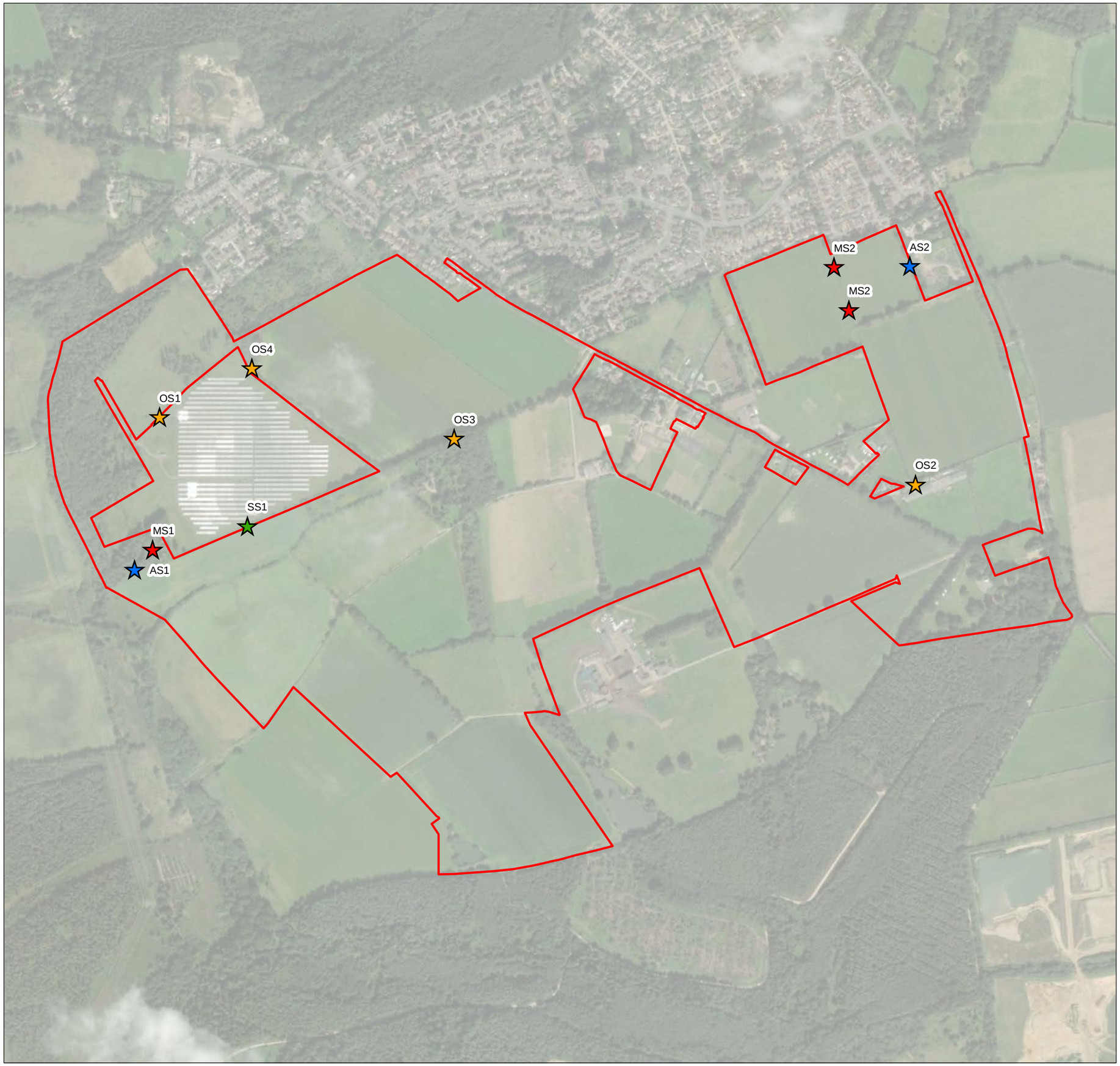
Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community



MAP 5 Badger Sett Summary

KEY

- Site boundary
- Main sett
- Annex sett
- Subsidiary sett
- Outlier sett

SCALE: 1:7,500 at A3

0 100 200 300 400 500 Metres

N

EPR

CLIENT: Dudsbury Homes (Southern)

PROJECT: Alderholt Meadows, Fordingbridge

DATE: 06 December 2022

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Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

Annex 1
Legislation & Policy

LEGISLATION

Environment Act 2021

The Environment Act 2021 places a requirement on the Secretary of State to make regulations setting out long-term targets for air quality, water, biodiversity, resource efficiency and waste reduction. It also includes a requirement for an independent Office for Environmental Protection (OEP) to be established, with responsibilities for monitoring and reporting on progress against environmental improvement plans and targets. The OEP will also have investigation and enforcement powers against public authorities failing to comply with environmental law when exercising their functions.

The Act makes provisions for 10% biodiversity gain to become a condition of planning permission in England, through amendments to the Town and Country Planning Act 1990. This will be measured through a biodiversity metric to be published by the Secretary of State. The Act also establishes Biodiversity Net Gain as a requirement for Nationally Significant Infrastructure Projects (NSIPs).

The Act also strengthens the biodiversity duty placed on public authorities through amendments to the Natural Environment and Rural Communities Act 2006 Section 40, requiring such authorities to not only conserve but also enhance biodiversity when exercising their functions. Public authorities will also be required to publish summary reports of actions taken under Section 40 at least every five years.

The Act provides the legal basis for the creation of Local Nature Recovery Strategies (LNRSs) for England (including specifying their content), and the preparation and publication of species conservation strategies and protected sites strategies.

It also creates a new legal vehicle known as a 'Conservation Covenant' which is a voluntary, legally binding private agreement between landowners and responsible bodies (the latter designated by the Secretary of State) which conserve the natural or heritage features of the land, enabling long-term conservation. Conservation Covenants are designed to 'run with the land' when it is sold or passed on and are intended to eventually become a primary mechanism for the delivery of Biodiversity Net Gain (BNG).

The Act provides new powers for the Government to amend in future Regulation 9 and Part 6 of the Conservation of Habitats and Species Regulations 2017 (as amended) (the 'Habitats Regulations') – but "only if satisfied that the regulations do not reduce the level of environmental protection provided by the Habitats Regulations".

Several aspects of protected species licencing have also been adjusted by the Act. These include the removal of several inconsistencies between the Habitats Regulations and the Wildlife & Countryside Act 1981 (as amended), ensuring that licences issued under the former piece of legislation also apply under the latter, and making it now possible for licences to be issued under Section 16(3) of the Wildlife & Countryside Act 1981 (as amended) for purposes of overriding public interest. The maximum term of a licence that can be issued by Natural England has also been extended from 2 to 5 years.

All biodiversity-related commitments and requirements (as set out in Part 6 of the Act) will come into force upon the adoption of secondary legislation and regulations, following a period of consultation. Timescales are to be confirmed, but this is currently expected to be around late 2023.

The Conservation of Habitats and Species Regulations 2017 (as amended)

The Conservation of Habitats and Species Regulations 2017 (as amended) (known as the "Habitats Regulations") were originally drawn up to transpose the European Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (the "Habitats Directive") into UK legislation. Following the UK's exit from the European Union, the Habitats Regulations – as amended by Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 – remain in force until such a time as they are superseded by new or updated domestic legislation.

The Habitats Regulations provide for the designation of both Special Protection Areas (SPAs) and Special Areas of Conservation (SACs) in the UK, which previously formed part of the Natura 2000 network of protected areas across Europe and are now part of the UK's "National Sites Network". New National Sites may be designated under the Regulations.

The Regulations also prohibit certain actions relating to European Protected Species (EPS), which include *inter alia* Hazel Dormouse *Muscardinus avellanarius*, Great Crested Newt *Triturus cristatus*, European Otter *Lutra lutra* and all native species of bat.

Further information on SPAs, SACs and European Protected Species is provided in the relevant sub-sections of this Appendix.

Wildlife & Countryside Act 1981 (as amended)

The Wildlife and Countryside Act 1981 is the principal mechanism for the legislative protection of wildlife in Great Britain. Various amendments have occurred since the original enactment. Certain species of bird, animal and plant (including all of the European Protected Species listed above) are afforded protection under Schedules 1, 5 and 8 of the Act. Reference is made to the various Schedules and Parts of this Act (**Table A1.1**) in the section of this Appendix dealing with Legally Protected Species. The Act also contains measures for the protection of the countryside, National Parks, Sites of Special Scientific Interest (SSSIs) and public rights of way as well as preventing the establishment of invasive non-native species that may be detrimental to native wildlife.

Table A1.1: Relevant Schedules of the Wildlife & Countryside Act 1981 (as amended)

Schedule	Protected Species
Schedule 1 Part 1	Protects listed birds through special penalties at all times
Schedule 1 Part 2	Protects listed birds through special penalties during the close season
Schedule 5 Section 9.1 (killing/injuring)	Protects listed animals from intentional killing or injuring
Schedule 5 Section 9.1 (taking)	Protects listed animals from taking
Schedule 5 Section 9.2	Protects listed animals from being possessed or controlled (live or dead)
Schedule 5 Section 9.4a	Protects listed animals from intentional damage or destruction to any structure or place used for shelter or protection
Schedule 5 Section 9.4b	Protects listed animals from intentional disturbance while occupying a structure or place used for shelter or protection
Schedule 5 Section 9.5a	Protects listed animals from being sold, offered for sale or being held or transported for sale either live or dead, whole or part
Schedule 5 Section 9.5b	Protects listed animals from being published or advertised as being for sale
Schedule 8	Protects listed plants from: intentional picking, uprooting or destruction (Section 13 1a); selling, offering for sale, possessing or transporting for the purpose of sale (live or dead, part or derivative) (Section 13 2a); advertising (any of these) for buying or selling (Section 13 2b).
Schedule 9	Prohibits the release of species listed in the Schedule into the wild.
Schedule 9a	Allows environmental authorities to issue species control orders to landowners, obliging them to control/eradicate invasive and/or non-native species.

Further information on legally protected species, designated wildlife sites and invasive non-native species is provided in the relevant sub-sections of this Appendix.

Countryside & Rights of Way Act 2000

Many of the provisions of the Countryside and Rights of Way (CRoW) Act 2000 have been incorporated as amendments into the Wildlife and Countryside Act (1981) and some provisions have now been superseded by later legislation such as The Natural Environment and Rural Communities Act (2006).

The most relevant changes provided by the CRoW Act include the added protection given to SSSIs and other important sites for nature conservation. Importantly, under the Act it became a criminal offence to "recklessly disturb" Schedule 1 nesting birds and species protected under Schedule 5 of the Wildlife and Countryside Act. It also enabled heavier penalties on conviction of wildlife offences.

The Natural Environment and Rural Communities Act 2006

The Natural Environment and Rural Communities (NERC) Act 2006 was intended to raise the profile of biodiversity amongst all public authorities (including local authorities, and statutory undertakers) and to

make biodiversity an integral part of policy and decision-making processes. The NERC Act also improved wildlife protection by amending the Wildlife and Countryside Act 1981.

Section 40 (S40) of the Act places a 'Biodiversity Duty' on all public bodies to have regard to the conservation of biodiversity when carrying out their normal functions. This includes giving consideration to the restoration and enhancement of species and habitats.

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. This was published in 2007 and is commonly referred to as the "S41 list". Public authorities have a responsibility to give specific consideration to the S41 list when exercising their normal functions. For planning authorities, consideration for Species and Habitats of Principal Importance will be exercised through the planning and development control processes. Further information on Species and Habitats of Principal Importance is provided in the relevant sub-sections of this Appendix.

The Water Environment Regulations 2017

Currently, the overriding legislation relating to freshwater is the Water Environment (Water Framework Directive) (England and Wales) Regulations 2017. The Regulations set out objectives to deliver a better water environment based upon achieving a 'good status' for freshwater bodies. The concept of 'good status' is a more rigorous measure of environmental quality than previous measures, which now takes into account not just the chemical status but also the ecological health and the extent of artificial physical modification to rivers.

The Regulations are based upon the concept of protecting water through the management of river basin districts (RBDs) and require the implementation of River Basin Management Plans (RBMPs). Regulation 33 requires public bodies to 'have regard' to the RBMP when making planning decisions, for example through the granting of planning permission with appropriate planning conditions and/or obligations. These could require measures to be implemented (e.g. Sustainable Urban Drainage Systems (SUDS), grey water recycling etc.) or funds to be provided for habitat enhancement schemes.

The Regulations also affect planning policy through the implementation of Programmes of Measures for each river basin district. This involves bringing together funding from various sources and co-ordination of the activities of organisations with an interest in the use of land and water, including developers.

SITES DESIGNATED FOR THE CONSERVATION OF NATURE

There is a hierarchy of nature conservation sites which is based on the level of statutory (legal) protection and the administrative level of importance. Other features of nature conservation interest outside designated sites may also be a material consideration in the determination of planning applications.

Statutory Sites: International

Ramsar Sites, Special Areas of Conservation (SAC) and Special Protection Areas (SPA)

The Conservation of Habitats and Species Regulations 2017 (as amended) provide the primary legal basis for the protection of Special Areas of Conservation (SACs) and Special Protection Areas (SPAs) in the UK.

SACs are sites which support internationally important habitats and/or species listed as being of Community Importance in the Annexes of the European Habitats Directive 92/43/EEC. SPAs are sites which support internationally important numbers of bird species listed as being of Community Importance in the Annexes of the European Birds Directive 2009/147/EC. Following the UK's exit from the EU, these now form part of the "National Sites" network rather than the EU Natura 2000 network.

Ramsar sites are wetlands of international importance and although not covered under the Habitats Regulations they are, as a matter of national planning policy, subject to the same strict protection as SACs and SPAs. The majority of terrestrial Ramsar sites in England are also notified as SPAs and/or Sites of Special Scientific Interest (SSSIs).

To avoid confusion with the nationally designated sites described below, EPR refers to SACs and SPAs as 'International sites', given the reasons for their designation.

Any plan or project considered likely to affect an International site (SAC, SPA or Ramsar) must be subject to a Habitats Regulations Assessment (HRA), as set out under Regulation 63 (and Regulation 105 in respect of Land Use Plans) of the Habitats Regulations 2017 (as amended) and the National Planning Policy Framework (NPPF) 2021.

The local authority (or other 'competent authority') carries out the HRA, but the onus is on the developer to provide the necessary information to inform this process, usually in the form of a report.

Under the Habitats Regulations 2017 (as amended), the competent authority must determine in the first instance whether a proposed development is likely to have a significant effect on the SAC/SPA, either alone or in combination with other plans and projects. This stage of the HRA process is known as 'screening'.

If a likely significant effect cannot be precluded (screened out) on the basis of objective information, the competent authority must undertake an 'Appropriate Assessment' to fully assess these implications against the site's conservation objectives. A precautionary approach must be taken with respect to determining whether or not there would be a significant effect, and the appropriate nature conservation body (in most cases Natural England) should be consulted. Except in certain exceptional circumstances prescribed by the Regulations where there are imperative reasons of overriding public interest for allowing a development to proceed, the competent authority may not undertake or authorise the plan or project until they have established (based on the conclusions of the Appropriate Assessment) that the activity will not adversely affect the integrity of the SAC/SPA. This should be the case where no reasonable scientific doubt remains as to the absence of such effects.

Regulation 16A of the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 sets out the management objectives of the National Site Network, which can be summarised as follows:

- to maintain or, where appropriate, restore habitats and species listed in Annexes I and II of the Habitats Directive within the UK's territory to a favourable conservation status (FCS); and

- contribute to ensuring, in their area of distribution, the survival and reproduction of wild birds and securing compliance with the overarching aims of the Wild Birds Directive.

The appropriate authorities must also have regard to:

- the importance of protected sites in meeting the above objectives, including breeding, moulting, staging and wintering areas for in the case of migratory bird species;

- their importance for the coherence of the national sites network; and
- the threats of degradation or destruction (including deterioration and disturbance of protected features) on SPAs and SACs.

Government guidance[1] also states that competent authorities have a duty to help protect, conserve and restore the designated features of SACs and SPAs when carrying out their statutory work, including taking decisions that might affect a site. They also have a duty to consider how they can help to prevent the deterioration of the site's habitats from human activity or natural changes, including habitats that support designated species, and prevent significant disturbance of the site's designated species from human activity or natural changes.

Competent authorities include (but are not limited to) local planning authorities, councillors, planning committee members and statutory agencies such as Natural England.

Statutory Sites: National

Nationally important sites include Sites of Special Scientific Interest (SSSIs) and National Nature Reserves (NNRs). A development proposal that is likely to affect a nationally important site will be subject to special scrutiny by the local planning authority and Natural England. Certain operations may be permitted. Any potentially damaging operations that could have an adverse effect directly or indirectly on the special interest of the site will not be permitted unless the reasons for the development clearly outweigh the nature conservation and/or geological value of the site itself and the national policy to safeguard such sites, as set out in Section 15 of the National Planning Policy Framework (NPPF).

Sites of Special Scientific Interest

The Wildlife and Countryside Act 1981 (as amended) and the CRoW Act 2000 provide the primary legal basis for the protection of Sites of Special Scientific Interest (SSSIs). These sites have been designated to capture the best examples of England's flora, fauna, geological or physiographical diversity.

National Nature Reserves

National Nature Reserves (NNRs) are declared under the National Parks and Access to the Countryside Act 1949 and the Wildlife and Countryside Act 1981, as amended by the Environmental Protection Act 1990. They are managed to conserve their habitats or to provide special opportunities for scientific study of the habitats communities and species represented within them. NNRs represent the very best parts of England's SSSIs. The majority of NNRs also have European nature conservation designations.

[1] https://www.gov.uk/guidance/duty-to-protect-conserve-and-restore-european-sites

Statutory Sites: Regional/Local

Local Nature Reserves

Local Nature Reserves (LNRs) are declared by local authorities under the National Parks and Access to the Countryside Act 1949 as living green spaces in towns, cities, villages and countryside. They provide opportunities for research and education, or for simply enjoying and having contact with nature. LNRs are usually protected from development through local planning documents which may be supplemented by local by-laws.

Non-Statutory Sites

Local Wildlife Sites

Local planning authorities may designate non-statutory sites for their nature conservation value based on important, distinctive and threatened habitats and species within a national, regional and local context. These sites are not legally protected but are given some protection through the planning system. These sites may be declared as ‘County Wildlife Sites’, 'Sites of Importance for Nature Conservation' (SINCs), or ‘Sites of Nature Conservation Importance' (SNCIs) in local and structure plans. Non-statutory sites are a material consideration when planning applications are being determined. The precise amount of weight to be attached, however, will take into account the position of the site in the hierarchy of sites as set out above. Further information is typically provided in local level planning policy.

Nature Conservation in Areas Outside Designated Sites

Various other features exist outside designated sites that are important for the conservation of nature and which are a material consideration in the planning system.

Habitats of Principal Importance in England

Fifty-six habitat types have been identified as Habitats of Principal Importance for the conservation of biodiversity in England under Section 41 of the NERC Act 2006. Although these habitats are not legally protected, the NPPF, Government Circular 06/05, good practice guidance and the NERC Act place a clear responsibility on planning authorities to further the conservation of these habitats. They can be a material consideration in planning decisions, and so developers are advised to take reasonable measures to avoid or mitigate impacts to prevent their net loss and to enhance them where possible. Additional guidance to developers is typically provided in local level planning policy.

The S41 list also includes species as explained below under ‘Species of Principal Importance in England’.

Networks of Natural Habitats

Networks of natural habitats link sites of biodiversity importance and provide routes or stepping stones for the migration, dispersal and genetic exchange of species in the wider environment. Examples include rivers with their banks, traditional field boundary systems (such as hedgerows), ponds and small woods. Local planning authorities are encouraged through the NPPF to maintain networks by avoiding or repairing the fragmentation and isolation of natural habitats through planning, policies and development control.

Hedgerows

Hedgerows can act as wildlife corridors that are essential for migration, dispersal and genetic exchange of wild species. Hedgerows that qualify as a Habitat of Principal Importance under S41 of the NERC Act 2006 are a material consideration in the planning system.

Under the Hedgerow Regulations 1997, it is an offence to remove a hedgerow without submitting a notice to the Local Planning Authority and waiting for their decision. The Regulations are aimed at countryside hedges and do not apply to hedges around private dwellings or where planning permission has been granted for a project that includes hedge removal. Hedgerows that satisfy wildlife, archaeological, historical or landscape criteria qualify as 'important' under the Regulations. If a hedgerow is not important, the Local Planning Authority may not prevent its removal; however, Local Planning Authorities are required under the Regulations to protect and retain important hedgerows unless satisfied that the circumstances justify their removal.

Tree Preservation Orders

Tree Preservation Orders (TPOs) may be declared under the Town and Country Planning Act 1990 and the Town and Country Planning (Trees) Regulations 1999 to protect individual trees and woodlands from development and cutting. TPOs are primarily put in place designed to preserve amenity or for landscape conservation reasons. The importance of trees as wildlife habitat may be taken into account, but alone is not sufficient to warrant a TPO. For this reason, TPOs do not fit comfortably under the remit of nature conservation and are generally dealt with by an arboricultural consultant rather than an ecologist. Further guidance on TPOs in relation to development is available from the Department for Communities and Local Government.

Ancient Woodland & Veteran Trees

Ancient woodlands are defined as areas continuously wooded since at least 1600 AD. Even an ancient wood which has been replanted may still have remnants of ancient woodland wildlife and historical features and has potential to be restored. Ancient woodland is not a statutory designation and does not provide legal protection, but local authorities are advised under the NPPF and National Planning Practice Guidance (NPPG) not to grant planning permission for any development that would result in the loss or deterioration of ancient woodland, ancient trees or veteran trees unless there are 'wholly exceptional reasons' and 'a suitable compensation strategy in place'. Local Planning Authorities must take into account Natural England and the Forestry Commission's *Standing Advice for Ancient Woodland and Veteran Trees,* available on the www.gov.uk website.

Surface & Ground Waters

Surface waters (including flowing and standing water) and ground water can directly and indirectly impact upon the conservation of nature.

Guidance on pollution prevention is hosted on the Government's website and focuses on regulatory requirements. This covers topics including the prevention of pollution if you are a business, managing business and commercial waste, oil storage, working on or near water, and managing water on land. Careful planning and the application of these guidelines can help reduce the risk of construction and maintenance work causing pollution to surface and ground waters. Some activities with the potential to impact watercourses or groundwater may require consent under the Water Resources Act 1991.

Water Resources Act (WRA) 1991

Under the WRA there is strict regulation of discharges (including sediment, chemicals, nutrients) to rivers, lakes, estuaries and groundwaters. It also aims to ensure that polluters cover the costs associated with pollution incidents.

SPECIES PROTECTION

Legally Protected Species

The species listed in the following subsections are of relevance to the proposals and are protected by law in England. When preparing a planning application, it is essential to determine the presence or likely absence of legally protected species and the extent to which they may be affected by a proposed development. This can best be achieved by undertaking surveys early in the planning process. Avoidance and/or mitigation measures may be required to address any predicted impacts upon protected species and may necessitate a licence. The Government website offers standing advice from Natural England and DEFRA which can be applied to planning applications that affect protected species.

Bats

There are 18 species of bat in the UK, seven of which are Species of Principal Importance in England. All bats and bat roosts are protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). Bats are also a European Protected Species protected under the Habitats Regulations 2017 (as amended). It is an offence to:

- Intentionally or deliberately kill, injure or capture bats;
- Intentionally, deliberately or recklessly disturb bats in such a way as to be likely to significantly affect the ability of any significant group of bats to survive, breed, or rear or nurture their young or the local distribution of or abundance of a species of bat;
- Intentionally, or recklessly damage, destroy or obstruct any place used for shelter or protection (i.e. bat roosts) or intentionally or recklessly disturb a bat whilst it is occupying such a place;
- Damage or destroy a breeding site or resting place of a bat; and
- Possess, sell or transport a bat, or anything derived from it.

Development proposals affecting bats or their roosts require a European Protected Species mitigation licence from Natural England.

Great Crested Newt

The Great Crested Newt *Triturus cristatus* is a Species of Principal Importance in England. It is legally protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and is afforded significant further protection as a European Protected Species under the Habitats Regulations 2017 (as amended). Collectively, this legislation makes it an offence to:

- Intentionally or deliberately kill, injure or capture Great Crested Newts;

- Intentionally, deliberately or recklessly disturb Great Crested Newts in such a way as to be likely to significantly affect the ability of any significant group of Newts to survive, breed, or rear or nurture their young or the local distribution of or abundance the species;
- Intentionally or recklessly damage, destroy or obstruct any place used by Great Crested Newts for shelter or protection, or intentionally or recklessly disturb a Great Crested Newt whilst it is occupying such a place;
- Damage or destroy a breeding site or resting place of a Great Crested Newt; and
- Possess, sell or transport a Great Crested Newt, or anything derived from it.

Development proposals affecting the Great Crested Newt require a European Protected Species mitigation licence from Natural England.

Intentional or reckless behaviour leading to an offence being committed as detailed above may result in maximum penalties of:

- Up to £5,000 fine per offence committed;
- A custodial sentence of up to six months instead of, or in addition to, a fine; and/or
- Items of equipment involved in committing the offence may be seized and detained.

In addition to the above penalties, it is likely that any EPS mitigation licence obtained for a site will be revoked whilst any wildlife offence is investigated. This will lead to immediate temporary and, depending on investigation outcomes, possible permanent restrictions on site works, as well as associated cost.

Hazel Dormouse

The Hazel Dormouse *Muscardinus avellanarius* is a Species of Principal Importance in England. It is legally protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and is afforded significant further protection as a European Protected Species under the Habitats Regulations 2017 (as amended). Collectively, this legislation makes it an offence to:

- Intentionally or deliberately kill, injure or capture Dormice;
- Intentionally, deliberately or recklessly disturb Dormice in such a way as to be likely to significantly affect the ability of any significant group of Dormice to survive, breed, or rear or nurture their young or the local distribution of or abundance of the species;
- Intentionally or recklessly damage, destroy or obstruct access to places used by Dormice for shelter or protection (whether occupied or not) or intentionally or recklessly disturb a Dormouse whilst it is occupying such a place;
- Damage or destroy a breeding site or resting place of a Dormouse;
- Possess or transport a Dormouse (or any part thereof) unless under licence; and
- Sell or exchange Dormice.

Development proposals affecting the Dormouse require a European Protected Species mitigation licence from Natural England.

Reptiles

All four of the widespread British species of reptile, namely the Common Lizard *Zootoca vivipara,* Slow-worm *Anguis fragilis*, Grass Snake *Natrix helvetica (*previously *Natrix natrix)* and Adder *Vipera berus*, are Species of Principal Importance in England. They are protected under Schedule 5 (Sections 9.1, 9.5a, 9.5b) of the Wildlife & Countryside Act 1981 (as amended) from intentional killing, injury and trade.

The habitat of the four widespread reptiles is not legally protected; however the replacement of habitat lost through development may be required through the planning system. Mitigation for these species is not subject to licensing by Natural England but should nonetheless be planned to minimise disturbance and potential project delays.

Birds

49 species of bird are listed as Species of Principal Importance in England. All wild birds are protected under the Wildlife and Countryside Act 1981 (as amended), making it an offence, with certain exceptions (e.g. game birds), to intentionally kill, injure or take any wild bird and to take, damage or destroy their nests or eggs.

Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) affords extra protection for certain species and applies harsher penalties for offences. Any intentional or reckless disturbance of a Schedule 1 bird, whilst it is nesting or rearing dependent young, constitutes an offence.

Regulation 10 of the Conservation of Habitats and Species Regulations 2017 (as amended) requires appropriate authorities and conservation bodies, in the exercise of their functions, to take such steps that they consider appropriate in order to secure "*the preservation, maintenance and re-establishment of a sufficient diversity and area of habitat for wild birds in the United Kingdom, including by means of the upkeep, management and creation of such habitat (…)*".

European Badger

The Protection of Badgers Act 1992 offers considerable protection to both Badgers and Badger setts. This legislation was enacted to protect the European Badger *Meles meles* against baiting and not as a means of species recovery as it is common in England. It is an offence to cruelly treat, kill or take Badgers, but it is also illegal to intentionally or recklessly damage or disturb a Badger sett while it indicates signs of current use by a Badger.

The Government website contains information to help developers and their proponents avoid sett disturbance and to identify setts that are in current use. It is important to maintain adequate foraging territory in development proposals affecting badgers as the destruction or severance of large areas of foraging territory could also be taken to include habitat loss. Licences to disturb Badgers and their setts in respect of development may be issued by Natural England provided provisions are made to minimise disturbance.

Wild Mammals

All wild mammals are protected against cruelty under the Wild Mammals (Protection) Act 1996, which makes it an offence to mutilate, kick, beat, nail or otherwise impale, stab, burn, stone, crush, drown, drag or asphyxiate any wild mammal with intent to inflict unnecessary suffering.

Licences for Development

Licences are required to permit activities prohibited under wildlife legislation, namely the disturbance or capture of protected species or damage to their habitats. Natural England is the licensing authority in England. Licences are only issued for certain purposes, which are set out in the legislation, and only where there is a valid justification. The licences most relevant to the proposals are discussed below.

European Protected Species Mitigation Licences

A European Protected Species mitigation licence (EPSL) is required from Natural England to undertake any development that is reasonably likely to result in an offence in respect of a European Protected Species protected under Schedule 2 of the Habitats Regulations 2017 (as amended); including *inter alia* all species of bats, Hazel Dormouse, Great Crested Newt and European Otter. Natural England must be satisfied that the following three tests are satisfied before it will issue a licence covering a European Protected Species:

1. The proposal is necessary to preserve public health or public safety, or other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment;
2. There is no satisfactory alternative; and
3. The proposal will have no detrimental effect to the maintenance of the population of the species concerned at a favourable conservation status in their natural range.

Badger Licences

Licences to disturb Badgers and their setts in respect of development may be issued by Natural England, provided provisions are made to minimise disturbance.

Species of Principal Importance in England

943 species have been identified as being of Principal Importance for the conservation of biodiversity in England under Section 41 (S41) of the NERC Act 2006. The S41 list includes species found in England which have been identified as requiring action under the now superseded UK Biodiversity Action Plan 2007 (plus the Hen Harrier).

While many of these species may not be legally protected (some are protected under the legislation described above), there is a clear responsibility on local planning authorities to further their conservation. These species can be a material consideration in development control decisions and so developers are advised to take reasonable measures to avoid or mitigate impacts to prevent the net loss of these species, and to enhance their habitats where possible. Additional guidance to developers is typically provided in local level planning policies.

Invasive Non-Native Species

There are a number of species not ordinarily resident in the UK, such as Japanese Knotweed *Reynoutria japonica*. Those which pose a significant threat, if uncontrolled, to our ecology and economy are listed under Schedule 9 of the Wildlife and Countryside Act 1981 (as amended). For an offence to be committed, a species must be released or allowed to escape into the wild. For example, if a plant listed on Schedule 9 is not adequately controlled by a landowner, once they are aware that it is present, and the species is allowed to spread into adjoining areas, then this could constitute an offence.

Certain species are also classed as ‘controlled waste’ under the Environment Protection Act 1990 (as amended) and if taken off site it must be disposed of safely at a licensed landfill site. Soil containing rhizome material should also be regarded as contaminated and treated accordingly.

Species Control Orders

A new schedule 9A was inserted into the Wildlife and Countryside Act 1981 (as amended) by Sections 23 to 25 of the Infrastructure Act 2015. This gives environmental authorities (in England the Secretary of State, Environment Agency, Natural England and the Forestry Commission) the power to offer ‘species control agreements’ to landowners in respect of invasive and/or non-native species, such as Japanese Knotweed. If the landowner does not comply with a species control agreement, or refuses to enter into one, the environmental authority may issue a ‘species control order’, requiring the owner to eradicate or control the species, or to allow the environmental authority access to carry out these operations themselves.

If the owner does not comply with the species control order, the maximum penalty if convicted is a fine of up to £40,000 and/or imprisonment for up to 51 weeks. The environmental authority can also recover costs for carrying out the necessary work themselves.

PLANNING POLICY & GUIDANCE

This section set out the main planning policy and government guidance that relates to the conservation of nature at all levels of government.

National Level

National Planning Policy Framework 2021

The National Planning Policy Framework (NPPF) 2021 sets out the Government's planning policies for England and how these should be applied in local-level policy and decision making. The NPPF has a clear "presumption in favour of sustainable development" (paragraph 11), with economic, social and environmental objectives. This presumption does not apply where a plan or project has failed the 'appropriate assessment' test under the Habitats Regulations (paragraph 182).

Section 15 of the NPPF provides guidance on conserving and enhancing the natural environment through the planning system, as summarised below.

Firstly, planning policies and decisions should contribute to and enhance the natural and local environment by applying the following key principles:

- protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);
- minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;
- recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland; and
- preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability.

Section 15 also requires planning policies and decisions to limit the impact of artificial light pollution on nature conservation.

Secondly, when determining planning applications, local planning authorities should apply the following key principles:

- if significant harm resulting from a development cannot be avoided, adequately mitigated or (as a last resort) compensated for, then planning permission should be refused;
- proposed development that is likely to have an adverse effect on a SSSI (either individually or in combination with other developments) should normally be refused;
- planning permission should normally be refused for development resulting in the loss or deterioration of irreplaceable habitats, including ancient woodland and ancient or veteran trees, unless there are 'wholly exceptional reasons' and a suitable compensation strategy exists; and

- 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.

In the case of SSSIs and irreplaceable habitats, exceptions may be made if it can be clearly demonstrated that the benefits of the development, in that location, clearly outweigh the costs in terms of loss or adverse impacts.

Section 15 specifies that listed or proposed Ramsar sites, potential European sites, and sites identified or required as compensatory measures for adverse effects on designated/listed or potential/proposed European and Ramsar sites should be given the same protection as designated European sites.

The NPPF also sets out principles for plan-making, including the allocation of land with the least environmental or amenity value, and taking a strategic approach to maintaining and enhancing networks of habitats and green infrastructure by identifying, mapping and safeguarding components of local wildlife-rich habitats, wider ecological networks, wildlife corridors and stepping stones, and those areas identified by national and local partnerships for habitat management, enhancement, restoration or creation.

Government Circular 06/05: Biodiversity and Geological Conservation

The Government produced Circular 06/05 to provide guidance on the application of the law to the conservation of nature. Although the document is in the process of being updated, Paragraphs 98 and 99 remain relevant as they set out the following principles and obligations:

- The presence of protected species is a material consideration when determining a development proposal;
- Local authorities should consult with Natural England before granting permission, and consider imposing planning conditions or obligations to secure the long-term protection of the species;
- The presence of protected species, and the extent to which they may be affected by the proposed development, must be established before permission is granted;
- Given the delay and cost that may be involved, developers should not be required to undertake surveys for protected species unless there is a reasonable likelihood of the species being present and affected by the development.

MHCLG Planning Practice Guidance

Revised and updated Planning Practice Guidance (PPG) was launched by the Department for Communities and Local Government (now the Ministry of Housing, Communities and Local Government, MHCLG) as a web-based tool in March 2014 to accompany the NPPF. The webpages are set out in a Q&A format. The PPG consolidates and supersedes existing guidance on a range of planning-related topics, clarifies some of the statements made in the NPPF, and provides links to relevant legislation and other sources of advice.

The Guidance outlines a number of important principles in relation to nature conservation and biodiversity, including the need to integrate biodiversity into all stages of the planning process and to

consider opportunities to enhance biodiversity and contribute to the Government's commitments and targets set out in *Biodiversity 2020: A strategy for England's wildlife and ecosystem services*.

The guidance also requires that "an ecological survey will be necessary in advance of a planning application if the type and location of development are such that the impact on biodiversity may be significant and existing information is lacking or inadequate", and recommends that "local planning authorities should only require ecological surveys where clearly justified, for example if they consider there is a reasonable likelihood of a protected species being present and affected by development."

Other guidance

In addition to the Planning Practice Guidance, various other forms of guidance and standards are available in relation to biodiversity and the development process. Of particular note is *British Standard BS42020:2013 Biodiversity – Code of practice for planning and development*, published in August 2013, which replaces *Planning to Halt the Loss of Biodiversity (PAS 2010): Biodiversity conservation standards for planning in the United Kingdom*.

This document is designed to complement the NPPF and is aimed at organisations concerned with ecological issues throughout the planning process, including local authorities, developers, planners and ecological consultants. It sets out step-by-step recommendations on how to incorporate biodiversity considerations at all stages of the planning process, with a focus on the provision of consistent, high quality and appropriate ecological information, effective decision making, and high standards of professional conduct and competence.

Local Level

The Proposed Development falls within Dorset Council local planning authority's area (formerly East Devon District Council).

In 2019, Dorset Council replaced the district and borough councils of East Dorset, North Dorset, Purbeck, West Dorset, Weymouth & Portland, as well as Dorset County Council.

The current local plan that covers the area of the Proposed Development, and which pre-dates the amalgamation of the councils and boroughs within the county, is the Christchurch and East Dorset Local Plan (adopted April 2014), together with polices from the previously adopted East Dorset Local Plan (2002).

The emerging Dorset Council Local Plan is presently under preparation. This Plan will incorporate and build upon policies which were being developed by the former East Dorset Council's Local Plan, which was under review at the time of the amalgamation. The new Dorset Council Local Plan will cover the period 2021 to 2038.

Those policies considered relevant to the Proposed Development from the current Local Plan, saved policies and newly emerging Dorset Council Local plan are:

Christchurch and East Dorset Local Plan 2014-2028 (adopted April, 2014)

Policy ME1 Safeguarding Biodiversity and Geodiversity:

> "*The Core Strategy aims to protect, maintain and enhance the condition of all types of nature conservation sites, habitat and species within their ecological networks, including:*

- *International designated sites (SPA, SAC, Ramsar)*
- *Sites of Special Scientific Interest (SSSI)*
- *Sites of Nature Conservation Interest (SNCI)*
- *Local Nature Reserves*
- *Priority species and habitats*
- *Important geological and geomorphological sites*
- *Riverine and coastal habitats*
- *Suitable Alternative Natural Greenspace (SANG)*

Within Strategic Nature Areas identified on Map 13.3, specific action will be taken towards meeting targets for maintenance, restoration and recreation of priority habitats and species, and linking habitats to create more coherent ecological networks that are resistant to climate change.

Where development is considered likely to impact upon particular sites, habitats or species set out within the Dorset Biodiversity Protocol, it will need to be demonstrated that the development will not result in adverse impacts, To determine the likelihood of harm occurring, there should be an assessment of effects on any existing habitats, species and/or features of nature conservation importance, and the results of this assessment documented. The method of survey and level of detail will vary according to the size and type of development and whether any priority species and habitats exist on site. The survey should involve consultation and advice from Natural England, the Dorset Wildlife Trust, and Dorset County Council.

In considering the acceptability of proposals, the Council will assess their direct, indirect and cumulative impacts relative to the significance of the features' nature conservation value. National policy will be applied to ensure the level of protection afforded international, national and locally designated sites and species is commensurate with their status.

The following criteria should be addressed when development is proposed:

- *Avoidance of harm to existing priority habitats and species through careful site selection, artificial lighting design, development design and phasing of construction and the use of good practice construction techniques.*
- *Retention of existing habitat and features of interest, and provision of buffer zones around any sensitive areas.*
- *Enhancement of biodiversity through improving the condition of existing habitats and achieving net gains in biodiversity, where possible. Particular attention should be paid to priority habitats and species referred to in Section 41 of the Natural Environment and Rural Communities Act 2006 and the Dorset Biodiversity Strategy, and the Strategic Nature Area identified on the Dorset Nature Map.*
- *Where harm is identified as likely to result, provision of measures to avoid or adequately mitigate that harm should be set out. Development should be refused if adequate mitigation or, as a last resort, compensation cannot be provided.*
- *Provision of adequate management of the retained and new features.*

- *Monitoring of habitats and species for a suitable period of time after completion of the development to indicate any changes in habitat quality or species numbers, and put in place corrective measures to halt or reverse any decline.*

In addition, and in recognition of the function of the New Forest National Park, the Core Strategy will carefully consider any adverse impacts on the New Forest as a result of development."

Policy ME2 Protection of the Dorset Heathlands:

"*In accordance with the advice from Natural England, the evidence available to the authorities and Core Strategy Habitats Regulations Assessment (HRA), no residential development will be permitted within 400m of protected European and internationally protected heathlands.*

Any residential development between 400m and 5km of these areas will provide mitigation through a range of measures as set out in the Core Strategy, Site Specific Allocations Development Plan Document and the Dorset Heathlands Planning Framework Supplementary Planning Document including:

- *Provision of on-site and off-site suitable alternative natural greenspace (provided in accordance with guidelines set out Appendix 5).*
- *Provision of other appropriate avoidance/mitigation measures.*

The avoidance or mitigation measures are to be delivered in advance of the developments being occupied and must provide for mitigation in perpetuity. Suitable Alternative Natural Greenspaces (SANGs) will be secured by way of a legal agreement between the developer and the relevant council. The delivery of Heathland mitigation measures will be secured as set out in the Councils' Regulation 123 list. The authority will ensure that mitigation measures to avoid harm are given priority as required by this policy.

The Dorset Heathlands Planning Framework Supplementary Planning Document will set out the type of development circumstances where mitigation is required, and a list of mitigation projects. The Councils' Core Strategy and Site Specific Allocations Development Plan Document sit alongside the Supplementary Planning Document in identifying SANG provision. This will ensure that suitable measures are in place by the time development is occupied. The combination of the 400m exclusion zone with the heathland mitigation measures set out above are designed to function together as an effective package avoiding the harmful effects of additional residential development on the European and internationally designated heathlands."

East Dorset Local Plan (adopted, 2002), Saved Policies

Policy LTDEV1:

"P*roposals for development that require external lighting will need to demonstrate that;*

a) the lighting is the minimum required for the specified use;

b) light spill is minimised;

c) lighting fixtures, including generators, columns and junction boxes are located to prevent visual intrusion.

It is expected that applicants should submit lighting plots, and column and luminaire details to demonstrate that the scheme does not cause significant light spill. Conditions may be used to limit the hours of operation."

Emerging Dorset Council Local Plan

Policy ENV1: Green infrastructure: strategic approach

i. *"The primary function of any element of the green infrastructure network will be protected from the adverse impacts of development and, where appropriate enhanced by relevant policies in the development plan.*

ii. *Developers will be expected to incorporate enhancements to any element of the green infrastructure network which performs, or could perform, other functions to deliver multifunctional green infrastructure benefits in accordance with relevant Local Plan Policies.*

iii. *Any strategic development site should include provision of sufficient green infrastructure to serve the site itself and, where suitable opportunities exist, strengthen the existing green infrastructure network for example by:*

- *enhancing and connecting cycling and walking provision between local facilities, local open spaces and where appropriate, the countryside;*
- *connecting together and enriching biodiversity and wildlife habitats; and*
- *improving connections, green corridors and links between different components of the green infrastructure network.*

iv. *Any new green infrastructure provided as part of a development scheme, or any new elements of green infrastructure identified in neighbourhood plans (including local green spaces), will form part of the green infrastructure network.*

v. *Development proposals must make adequate provision for the long-term management and maintenance of the green infrastructure network.*

Policy ENV2: Habitats and species

<u>International and European sites</u>

i. *Proposals for development must not adversely affect the integrity of International or European sites either alone or in-combination with other plans and projects, unless the tests set out under the Conservation of Habitats and Species Regulations (2017) (as amended) are met. Where adverse impacts are identified measures must be put in place to avoid, mitigate or compensate these impacts. Adverse impacts that cannot be avoided or adequately mitigated will not be permitted other than in exceptional circumstances. These circumstances only apply where:*

- *there are no suitable alternatives;*
- *there are Imperative Reasons of Overriding Public Interest; and*

- *necessary compensatory provision can be secured to ensure that the overall coherence of the National Site Network of SACs, SPAs and Ramsars is protected.*

ii. *Where specific impacts have been identified in relation to particular sites, mitigation measures for these sites will include:*

- *In relation to Dorset Heaths SAC, Dorset Heaths (Purbeck and Wareham) and Studland Dunes) SAC and Dorset Heathlands SPA/Ramsar, contributions from development within 5km of the heathland designations towards the sustainable management of the heathland sites or contributions towards the provision of suitable alternative natural greenspace (SANG).*
- *In relation to the Poole Harbour SPA/Ramsar,*
- *contributions towards the effective management of the site to reduce eutrophication from additional nitrates arising from development,*
- *contributions towards the effective management of the site to reduce recreational pressure*
- *In relation to Chesil and the Fleet SAC and Chesil Beach and the Fleet SPA/Ramsar, contributions towards the effective management of the site to reduce recreational pressure or contributions towards the provision of suitable alternative natural greenspace.*
- *In relation to Fontmell and Melbury Downs SAC, Cerne and Sydling Downs SAC and Rooksmoor SAC, contributions towards measures to reduce aerial nutrient deposition arising from increased traffic linked to new development.*
- *In relation to Somerset Levels and Moors SPA/Ramsar, River Avon SAC, Avon Valley SPA/Ramsar and the River Axe SAC, contributions towards measures to reduce increased levels of phosphate arising from development.*

<u>National sites (SSSI and NNR)</u>

iii. *Proposals for development which do not adversely affect the integrity of International or European sites or other internationally designated sites, but which are likely to have an adverse effect on a national site (whether the development is within or outside the site) will not normally be permitted. The only exception is where the benefits clearly outweigh both the impacts on the special features of the site and broader impacts on the national network of sites. In these circumstances, development will only be permitted where it can be shown that adverse impacts on biodiversity will be:*

- *Mitigated, or*
- *Where adverse impacts cannot be adequately mitigated, compensation will result in the maintenance or enhancement of biodiversity.*

<u>Local sites (SNCIs, LNRs)</u>

iv. *Local sites will be safeguarded from development through use of the mitigation hierarchy with avoidance as the preferred approach. This is in recognition of their intrinsic value for rare and threatened habitats and species, and their role in the wider ecological network where they function as wildlife corridors and stepping stones. Where impact is unavoidable, developers must provide mitigation or, as a last resort, compensation in the form of replacement habitat in a suitable*

alternative location to ensure there is no net loss of biodiversity, as set out in Policy ENV2. Where this last option is used, funding will be secured to enable management of the replacement site for at least 30 years.

Protected species

v. *Adverse impacts on European Protected Species and UK protected species must be avoided wherever possible subject to the legal tests afforded to them and where applicable, unless the need for or benefits of development clearly outweigh the loss. In all cases the mitigation hierarchy must be applied.*

vi. *Development that is likely to have an adverse effect on a European Protected Species will only be permitted if:*

- *there are reasons of overriding public interest why the development should proceed, and*
- *there is no alternative acceptable solution, and*
- *adequate provision can be made for the retention of the species or their safe relocation*

Ancient woodland, ancient and veteran trees, and hedges

i. *Development resulting in the loss or deterioration of ancient woodland, ancient or veteran trees (or other irreplaceable habitats) will be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists. Proposals that would result in the loss of individual ancient or veteran trees located outside ancient woodlands will be refused on the same grounds.*

ii. *The removal of large mature tree species and their replacement with smaller shorter lived species will be resisted.*

iii. *Important hedgerows will be given consideration as set out in the Hedgerow Regulations, 1997, and development affecting an important hedge will be expected to avoid impacts in the first instance. If this is not possible then mitigation must be provided, or as a last resort compensation to include funding for management for at least 30 years.*

Proposals where the primary purpose is to conserve or enhance biodiversity and deliver a net gain for such objectives will be supported in principle where this accords with other policies in the Local Plan.

Policy ENV3: Biodiversity and net gain

"Proposals for development should avoid harm to biodiversity. If significant harm cannot be avoided proposals must incorporate adequate mitigation or (as a last resort) compensation. Where harm cannot be avoided and adequate mitigation or compensation is not proposed, permission will be refused.

Development (other than that exempt under the terms of the Environment Bill) must deliver a minimum of 10% net gain in biodiversity through the restoration and re-creation of habitats forming part of the existing and proposed Ecological Network.

Wildlife enhancements will be secured where appropriate within the built environment for all scales of development.

Developments will provide for the long-term monitoring and management of biodiversity features retained and enhanced within the site and for features created off-site to compensate for development impacts or to enable delivery of net gain.

All new, enhanced and restored biodiversity provision should seek to be an exemplar of best practice and innovation in its design and on-going management.

Proposals where the primary purpose is to conserve or enhance biodiversity and deliver a net gain for such objectives will be supported in principle where this accords with other policies in the Local Plan."

Other

Dorset Biodiversity Appraisal Protocol

The Dorset Biodiversity Appraisal Protocol (DBAP) provides a mechanism used by Dorset Council to address impacts on biodiversity from planning applications. All DBAP applications must provide biodiversity net gain in line with the National Planning Policy Framework (2021), to be demonstrated through use of the DEFRA Biodiversity Metric and have a suite of ecological surveys undertaken to the satisfaction of the Natural Environment Team (NET).

BIODIVERSITY PLANS AND STRATEGIES

The NERC Act 2006 places a duty on local authorities to have due regard to biodiversity when exercising their normal functions, and the NPPF requires planning policies to "promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species, and identify and pursue opportunities for securing measurable net gains for biodiversity" (paragraph 174). These targets are set out in a range of biodiversity plans and strategies from the international through to the district level.

An overview of the key biodiversity plans and strategies in the UK, and their implications for development, are set out below.

National Level

Biodiversity Action Plans

The *UK Biodiversity Action Plan 2007* (UK BAP) has been superseded by the *UK Post-2010 Biodiversity Framewo*rk and individual national biodiversity strategies. The UK Framework sets out the overarching vision, strategic goals and priority activities for the UK's work towards international biodiversity targets (known as the 'Aichi Targets'), as agreed by 192 parties at the UN Convention on Biological Diversity in 2010.

In England, *Biodiversity 2020: A strategy for England's wildlife and ecosystem services* is the national biodiversity strategy, which has the stated mission "(…) to halt overall biodiversity loss, support healthy well-functioning ecosystems and establish coherent ecological networks, with more and better places for nature for the benefit of wildlife and people." In order to focus activity and assess performance in achieving this mission, Biodiversity 2020 sets out objectives relating to terrestrial and marine habitats and ecosystems, species and people.

Local Level

Dorset Biodiversity Strategy

The Dorset Biodiversity Partnership launched the *Dorset Biodiversity Strategy* in 2003, with the aim of providing a 'strategic framework for the delivery of action to reverse the decline in biodiversity in the county'.

The strategy was designed to have a ten-year lifespan, however a review was undertaken 2008/2009 where a decision to keep the Strategy a 'live' document was made.

The strategy outlines the following key biodiversity principles to enhance ecological quality, extent, capacity, structure and function:

- Manage existing, restored, enhanced, and newly created habitats of importance for wildlife;
- Avoid changing land-use of sites where this would;
    - directly affect the habitat resulting in a reduction or loss of habitat quality and species present;

- indirectly impact on surrounding habitats, and/or
- lead to further fragmentation of semi natural habitat;

- Restore and, where possible, buffer, link, connect and extend habitats of importance to wildlife. Examples include; corridors (e.g. hedges), or 'stepping stones' (e.g. ponds and small woods), through which species can move, to create a habitat matrix essential to many species;
  - help protect special sites by creating buffer zones to guard against threats such as pollution or changes in water level;
  - create large areas for wildlife, where nature conservation is the primary objective; and
  - target effort around key areas e.g., designated sites/Sites of Nature Conservation Importance, and areas which link and buffer these sites;

- Monitor existing, restored, enhanced and newly created habitats of importance for wildlife to ensure;
  - policies/ activities are effective, and adjusted if not;
  - the Strategy adapts to changing circumstances;
  - existing wildlife interest is not neglected in favour of new projects; and
  - data are gathered, collated and disseminated to maintain and enhance our knowledge of Dorset's wildlife.

In addition, four themed Topic Action Plans were written (Forestry and Woodland Management, Agriculture, Freshwater Management, and Marine and Coastal Issues) and three Common Themes were identified (Raising Awareness and Involvement, Data and Monitoring, and Land-use Planning).

Habitat statements on Wood Pasture, Parkland and Veteran Trees and Lowland Heathland, which fall outside of the themed areas, were also included.

Dorset Biodiversity Audit 2021

The Dorset Biodiversity Audit 2021 was prepared by Dorset Environmental Records Centre (DERC) and presents a thorough examination of habitat data held by DERC together with a separate list providing an overview for species.

Priority habitats in Dorset are described in accounts by reference within the Dorset Biodiversity Strategy, distribution in Dorset, examples of sites and key and characteristic species.

Habitat Networks

National

Natural England's (NEs) Habitat Networks (England) maps can be viewed on NEs Multi-agency Government Information for the Countryside (MAGIC) map and downloaded via their Open Data Geoportal. This comprises a series of 23 individual habitat network maps for England plus a single

'Combined Habitat Networks Map' and three 'Grouped Habitat Networks Map', which describe the geographic extent and location of Habitat Networks for 18 priority habitats.

The habitat network maps include four distinct network zones where action may be undertaken to build greater ecological resilience. The different elements of the maps are described below.

The network is comprised of 'Habitat components', which are made up of specific priority habitat types taken from the Priority Habitat Inventories, referred to as the 'Primary habitat', and habitats which form mosaics with the primary habitats, referred to as 'Associated habitat'.

Locations where habitat creation or restoration is known to occur is mapped under 'Habitat creation', and sites where data suggests small fragments of habitat or degraded habitat exist which may be suitable for restoration are mapped as 'Restorable habitat'.

The habitat network maps include four distinct network zones which describe land in proximity to existing habitat types where action may be undertaken to build greater ecological resilience, as described below:

- Network Enhancement Zone 1: Land within close proximity to the existing Habitat components that are more likely to be suitable for habitat re-creation for the particular habitat;

- Network Enhancement Zone 2: Land within close proximity to existing habitat components that are unlikely to be suitable for habitat re-creation but where other types of habitat may be created or land management may be enhanced including delivery of suitable Green Infrastructure;

- Fragmentation Action Zone: Land immediately adjoining existing habitat patches which are small and where habitat creation is likely to help reduce the effects of habitat fragmentation; and

- Network Expansion Zone: Land within relatively close proximity to the Network Enhancement Zones 1 & 2 that are more likely to be suitable for habitat creation for the particular habitat and identifying possible locations for connecting and linking up networks across a landscape.

Local

Dorset Local Nature Partnership has produced a series of maps setting out Ecological Networks and Potential Ecological Networks within the county which can be viewed on an interactive map on the Dorset Explorer website https://explorer.geowessex.com/. They were last updated in September 2020. A guidance document setting out the rationale and purpose of the network is provided in a guidance document (Dorset LNP, 2020).

Information on nature conservation designated sites from the international to local level combined with areas of green corridors, stepping stones and buffer zones have been used to produce maps showing functioning ecological networks.

Potential Ecological Networks are areas that are not yet part of the functioning network, but which could play an important role in the future through identifying and targeting areas for habitat restoration and improving connectivity of the existing network.

Biodiversity Net Gain

The Environment Act 2021 makes provisions for 10% biodiversity gain, as measured by a metric (currently published by Defra), to become a condition of planning permission in England. This will come into force upon the adoption of secondary legislation and regulations. Timescales are to be confirmed, but this is currently expected to be around late 2023. A publicly accessible register of Biodiversity Gain Sites will be set up during this time, and the Secretary of State will publish and consult on the biodiversity metric to be used, as well as on the wording of the secondary legislation itself.

The Act specifies that biodiversity gain can be delivered on and/or offsite, and establishes the basis for purchasing off-site credits to meet the 10% obligation if required. Land used to deliver biodiversity gain must be maintained for at least 30 years, and planning conditions will require a biodiversity gain plan to be submitted to and approved by the planning authority prior to commencement of development.

It also clarifies that the baseline biodiversity value of a site should be taken from the date on which planning consent is granted, unless otherwise agreed with the LPA (but not before the secondary legislation comes into force). This excludes any activities undertaken without planning permission (or other relevant permissions) after 30 January 2020 which have had the effect of reducing the biodiversity value of the land. In such cases, “the pre-development biodiversity value is to be taken to be its biodiversity value immediately before the carrying on of the activities.”

Biodiversity net gain (BNG) is already enshrined in the key principles of the NPPF, and Emerging Policy P7 of the *GBC Local Plan: Strategy and Sites* (see above) specifies that biodiversity net gain means a minimum gain of 20% using Defra’s Biodiversity Metric, and that new habitats delivered under BNG should be secured and maintained for at least 30 years.

Enhancement projects may not just benefit biodiversity. There are many functional benefits to be won from strategically planned green infrastructure projects such as semi-natural urban green spaces, sustainable drainage schemes (SuDS) and green roofs.

Annex 2

LCES Report 2019

Annex 3

ABR Report 2021

Annex 4

Bird Survey Report 2021

Annex 5
Invertebrate Species List

Table A6.1: Invertebrate species list for 23 July and 31 August 2022

Species	Family	Order	Conservation status
Agelena labyrinthica	Agelenidae	Araneae	common
Amaurobius fenestralis	Amaurobiidae	Araneae	common
Araneus diadematus	Araneidae	Araneae	common
Araneus quadratus	Araneidae	Araneae	local
Larinioides cornutus	Araneidae	Araneae	common
Nuctenea umbratica	Araneidae	Araneae	common
Clubiona reclusa	Clubionidae	Araneae	common
Harpactea hombergi	Dysderidae	Araneae	common
Erigone atra	Linyphiidae	Araneae	common
Linyphia triangularis	Linyphiidae	Araneae	common
Neriene peltata	Linyphiidae	Araneae	common
Pardosa prativaga	Lycosidae	Araneae	common
Trochosa terricola	Lycosidae	Araneae	common
Philodromus albidus	Philodromidae	Araneae	common
Philodromus aureolus	Philodromidae	Araneae	common
Philodromus cespitum	Philodromidae	Araneae	common
Pisaura mirabilis	Pisauridae	Araneae	common
Metellina segmentata	Tetragnathidae	Araneae	common
Pachygnatha degeeri	Tetragnathidae	Araneae	common
Tetragnatha extensa	Tetragnathidae	Araneae	common
Tetragnatha montana	Tetragnathidae	Araneae	common
Anelosimus vittatus	Theridiidae	Araneae	common
Enoplognatha ovata	Theridiidae	Araneae	common
Neottiura bimaculata	Theridiidae	Araneae	common
Paidiscura pallens	Theridiidae	Araneae	common
Xysticus cristatus	Thomisidae	Araneae	common
Anobium punctatum	Anobiidae	Coleoptera	common
Anthicus antherinus	Anthicidae	Coleoptera	common
Aphodius prodromus	Aphodiidae	Coleoptera	common
Apion frumentarium	Apionidae	Coleoptera	common
Betulapion simile	Apionidae	Coleoptera	common
Exapion ulicis	Apionidae	Coleoptera	common
Ischnopterapion loti	Apionidae	Coleoptera	common
Rhagonycha fulva	Cantharidae	Coleoptera	common
Abax parallelepipedus	Carabidae	Coleoptera	common
Bembidion lampros	Carabidae	Coleoptera	common
Calodromius spilotus	Carabidae	Coleoptera	common

Species	Family	Order	Conservation status
Carabus arvensis	Carabidae	Coleoptera	common
Demetrias atricapillus	Carabidae	Coleoptera	common
Nebria brevicollis	Carabidae	Coleoptera	common
Notiophilus substriatus	Carabidae	Coleoptera	common
Oxypselaphus obscurus	Carabidae	Coleoptera	common
Paradromius linearis	Carabidae	Coleoptera	common
Platyderus depressus	Carabidae	Coleoptera	local
Pterostichus madidus	Carabidae	Coleoptera	common
Pterostichus niger	Carabidae	Coleoptera	common
Arhopalus rusticus	Cerambycidae	Coleoptera	common
Agelastica alni	Chrysomelidae	Coleoptera	common
Altica lythri	Chrysomelidae	Coleoptera	common
Crepidodera aurata	Chrysomelidae	Coleoptera	common
Psylliodes affinis	Chrysomelidae	Coleoptera	common
Cis bilamellatus	Ciidae	Coleoptera	common
Coccinella septempunctata	Coccinellidae	Coleoptera	common
Harmonia axyridis	Coccinellidae	Coleoptera	common
Propylea quattuordecimpunctata	Coccinellidae	Coleoptera	common
Rhyzobius litura	Coccinellidae	Coleoptera	common
Scymnus suturalis	Coccinellidae	Coleoptera	common
Tytthaspis sedecimpunctata	Coccinellidae	Coleoptera	common
Micrambe ulicis	Cryptophagidae	Coleoptera	common
Anthonomus rubi	Curculionidae	Coleoptera	common
Ceutorhynchus obstrictus	Curculionidae	Coleoptera	common
Ceutorhynchus typhae	Curculionidae	Coleoptera	common
Curculio glandium	Curculionidae	Coleoptera	common
Orchestes quercus	Curculionidae	Coleoptera	common
Scolytus intricatus	Curculionidae	Coleoptera	common
Sitona lineatus	Curculionidae	Coleoptera	common
Sitona striatellus	Curculionidae	Coleoptera	common
Strophosoma melanogrammum	Curculionidae	Coleoptera	common
Trichosirocalus troglodytes	Curculionidae	Coleoptera	common
Attagenus smirnovi	Dermestidae	Coleoptera	naturalised
Anacaena globulus	Hydrophilidae	Coleoptera	common
Brachypterus urticae	Kateretidae	Coleoptera	common
Cortinicara gibbosa	Latridiidae	Coleoptera	common
Dorcus parallelipipedus	Lucanidae	Coleoptera	common
Malachius bipustulatus	Malachiidae	Coleoptera	common
Meligethes aeneus	Nitidulidae	Coleoptera	common
Oedemera lurida	Oedemeridae	Coleoptera	common
Olibrus affinis	Phalacridae	Coleoptera	common
Pyrochroa serraticornis	Pyrochroidae	Coleoptera	common

Species	Family	Order	Conservation status
Anaspis maculata	Scraptiidae	Coleoptera	common
Aleochara lanuginosa	Staphylinidae	Coleoptera	common
Bisnius fimetarius	Staphylinidae	Coleoptera	common
Stenus impressus	Staphylinidae	Coleoptera	common
Tachyporus hypnorum	Staphylinidae	Coleoptera	common
Forficula auricularia	Forficulidae	Dermaptera	common
Lucilia sericata	Calliphoridae	Diptera	common
Macrodiplosis pustularis	Cecidomyiidae	Diptera	common
Macrodiplosis roboris	Cecidomyiidae	Diptera	common
Medetera truncorum	Dolichopodidae	Diptera	common
Ocydromia glabricula	Hybotidae	Diptera	common
Minettia fasciata	Lauxaniidae	Diptera	common
Musca autumnalis	Muscidae	Diptera	common
Opomyza germinationis	Opomyzidae	Diptera	common
Nyctia halterata	Sarcophagidae	Diptera	common
Chloromyia formosa	Stratiomyidae	Diptera	common
Pachygaster atra	Stratiomyidae	Diptera	common
Episyrphus balteatus	Syrphidae	Diptera	common
Eristalis arbustorum	Syrphidae	Diptera	common
Eristalis pertinax	Syrphidae	Diptera	common
Eristalis tenax	Syrphidae	Diptera	common
Helophilus pendulus	Syrphidae	Diptera	common
Platycheirus albimanus	Syrphidae	Diptera	common
Sphaerophoria scripta	Syrphidae	Diptera	common
Syritta pipiens	Syrphidae	Diptera	common
Syrphus ribesii	Syrphidae	Diptera	common
Volucella inanis	Syrphidae	Diptera	common
Haematopota pluvialis	Tabanidae	Diptera	common
Tabanus bromius	Tabanidae	Diptera	common
Eriothrix rufomaculata	Tachinidae	Diptera	common
Haplophilus subterraneus	Himantariidae	Geophilomorpha	common
Acanthosoma haemorrhoidale	Acanthosomatidae	Hemiptera	common
Elasmostethus interstinctus	Acanthosomatidae	Hemiptera	common
Anthocoris confusus	Anthocoridae	Hemiptera	common
Cardiastethus fasciiventris	Anthocoridae	Hemiptera	common
Xylocoris cursitans	Anthocoridae	Hemiptera	common
Philaenus spumarius	Aphrophoridae	Hemiptera	common
Alebra albostriella	Cicadellidae	Hemiptera	common
Aphrodes makarovi	Cicadellidae	Hemiptera	common
Cicadella viridis	Cicadellidae	Hemiptera	common
Euscelis incisus	Cicadellidae	Hemiptera	common
Iassus lanio	Cicadellidae	Hemiptera	common

Species	Family	Order	Conservation status
Coreus marginatus	Coreidae	Hemiptera	common
Conomelus anceps	Delphacidae	Hemiptera	common
Ditropis pteridis	Delphacidae	Hemiptera	common
Cymus melanocephalus	Lygaeidae	Hemiptera	common
Kleidocerys resedae	Lygaeidae	Hemiptera	common
Nysius huttoni	Lygaeidae	Hemiptera	common
Campyloneura virgula	Miridae	Hemiptera	common
Deraeocoris (Deraeocoris) ruber	Miridae	Hemiptera	common
Deraeocoris (Knightocapsus) lutescens	Miridae	Hemiptera	common
Heterotoma planicornis	Miridae	Hemiptera	common
Liocoris tripustulatus	Miridae	Hemiptera	common
Lygocoris (Lygocoris) pabulinus	Miridae	Hemiptera	common
Lygus rugulipennis	Miridae	Hemiptera	common
Malacocoris chlorizans	Miridae	Hemiptera	common
Notostira elongata	Miridae	Hemiptera	common
Phoenicocoris obscurellus	Miridae	Hemiptera	common
Phylus (Phylus) coryli	Miridae	Hemiptera	common
Phylus (Phylus) melanocephalus	Miridae	Hemiptera	common
Phytocoris (Ktenocoris) varipes	Miridae	Hemiptera	common
Phytocoris (Phytocoris) tiliae	Miridae	Hemiptera	common
Plagiognathus (Plagiognathus) arbustorum	Miridae	Hemiptera	common
Plagiognathus (Plagiognathus) chrysanthemi	Miridae	Hemiptera	common
Stenodema (Brachystira) calcarata	Miridae	Hemiptera	common
Stenodema (Stenodema) laevigata	Miridae	Hemiptera	common
Stenotus binotatus	Miridae	Hemiptera	common
Himacerus (Aptus) mirmicoides	Nabidae	Hemiptera	common
Himacerus (Himacerus) apterus	Nabidae	Hemiptera	common
Nabis (Nabis) rugosus	Nabidae	Hemiptera	common
Dolycoris baccarum	Pentatomidae	Hemiptera	common
Palomena prasina	Pentatomidae	Hemiptera	common
Pentatoma rufipes	Pentatomidae	Hemiptera	common
Rhopalus lepidus	Rhopalidae	Hemiptera	pNR
Apis mellifera	Apidae	Hymenoptera	common
Bombus lapidarius	Apidae	Hymenoptera	common
Bombus lucorum sensu lato	Apidae	Hymenoptera	common
Bombus pascuorum	Apidae	Hymenoptera	common
Bombus terrestris	Apidae	Hymenoptera	common
Biorhiza pallida	Cynipidae	Hymenoptera	common
Cynips quercusfolii	Cynipidae	Hymenoptera	common
Neuroterus numismalis	Cynipidae	Hymenoptera	common
Neuroterus quercusbaccarum	Cynipidae	Hymenoptera	common
Formica fusca	Formicidae	Hymenoptera	common

Species	Family	Order	Conservation status
Lasius niger	Formicidae	Hymenoptera	common
Lasius platythorax	Formicidae	Hymenoptera	common
Myrmica ruginodis	Formicidae	Hymenoptera	common
Myrmica scabrinodis	Formicidae	Hymenoptera	common
Vespula vulgaris	Vespidae	Hymenoptera	common
Philoscia muscorum	Philosciidae	Isopoda	common
Porcellio scaber	Porcellionidae	Isopoda	common
Dyseriocrania subpurpurella	Eriocraniidae	Lepidoptera	common
Acrocercops brongniardella	Gracillariidae	Lepidoptera	common
Caloptilia alchimiella	Gracillariidae	Lepidoptera	common
Caloptilia robustella	Gracillariidae	Lepidoptera	common
Caloptilia rufipennella	Gracillariidae	Lepidoptera	common
Caloptilia stigmatella	Gracillariidae	Lepidoptera	common
Cameraria ohridella	Gracillariidae	Lepidoptera	common
Gracillaria syringella	Gracillariidae	Lepidoptera	common
Parornix anglicella	Gracillariidae	Lepidoptera	common
Phyllonorycter messaniella	Gracillariidae	Lepidoptera	common
Thymelicus sylvestris	Hesperiidae	Lepidoptera	common
Celastrina argiolus	Lycaenidae	Lepidoptera	common
Lycaena phlaeas	Lycaenidae	Lepidoptera	common
Stigmella aurella	Nepticulidae	Lepidoptera	common
Aglais io	Nymphalidae	Lepidoptera	common
Maniola jurtina	Nymphalidae	Lepidoptera	common
Pararge aegeria	Nymphalidae	Lepidoptera	common
Pyronia tithonus	Nymphalidae	Lepidoptera	common
Vanessa atalanta	Nymphalidae	Lepidoptera	common
Pieris brassicae	Pieridae	Lepidoptera	common
Pieris rapae	Pieridae	Lepidoptera	common
Lithobius forficatus	Lithobiidae	Lithobiomorpha	common
Lithobius microps	Lithobiidae	Lithobiomorpha	common
Chrysoperla carnea	Chrysopidae	Neuroptera	common
Aeshna cyanea	Aeshnidae	Odonata	common
Leiobunum rotundum	Phalangiidae	Opiliones	common
Paroligolophus agrestis	Phalangiidae	Opiliones	common
Chorthippus brunneus	Acrididae	Orthoptera	common
Chorthippus parallelus	Acrididae	Orthoptera	common
Conocephalus fuscus	Conocephalidae	Orthoptera	common
Meconema thalassinum	Meconematidae	Orthoptera	common
Leptophyes punctatissima	Phaneropteridae	Orthoptera	common
Pholidoptera griseoaptera	Tettigoniidae	Orthoptera	common
Roeseliana roeselii	Tettigoniidae	Orthoptera	common
Ectopsocus briggsi agg.	Ectopsocidae	Psocoptera	common

Species	Family	Order	Conservation status
Elipsocus hyalinus	Elipsocidae	Psocoptera	common
Graphopsocus cruciatus	Stenopsocidae	Psocoptera	common
Cornu aspersum	Helicidae	Pulmonata	common
Monacha cantiana	Hygromiidae	Pulmonata	common
Limacus maculatus	Limacidae	Pulmonata	common