

Southleigh, Havant

Appendix 9.1: Ecological Baseline

Prepared on behalf of

Bloor Homes

Final Report

03 March 2026

23/25-1A

Southleigh, Havant

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Report Release Sheet

Draft/Final: Final Report
Issue Number: 23/25-1A
Date: 3 March 2026
Client: Bloor Homes

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Southleigh, Havant

Appendix 9.1: Ecological Baseline

1. INTRODUCTION

Brief

- 1.1 This document, prepared by Ecological Planning & Research on behalf of Bloor Homes, is a technical appendix to Chapter 9: Biodiversity of the Environmental Statement (ES) submitted as part of the Environmental Impact Assessment (EIA) for the proposed development of land at Southleigh, Havant. It provides a more detailed characterisation of the ecological baseline discussed in Chapter 9 and presents further details of survey method, metadata, and results.

Site Location and Context

- 1.2 The site lies to north and south of Southleigh Road, between the settlements of Denvilles to the west and Emsworth to the east. The site extends to approximately 107ha and forms the majority of the draft Southleigh Allocation proposed in the emerging Havant Borough Local Plan.

Outline of the Proposed Development

- 1.3 As described in ES Chapter 4, the proposed development provides for up to 1,800 new dwellings, a mixed-use Local Centre, green infrastructure, access, and other ancillary infrastructure.

Relevant Legislation, Planning Policy and Guidance

- 1.4 Various articles of legislation, planning policy, and key guidance documents of relevance to biodiversity and nature conservation have been referred to in the course of this assessment. A summary is presented below with further details provided in **Annex 1**.
- 1.5 Legislation of primary relevance includes:
- 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.
- 1.6 Planning policy documents of primary relevance to this report include:
- The National Planning Policy Framework (NPPF, 2024);
 - Policy CS11 of the Havant Borough Core Strategy (2011); and
 - Policies DM23 and DM24 of the Havant Borough Local Plan (Allocations).

1.7 In addition to the foregoing, due regard has been had to:

- Draft Policies 19, 20, 23, 24, and 25 of the emerging Havant Borough Local Plan and relevant site-specific design principles set out in draft Allocation 1; and
- The Havant Borough Council Biodiversity Strategy (2025).

2. ASSESSMENT METHODOLOGY

Introduction

- 2.1 This section presents details of the overall ecological impact assessment methodology, and the specific technical methodologies used to assess ecological features.
- 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, 2024).
- 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 (Zol) of those activities;
 - Scoping to select the ecological features (habitats, species, ecosystems and their functions/processes) that are likely to fall within the predicted Zols 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 (Zol) 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 Zol 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 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.

- 2.7 In this case, the Zol 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 Zol(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 Evaluation Method

- 2.8 The evaluation method used in this assessment 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.
- 2.9 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.
- 2.10 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”.
- 2.11 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.
- 2.12 Features deemed to be of less than ‘Local’ importance are considered throughout the EclA process in the context of the ‘Biodiversity Net Gain’ requirement set out in legislation and national and local planning 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.

Desktop Research

- 2.13 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 resources including the Multi-agency Geographic Information for the Countryside (MAGIC), the National Biodiversity Network (NBN) Atlas, and open-source data resources relating to hydrology, geology and soils, habitats, ecological networks, and historical maps. Due reference was also made to local planning policies and biodiversity strategies.
- 2.14 Relevant contextual information was requested from both Hampshire Biodiversity Information Centre (HBIC) and Sussex Biodiversity Records Centre (SBRC), most recently in March 2025.

Fieldwork

- 2.15 **Table 2.2** below provides an overview of the survey work that has informed this assessment. Surveys completed before April 2023 were undertaken by Austin Foot Ecology for Stantec; surveys completed thereafter were undertaken by EPR.

Table 2.2: Overview of ecological surveys

Survey Type	Date
PEA & UK Habitat Classification survey	December 2022 – January 2023
Detailed habitat & botanical surveys	April – July 2023
Amphibian (GCN eDNA) survey	June 2023
Badger survey	November - December 2023
Bat building inspection	April 2023
Bat building hibernation survey	January – February 2023
Bat building emergence survey	June – August 2023
Bat activity transects & automated survey	April – October 2023
Bat tree inspection	April 2023
Bat fixed point and tree emergence survey	August – September 2023
Bat trapping survey	May – August 2023
Breeding bird survey	April – July 2023
Wintering bird survey	November 2022 – March 2023 November 2025 - February 2026
Dormouse nest-tube survey	April – November 2023
Invertebrate scoping and sampling survey	June 2023
Reptile refugia survey	April – September 2023
Water vole survey	June and September 2023

Habitats and Vegetation

Preliminary Appraisal and UKHab Survey

- 2.16 A preliminary site walkover and habitat classification survey was undertaken over the course of three days in December 2022 and January 2023. Information was gathered and mapped according to the UK Habitat Classification (“UKHab”) system, with the occurrence of any dominant or characteristic plant species also recorded.
- 2.17 The survey included an assessment of the potential of the site to support protected or notable species and to present any likely ecological constraints or opportunities to the proposed development.

Detailed Habitat and Botanical Assessment

- 2.18 Detailed botanical surveys of semi-natural habitats were undertaken by experienced EPR botanists in the course of four survey visits conducted between late April and early July 2023. Flora species were recorded along with notes on their distribution and relative abundance.
- 2.19 Habitat types were categorised in accordance with the UK Habitat Classification system, and habitat condition was assessed on the basis of the condition assessment criteria enclosed with the Biodiversity Metric.

Survey Limitations and Constraints

- 2.20 No significant limitations or constraints were experienced, although it is likely that some grassland flora species were overlooked from areas used as horse paddocks due to their tightly grazed condition. All survey visits were made during the recommended survey seasons and in suitable weather conditions. The ZOI was fully accessible.

Evaluation Methodology

- 2.21 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:

- Criteria for the Selection of Sites of Nature Conservation Importance (SINCs) in Hampshire (2021);
- The Hampshire Rare Plant Register (Hampshire Flora Group 2011 as amended); and
- The Southern Oceanic Woodland Index (for lichens) (Sanderson et al., 2018).

- 2.22 Using the above guidance and professional judgement, the habitats, vegetation and flora within the predicted ZOI are evaluated according to the EclA guidelines on a geographical frame of reference.

Amphibians

eDNA Sampling

- 2.23 On the basis of desktop or field assessment, six ponds were identified within the application site boundary or 250m thereof (excluding any ponds on the distal side of the A27, which provides a barrier to significant amphibian dispersal into the site). These are represented in **Map 4**.
- 2.24 An experienced, Natural England-licensed Great Crested Newt *Triturus cristatus* surveyor visited four of these ponds on 29 June 2023 in order to collect water samples for GCN eDNA analysis (in accordance with standard Natural England and Surescreen guidance), and characterise their general suitability to support important populations of GCN or other amphibian species.

Survey Limitations and Constraints

- 2.25 Survey access was not provided to two off-site ponds which lie in relative mutual proximity near the northern part of the application site. For the nearest of these ponds (Pond 2), negative GCN survey results have separately been reported in relation to the proposed redevelopment of Southleigh Park House (APP/17/00863 and APP/21/01451), most recently in 2022.

- 2.26 Given that Pond 1 lies approximately 250m from the nearest ‘developable’ part of the site (*i.e.*, the nearest area of proposed residential development), and the recorded absence of GCN from the proximate Pond 2, the lack of access to Pond 1 is not considered to represent an overriding constraint upon the overall assessment.

Badgers

- 2.27 A Badger *Meles meles* walkover survey was conducted over the course of two days in November and December 2023. This followed standard guidance (Harris *et al* 1989; Macdonald *et al* 1998) and comprised a systematic walkover of all accessible areas, with any potential signs of Badger activity recorded. In particular, the site was searched for the presence of setts and field signs (*e.g.* well-used pathways, foraging holes (snuffle holes), Badger hairs, footprint, dung pits and latrines).
- 2.28 Potential Badger field signs were also noted on an incidental basis in the course of other site visits.

Survey Limitations and Constraints

- 2.29 Access to private land outside of the application site boundary was not available, so any nearby setts (*i.e.*, belonging to off-site clans that might make use of the application site for foraging or dispersal) may not have been detected.

Bats

- 2.30 A programme of bat surveys was conducted in accordance with the then-current third edition of the Bat Conservation Trust guidelines (2016).

Assessment of Potential Building Roosts

Building Inspection

- 2.31 The buildings within the application site were subject to a preliminary assessment of their suitability during the ecological appraisal. A full suite of internal and external building inspections was undertaken by an experienced and Natural England-licensed bat surveyor in May 2023.
- 2.32 External checks were undertaken for signs of the presence of bats: bat droppings on roof tiles, windows and stuck to walls, staining or scratch marks. Potential points of access for bats were also recorded such as gaps under roof/ridge/hanging tiles, gaps into soffit boxes, holes into walls, raised flashing and open windows. Where access was possible, internal checks were also carried out and included systematic searches of any accessible voids for bats, bat droppings, and signs of feeding remains, with the use of a powerful torch and endoscope. On the basis of this assessment, each building was categorised as being of either of ‘high’, ‘moderate’, ‘low’, or ‘negligible’ suitability for roosting bats.

Hibernation Surveys

- 2.33 Buildings B1 and B2 (see **Map 5a**) were assessed as providing potentially suitable roosting opportunities for hibernating bats. Hibernation inspections of the interior of these buildings were undertaken by experienced and Natural England-licensed surveyors in January and February 2023. Weather conditions were recorded (as summarised in **Table 2.3** below), and the internal space was searched for bats or evidence thereof with an endoscope and powerful torch.

Table 2.3: Hibernation Inspection Metadata

Date	Weather
25/01/23	Dry with overcast skies (8/8 cloud cover) and calm conditions (Beaufort Scale (BFS) 1). Air temperatures between 1°C and 2°C
21/2/23	Dry aside from some very light drizzle at the beginning of the survey. Skies were overcast (8/8 cloud cover) with calm conditions (BFS 1) and air temperatures between 9°C and 11°C

- 2.34 Anabat Express automated bat detectors were deployed within each building (two in B1 and one in B2) between 25 January 2023 and 7 March 2023, with recordings thereafter analysed using proprietary software. Prevailing air temperatures during the automated monitoring period are provided in **Annex 2, Table A2.1**.

Emergence / Re-Entry Surveys

- 2.35 Buildings considered to have greater than negligible suitability to support roosting bats were subject to a suite of dusk emergence and dawn re/entry surveys, as summarised in **Table 2.4** below.

Table 2.4: Building Emergence & Re-entry Survey Metadata

Date	Start/Finish	Sunset/ Sunrise	Temp (°C)	Cloud (%)	Wind (BFS)	Rain
B1 (moderate suitability)						
13/07/23	20:59 – 22:44	21:14	18 – 16	40 – 20	2 – 1	Nil
10/08/23	20:20 – 22:05	20:35	22 – 16	30	1	Nil
B2 (low suitability)						
11/07/23	21:01 – 22:46	21:16	19 – 17	90 – 100	2 – 2	Nil
B3 (low suitability)						
11/07/23	21:01 – 22:46	21:16	19 – 17	90 – 100	2 – 2	Nil
B5 (moderate suitability)						
17/07/23	20:55 – 22:41	21:10	18 – 16	40 – 40	1 – 1	Nil
03/08/23	20:32 – 22:47	20:47	17 – 17	90 – 100	3 – 2	Nil
B6 (low suitability)						
11/07/23	21:01 – 22:46	21:16	19 – 17	90 – 100	2 – 2	Nil
03/08/23	20:32 – 22:47	20:47	17 – 17	90 – 100	3 – 2	Nil
B7 (low suitability)						
07/08/23	20:25 – 22:10	20:40	16 – 15	0	3 – 2	Nil
B8 (moderate suitability)						
12/07/23	03:34 – 05:19	05:04	15 – 13	0	1 – 0	Nil
07/08/23	20:25 – 22:10	20:40	16 – 15	0	3 – 2	Nil

- 2.36 On each survey, an appropriate number of surveyors were positioned around each structure for adequate coverage, and supplemented with occasional night vision cameras, each paired with

an Anabat Swift or Express automated detector. Surveyors were equipped with ultrasound detectors (Pettersson D240X and recorder, Anabat Scout, or Elekon Batlogger), and recorded any bat emergence/re-entry or other activity, including details on species, time observed, numbers of bats, access feature (where this could be observed from the ground), and direction of flight. Behaviour was identified by flight patterns and call characteristics as heard on the bat detector.

- 2.37 Ultrasound recordings were taken and later, where necessary, analysed by suitably experienced ecologists using proprietary software, to confirm bat species/species group. Video recordings were analysed in order to confirm bat emergence and roost locations.
- 2.38 Surveyor and camera positions are indicated on **Map 5b**.

Assessment of Potential Tree Roosts

Tree Inspection

- 2.39 A ground-level tree inspection was conducted by an experienced and Natural England licensed bat surveyor in April 2023 – this was limited to trees considered likely to be more directly affected by the proposed development and excluded, for example, an assessment of trees within the interior of wooded areas.
- 2.40 Trees were inspected from the ground with the use of binoculars. Features with potential to support roosting bats were searched for, including woodpecker holes, loose bark, cracks and crevices, broken off limbs, and dense ivy. Trees were categorised according to their suitability for use by bats as ‘high’, ‘moderate’, ‘low’, or ‘negligible’.

Emergence and Fixed-Point Activity Surveys

- 2.41 As summarised in **Table 2.5** below, emergence surveys were undertaken of trees which were considered potentially suitable for use by roosting bats, where it was considered that any such roost might be significantly affected by the proposals – e.g., as a result of significant disturbance or fragmentation effects arising from the proximity of proposed development. Another objective of these surveys was to sample for any rare bat activity near the potential interface of high suitability habitat and proposed residential development.

Table 2.5: Tree Emergence / Fixed-Point Activity Survey Metadata

Date	Start/Finish	Sunset/ Sunrise	Temp (°C)	Cloud (%)	Wind (BFS)	Rain
T29, T36, T55, T423						
10/08/23	20:20 – 22:05	20:35	17 – 15	30 – 40	1 – 1	Nil
05/09/23	19:26 – 21:11	19:41	22 - 16	0 – 0	1 – 1	Nil

- 2.42 The method followed that described above in respect of building emergence and re-entry surveys. Surveyor and camera positions are indicated on **Map 6**.

Activity Transect Surveys

- 2.43 A series of walked transects was conducted in order to gather data regarding the utilisation of habitats and features by bats. Survey metadata is provided in **Table 2.6** below.

Table 2.6: Activity Transect Survey Metadata

Date	Start/Finish	Sunset/ Sunrise	Temp (°C)	Cloud (%)	Wind (BFS)	Rain
24/04/23	20:13 – 22:13	20:13	9 – 6	100 – 100	0 – 1	Drizzle throughout
25/05/23	20:45 – 23:02	20:45	20 – 13	10 – 0	3 – 1	Nil
20/06/23	21:21 – 23:21	21:21	18 – 17	20 – 100	2 – 3	Nil
12/07/23	21:15 – 23:15	21:15	16 – 15	20 – 0	1 – 2	Nil
13/07/23	03:05 – 05:05	05:05	14 – 13	80 – 20	2 – 2	Nil
09/08/23	20:37 – 22:37	20:37	19 – 15	0 – 0	2 – 0	Nil
06/09/23	19:39 – 21:39	19:39	23 – 21	50 – 50	1 – 1	Nil
04/10/23	18:36 – 20:36	18:36	18 – 15	100 – 100	3 – 1	Nil

2.44 On each survey, each transect was walked in a slow and steady manner by a pair of surveyors – of whom at least one was an experienced bat surveyor. Surveyors were equipped with ultrasound detectors (Pettersson D240X and recorder, Anabat Scout, or Elekon Batlogger), and recorded observations of bat species and numbers together with any indications of bat activity, flight lines and foraging behaviour. Ultrasound recordings were taken and later analysed using proprietary software, to confirm bat species/species group.

2.45 Transect routes are indicated on **Maps 7a-7h**.

Automated Surveys

2.46 Transect surveys were complemented by automated sampling: four Anabat Swift automated detectors were deployed for seven five-night periods within areas of suitable representative habitat as identified on **Map 8**.

2.47 Prevailing weather conditions as recorded at the nearest weather centre are provided in **Annex 2, Table A2.2** (n.b. location 2 was resurveyed between 20-24th July due to the theft of the originally deployed detector).

2.48 Each recorded bat call was manually analysed using appropriate proprietary software (Analook and Kaleidoscope) and assigned to the appropriate species category by a suitably experienced EPR ecologist on the basis of parameters given in Russ (2012), Middleton *et al.* (2014), and EPR's internal protocol. More problematic recordings and those which were attributed to less easily identifiable species groups were flagged for review and 'quality assurance' by a senior bat specialist before results were approved for release. Such calls were identified to the highest supportable level - *i.e.*, either to species or species group level - on the basis of specialist interpretation of the respectively available parameter information.

Trapping Surveys

2.49 In view of the proximity of known Bechstein's Bat *Myotis bechsteinii* roosts within Southleigh Forest, a series of trapping surveys was conducted in conjunction with rare bat specialist subconsultants Ecological Consultancy Services ('Econserve'). As represented in **Map 8**, the spatial scope of these surveys was limited to the north-eastern part of the site as the habitats in the remainder of the site were considered relatively unsuitable for effective trapping and indeed for utilisation by rare woodland bat species.

2.50 Trapping survey metadata is provided in **Table 2.7** below.

Table 2.7: Trapping Survey Metadata

Date	Start/End time	Locations	Temp / °C	Cloud /%	Wind /BFS	Rain
22/05/23	20:55 – 01:00	TL01 TL02	15 – 11	10 – 10	0 – 0	Nil
23/05/23	20:57 – 00:30	TL03 TL04 TL05	19 – 9	80 – 0	0 – 0	Nil
20/07/23	21:08 – 00:40	TL03 TL04 TL05	18 – 13	80 – 0	0 – 0	Nil
22/07/23	20:58 – 01:00	TL02 TL06 TL07	18 – 18	100 – 100	2 – 3	Nil
22/08/23	20:30 – 00:30	TL08	19 – 13	0 – 0	1 – 1	Nil
23/08/23	20:30 – 00:30	TL02 TL03 TL05	19 – 13	0 – 0	1 - 1	Nil

2.51 On each survey, a series of mist nets and harp traps was deployed within areas of potential suitable habitat – particularly including woodland edge, rides, and glades – and periodically checked for the presence of bats by suitably experienced and licensed surveyors equipped with ultrasound bat detectors. Acoustic lures were used periodically to attract the target species towards the nets.

2.52 Captured bats were subject to identification in the hand and collection of biometric data before release.

Survey Limitations and Constraints

2.53 The bat assessment programme was not subject to any overriding constraints. Despite being conducted late in the month, weather conditions during the April transect survey were relatively poor – cold and wet – but this in the nature of early season surveys.

2.54 Internal access was not provided to buildings B4, a prefabricated metal shed, and B6, a steel and fibre cement panel barn used for commercial (hire) storage - but neither building is considered likely to present suitable roosting opportunities within its internal space. The emergence survey effort applied to B6 was increased to account for this limitation.

2.55 Building B5, which is proposed for retention, was identified as a bat roost during the assessment programme. A total of two emergence surveys were conducted upon this building, as opposed to the total of three surveys recommended for the purposes of 'roost characterisation'. The level of survey effort applied is considered to be proportionate and suitable for the purposes of this assessment (*i.e.*, to determine that the building supports bat day roosts of low conservation significance), particularly as programmes of update protected species survey work will be required at subsequent project stages, including surveys required to secure a mitigation licence if it transpires that these roosts may be affected.

Evaluation Methodology

2.56 For the evaluation of key features for bats, reference has been made to:

- The Bat Mitigation Guidelines (Reason & Wray, 2025);
- The framework for evaluating bat populations posited by Wray *et al.* (2010) Valuing Bats in Ecological Impact Assessment;
- The Bat Conservation Trust's Bat Surveys for Professional Ecologists: Good Practice Guidelines (2016 and 2023);
- The Mammal Society's Review of the Conservation Status of British Mammals (Mathews *et al.*, 2018);
- Section 41 of the NERC Act;
- The Distribution Atlas of Bats in Britain and Ireland (Richardson, 2000).

Birds

Wintering Bird Survey

- 2.57 The 2022-23 wintering bird survey consisted of two survey visits per month between November 2022 and March 2023 (inclusive), conducted by suitably experienced Austen Foot ornithologists. During each visit, all areas of suitable habitat were slowly walked or scanned from suitable vantage points using a telescope or binoculars. The survey area was extended to include a 'low use' field identified within the Solent Wader & Brent Goose Strategy shortly to the south of the site (beyond the railway line). Suitable habitat adjacent to the site boundary was also viewed.
- 2.58 An update survey, comprising four monthly diurnal visits and two nocturnal scoping visits, was conducted by EPR ornithologists between November 2025 and February 2026. Thermal imaging was used during the nocturnal surveys, and at the conclusion of some diurnal transects, to gain an accurate count of more cryptid wetland species.
- 2.59 In the course of each visit, flocks or small numbers of target bird species were noted on a map of the survey area using standard British Trust for Ornithology (BTO) species and behaviour codes. Other notable bird species seen using the site were recorded as appropriate using the same method. This included other species potentially associated with nearby SPA/Ramsar sites (waterfowl and waders) or species of conservation concern. Larger flocks of other species using the site were also noted.
- 2.60 As the use of terrestrial feeding sites by Brent Geese *Branta bernicla* is greatest at high tide, survey visits were timed to be completed within the four-hour window covering two hours either side of high tides. Metadata is provided in **Table 2.8** below.

Table 2.8: Winter Bird Survey Metadata

Date	Start Time	High Tide Time	Weather Conditions
16/11/22	14:45	16:45	12°C, 8/8 cloud, Beaufort force 3, dry
29/11/22	13:40	15:40	8°C, 8/8 cloud, Beaufort force 1, dry
08/12/22	11:05	11:39	3°C, 1/8 cloud, Beaufort force 2, dry
13/12/22	12:38	14:38	3°C, 7/8 cloud, Beaufort force 2, dry
05/01/23	11:45	13:33	13°C, 8/8 cloud, Beaufort force 3, dry
19/01/23	11:12	12:23	5°C, 1/8 cloud, Beaufort force 2, dry
07/02/23	12:00	12:53	8°C, 1/8 cloud, Beaufort force 2, dry
21/02/23	10:30	12:29	8°C, 8/8 cloud, Beaufort force 2, light rain
07/03/23	10:12	11:52	4°C, 8/8 cloud, Beaufort force 2, light rain and dry spells
27/03/23	14:40	16:28	10°C, 3/8 cloud, Beaufort force 3, dry
17/11/25	09:00	09:35	7°C, 10% cloud, Beaufort force 1, dry
26/11/25	17:10	(nocturnal)	7°C, 100% cloud, Beaufort force 1, dry
09/12/25	17:10	(nocturnal)	13°C, 100% cloud, Beaufort force 3, dry
19/12/25	09:30	11:02	10°C, 50% cloud, Beaufort force 1, dry
26/01/26	14:00	16:17	8°C, 80% cloud, Beaufort force 1, occasional light showers
06/02/26	12:00	14:11	10°C, 10% cloud, Beaufort force 3, some light showers

Breeding Bird Survey

- 2.61 A programme of breeding bird survey visits was conducted in spring 2023, in accordance with the Common Birds Census (CBC) methodology, a territory mapping technique used to survey widespread breeding birds in the UK (based on methodology by Marchant, 1983, Gilbert *et al.*, 1998 and Bibby *et al.*, 2000). The aim of this method is to gather sufficient information on the location and activity of birds, in order to identify the likely territories of breeding bird species within the survey area. Breeding status is categorised as Proven, Probable or Possible, on the basis of the evidence collated.
- 2.62 Each half of the site was subject to six survey visits – five around dawn and one at dusk. Suitably experienced EPR ornithologists walked through the site at a slow pace during suitable weather conditions (principally in the absence of strong wind and persistent rain), to enable birds to be identified and located. All birds seen or heard were recorded on large-scale maps using standard codes to denote species and behaviour. Routes were varied between each survey visit so that different parts of the site were surveyed at different times of the day. Metadata is provided in **Table 2.9** below.

Table 2.9: Breeding Bird Survey Metadata

Date	Start/Finish Time	Temp (°C)	Cloud (%)	Wind (BFS)	Rain
North of Southleigh Road					
17/04/23	06:15-08:30	9	100	2	10 minute shower early in survey
05/05/23	05:39-08:00	12	100	1	Light rain throughout

16/05/23	06:00-08:00	7-13	0	0	Nil
25/05/23	19:30-22:00	18	10	1	Nil
05/06/23	05:30-07:50	15	30	1	Nil
16/06/23	05:10-07:25	13-19	0	1	Nil
South of Southleigh Road					
20/04/23	06:15-08:00	6	0	2	Nil
10/05/23	06:15-08:50	11	90	1	Nil
25/05/23	19:30-21:30	17-14	5	0	Nil
01/06/23	05:00-07:20	10-14	20	2	Nil
16/06/23	5:10-07:45	16	0	0	Nil
07/07/23	05:00-07:00	14-18	0	1	Nil

Survey Limitations and Constraints

- 2.63 Although the breeding bird survey did not capture the very earliest part of the applicable season (from late March to mid-April), it is considered that the survey programme was nevertheless adequate to inform an assessment of baseline conditions and was not subject to any over-riding constraint.

Evaluation Methodology

- 2.64 The method for describing the importance of areas for birds is based on that developed by Fuller (1980 & 1982). The principal attributes of bird communities that are considered when evaluating the importance of an area for birds are population size, diversity and rarity, as well as the presence of any conservation priority species – such as those listed as Species of Principal Importance for Conservation under Section 41 of the NERC Act 2006, or as Red/Amber-listed Birds of Conservation Concern.
- 2.65 Relative population size is evaluated by assessing the percentage of a population size unit (e.g. national, county) that occurs within the study area. 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 may be important at that geographical scale. This means, for example, that if 1% of the county population occurs, then the site may be of county level importance for that species. Sources of population data include Woodward *et al.* (2020), the JNCC SSSI Selection Guidelines, and data published by the BTO, including their annual 'BirdTrends' reports.
- 2.66 The number of species recorded in an area (species richness) is a simple and effective measure of diversity, which can be used in the assessment of a breeding bird assemblage. **Table 2.10** below shows the thresholds commonly used to measure diversity (adapted from Fuller, 1980).

Table 2.10: Diversity Evaluation Thresholds

Level of Importance	Number of Breeding species	
	Fuller (1980)	Adapted criteria
Breeding birds		
Local	25-49 species	<25
District	-	25-49

County	50-69	50-69
Regional	70-84	70-84
National	85+	85+
Winter birds		
Local	25-54	<25
District	-	25-54
County	55-84	55-84
Regional	85-114	85-114
National	115+	115+

Dormice

- 2.67 As represented in **Map 10**, a total of 138 Hazel Dormouse *Muscardinus avellanarius* nest-tubes and four nest-boxes were deployed within areas of suitable woodland and hedgerow habitat across the site and its immediate surrounds – including the edge of the A27 verge plantation - in late April 2023.
- 2.68 Five survey visits were conducted by Natural England-licensed Dormouse ecologists between June and November 2023, to check the tubes and boxes for any evidence of Dormice including woven nests, feeding remains and the presence of Dormice themselves.
- 2.69 Survey metadata is provided in **Table 2.11** below.

Table 2.11: Dormouse Survey Metadata

Date	Start/Finish Time	Temp (°C)	Cloud (%)	Wind (BFS)	Rain
20/06/23	09:00-13:30	18	20	1	Nil
19/07/23	09:30-15:10	19	80	1	Nil
23/08/23	09:45-13:00	21	0	2	Nil
28/09/23	10:00-15:00	18	100	4	Nil
15/11/23	09:30-16:00	9	80	1	Nil

Survey Limitations and Constraints

- 2.70 The survey was not subject to any significant constraint in its temporal or spatial scope. Two of the nest-boxes deployed in Eastleigh Copse were removed by unauthorised persons but this had no significant bearing on the outcome.

Invertebrates

- 2.71 An invertebrate scoping and sampling survey was undertaken by a suitably experienced specialist entomologist, Dr Jonty Denton FRES FLS MCIEEM CEcol, on 18 June 2023. Weather conditions were dry and warm but largely overcast.
- 2.72 The survey comprised a walkover undertaken to assess the suitability of habitats and features for supporting invertebrates, and to identify the presence or potential presence of species or assemblages of particular importance, with particular regard to the following groups which are

both useful as indicators of habitat quality and sufficiently well known to allow meaningful comparison with other sites:

- 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).

Survey Limitations and Constraints

- 2.73 The invertebrate survey was not subject to any overriding constraint but was limited to a relatively high-level scoping and sampling exercise. In view of the results of this survey and the nature of the habitat opportunities afforded by the site, the level of invertebrate survey effort applied is considered to be proportionate to the potential impacts of the proposed development.

Evaluation Methodology

- 2.74 Habitats were assessed in accordance with Dobson & Fairclough's (2021) guidance on 'Rapid Assessment' of the potential value of invertebrate habitats ('Invertebrate Habitat Potential'), which provides a mechanism for grading various habitat components of value to invertebrates. The invertebrate assemblage was evaluated through application of the 'Pantheon' analytical tool published by Natural England and the Centre for Ecology & Hydrology.

Reptiles

- 2.75 Reptile presence/likely absence surveys were conducted in accordance with standard methods per Froglife (1999) and Gent & Gibson (2003), involving a combination of visual assessment and deployment of artificial refugia.

- 2.76 As represented in **Map 11**, a total of 107 reptile refugia (squares of roofing felt and corrugated panels) were deployed within areas of suitable habitat (grassy margins and headlands) across the site in April 2023. Seven survey visits were conducted between May and September 2023; during each visit, the surveyor(s) checked the artificial refugia whilst at the same time observing the surrounding terrain for openly basking reptiles. 'Natural' refugia, such as logs and piles of debris, were also searched for the presence of reptiles. Survey metadata is provided in **Table 2.12** below.

Table 2.12: Reptile Survey Metadata

Date	Start/Finish Time	Temp (°C)	Cloud (%)	Rain
09/05/23	09:00 – 11:45	13 - 16	100	Nil
23/05/23	07:30 – 10:00	13 - 17	20	Nil
22/08/23	07:45 – 10:30	16 – 18	100	Nil
29/08/23	07:30 – 10:10	14 – 18	90	Nil
11/09/23	07:15 – 10:10	16 - 19	100	Nil
21/09/23	09:30 – 11:40	14 - 16	80	Overnight rain
26/09/23	08:30 – 11:30	15 – 19	100	Overnight rain

Survey Limitations and Constraints

- 2.77 Although the reptile survey avoided the high summer period, which is typically suboptimal, temperatures were unseasonably warm in September 2023 – this is likely to have reduced the detectability of reptiles during the late season survey visits. There was also some interference with refugia deployed in the north-western part of the site (land north-west of Eastleigh Road) - which is subject to a certain level of informal public access. Although noteworthy, these constraints are not considered likely to have had an over-riding effect on survey outcomes.

Evaluation Methodology

- 2.78 The site's importance for reptiles was evaluated on the basis of professional judgement and with due regard for applicable guidance (Froglife, 1999).

Water Voles

- 2.79 A Water Vole *Arvicola amphibius* habitat suitability assessment and presence/absence survey was undertaken over the course of two site visits on 20 June and 21 September 2023 by a suitably experienced EPR surveyor. All waterbodies and ditches within the site and its close surrounds were walked and field signs were recorded.

Survey Limitations and Constraints

- 2.80 The Water Vole survey was conducted under suitable conditions and was subject to no significant constraints.

3. DESIGNATED SITES

Statutory Sites

- 3.1 **Map 1** shows the location of statutorily designated sites within 5km of the application site.
- 3.2 As summarised in **Table 3.1** below, these include three components of the ‘Solent Marine’ suite of internationally designated sites, and their underpinning national-level (SSSI) designations.

Table 3.1: Internationally and Nationally Designated Sites

Designation	Distance	Summary Description
Solent Maritime Special Area of Conservation (SAC)	1.2km (south)	Designated for Annex I habitats: estuaries; Spartina swards; Atlantic salt meadows. Other Annex 1 habitats present as qualifying features: sandbanks which are slightly covered by sea water all the time; mudflats and sandflats not covered by seawater at low tide; coastal lagoons; annual vegetation of drift lines; perennial vegetation of stony banks; salicornia and other annuals colonising mud and sand; shifting dunes along the shoreline with <i>Ammophila arenaria</i> . Annex II species present as a qualifying feature: Desmoulin's whorl snail.
Chichester & Langstone Harbours Special Protection Area (SPA)	1.2km (south)	Designated for Annex II species: dark-bellied brent goose, common shelduck, Eurasian wigeon, northern pintail, northern shoveler, red-breasted merganser, ringed plover, grey plover, sanderling, dunlin, bar-tailed godwit, Eurasian curlew, common redshank, ruddy turnstone, sandwich tern, common tern, little tern; waterbird assemblage.
Chichester & Langstone Harbours Ramsar	1.2km (south)	Designated for waterfowl assemblage including ringed plover, black-tailed godwit, common redshank, dark-bellied brent goose, common shelduck, grey plover, dunlin, little tern.
Warblington Meadow Site of Special Scientific Interest (SSSI)	1.2km (south)	Unimproved grazing marsh with notable gradation from freshwater marsh to old reclaimed saltmarsh.
Chichester Harbour SSSI	1.2km (south)	Estuarine basin with mudflats, sandflats, and associated habitat; important waterfowl assemblage.
Langstone Harbour SSSI	2.5km (south-west)	Tidal basin with extensive mudflats, saltmarsh, and eelgrass beds; important waterfowl assemblage.

- 3.3 Two Local Nature Reserves occur within 2km of the site boundary: ‘Brook Meadow, Emsworth’ LNR lies 0.8km to the south-east and comprises grassland, surrounded by woodland and watercourses, which support Water Voles and other notable fauna. Eames Farm LNR lies 2km to the south-east and overlaps part of the Chichester & Langstone Harbours SPA.

Evaluation

- 3.4 The internationally designated sites (SACs, SPAs, Ramsar sites) within the ZOI are of International importance; the SSSIs are of National Importance and the LNRs of District importance.

Non-statutory Sites

- 3.5 **Map 2** shows the location of Sites of Importance for Nature Conservation (SINCs) and Local Wildlife Sites within 2km of the application site, with further detail provided in **Table 3.2** below.

Table 3.2: Non-Statutory Sites

Designation	Notable Habitats	Notable Species
Sites of Importance for Nature Conservation (Hampshire)		
Land at Oaklands House	Semi-improved grassland	Lesser spearwort
Emsworth Millpond	Coastal/estuarine habitats	
Lumley Meadow	Unimproved grassland	Great burnet, great yellow-cress, slender spike-rush, divided sedge
Oaklands Woodland	Ancient woodland & semi-improved grassland	
Land East of 54 Long Copse Lane	Semi-improved grassland	
Stream West of Emsworth Recreation Ground		Narrow-leaved water plantain
Great Copse, Havant	Ancient woodland	
Barton's Copse & The Slip	Ancient woodland & wood pasture	
High Lawn	Semi-improved grassland & wet grassland/fen	
Thicket Lawn	Semi-improved grassland & wet grassland/fen	
Hammond's Lands Copse	Ancient woodland	Bechstein's bat
Wade Court Park		Little egret
Nore Grassland & Saltmarsh	Coastal/estuarine habitats	Slender hare's-ear, sea wormwood
St Faith's Churchyard	Semi-improved grassland & social value	
Wakeford's Copse, Havant	Ancient woodland	
Conigar Point Meadows	Semi-improved grassland, coastal grazing marsh, coastal saltmarsh, open freshwater with good floristic assemblages	Divided sedge, long-bracted sedge, field brome, wild celery, lax-flowered sea lavender, slender hare's-ear, glasswort, golden samphire
Lower Beacon Field	Semi-improved grassland & wet grassland/fen	
Thicket Bottom	Wood pasture	
Thicket Bottom Woods & Lake	Ancient woodland	Bechstein's bat
Southleigh Forest	Wood pasture	Coral necklace, purple emperor, Bechstein's bat
Land West of Emsworth Recreation Ground	Semi-improved grassland & wet grassland/fen	

Designation	Notable Habitats	Notable Species
Southleigh Forest (South)	Wood pasture	Bechstein's bat
Westbrook Stream, Bridge Road	[Social value]	
Southleigh Forest (North of Emsworth Common Road)	Wood pasture	
Battins Copse	Woodland with some ancient elements or characteristics	
Brook Farm B		Weasel's snout, corn spurrey
Langstone Mill Pond	Woodland including important community types, open freshwater with good floristic assemblages	Wild celery, little egret
Local Wildlife Sites (Sussex)		
Slipper Mill Pond & Peter Pond	Saline lagoon (extension to adjacent SAC)	Starlet sea anemone, tentacled lagoon-worm
River Ems & Meadows	Chalk river; mosaic of wet woodland, swamp, and neutral grassland	Fringed heartwort, water vole, red alga <i>Audouinella pygmaea</i> ; caddis fly and fish assemblages
Cricket Ground & Meadows	Unimproved grassland	Chamomile
Brick Kiln Ponds & Meadow	Ponds, unimproved grassland, scrub, and woodland	Large frog and toad populations

3.6 The local suite of SINC's and LWS's is of County importance.

4. HABITATS AND VEGETATION

Ecological Context

Physical Environment

- 4.1 The site's topography is characterised by a gentle slope from north to south – this is relatively pronounced to the north of Southleigh Road and very slight within the southern half of the site.
- 4.2 The site and its surrounds are underlain by the London Clay Formation, over which several river terrace deposits outcrop over the majority of the site (excluding its northernmost part), in addition to several narrower bands of head.
- 4.3 Across the majority of the site – broadly corresponding to the area of river terrace deposit – the soil type is loamy with naturally high groundwater. The soil type within the northernmost part is seasonally wet and slightly acid but base-rich loam and clay. In the absence of intensive anthropogenic intervention, these conditions would be expected to support wet acid meadows and woodland.
- 4.4 A series of steeply dug agricultural field boundary ditches flows predominantly south and east within the southern part of the site, in some cases draining to West Brook, a small and recently modified section of which lies parallel to the site's eastern boundary, flowing southward toward Chichester Harbour.

Landscape History

- 4.5 Both Thomas Milne's map of 1791 and Ordnance Survey Drawing sheet 75-3 of c.1797 represent the site as open agricultural land, except for land at the northern and easternmost extents of the current parkland area, which is shown as forming the south-western fringe of Emsworth Common.
- 4.6 During the 1820s, two mansion houses were constructed near the northern extent of the site – South Leigh (or Southleigh) Park House (originally 'Woodlands'), adjacent to the northern boundary, and East Leigh House, a short distance to the west. The first edition six-inch-to-the-mile map (surveyed 1859-66) represents much of the current Southleigh parkland area as forming the formal parkland of the South Leigh estate (recorded as 'Woodlands Park' in the tithe records). The land to the west of Eastleigh Copse is shown as the East Leigh parkland – although the field immediately to the west of the copse (which now lies to the east of Normandy Way) had reverted to agricultural use by the turn of the century.

Habitats and Vegetation

- 4.7 The distribution of habitats and features (including the identifying labels referenced below) is represented in **Map 3**.

Woodland

Parkland

- 4.8 The north-eastern part of the site is occupied by a parkland landscape of permanent grassland punctuated with mature and veteran Oak trees, and fringed by treelines and screening woodland. This landscape essentially dates from the creation of the Woodlands (now Southleigh) estate in the 1820s. The majority of the extant ornamental park is represented as agricultural land in late eighteenth-century maps; according to local history sources and the Heritage, Design and Access Statement submitted pursuant to the redevelopment of Southleigh Park House (APP/21/01451), the house and grounds were occupied by a dairy farm prior to its acquisition in 1820.
- 4.9 The principal feature of the parkland is its assemblage of approximately 50 mature and veteran Pedunculate Oak *Quercus robur* trees, freestanding as individuals or in small groups (excluding those within the more densely wooded habitat components discussed below). These range in circumference (at breast height) from between approximately 1.41m and 4.96m, with 75% falling in the 2-4m range.
- 4.10 The underlying grassland, recently grazed by cattle but currently cut for silage, is agriculturally improved and dominated by Perennial Ryegrass *Lolium perenne*, with Cock's-foot *Dactylis glomera*, Yorkshire Fog *Holcus lanatus*, Soft Brome *Bromus hordeaceus*, and Meadow Foxtail *Alopecurus pratensis* present in places. Creeping Buttercup *Ranunculus repens* is occasional, and nettle and thistle beds occur where livestock have fed and rested.
- 4.11 The 'spinney', a dense group of mature and veteran Pedunculate Oak trees, with occasional Alder *Alnus glutinosa*, lies toward the southern extent of the parkland (WL3). Although not clearly referable to 'ancient woodland' in the strict sense, the spinney is a feature of some antiquity. It appears on the first edition six-inch-to-the-mile map as an agglomeration of parkland trees forming along the course and at the conjunction of two field ditches.
- 4.12 The spinney is distinguished by a notable quantity of standing deadwood and localised wetland features, including a largely terrestrialised ditch and shallow seasonal pool, both vegetated with Floating Sweet-grass *Glyceria fluitans*. The scrub and field layers are sporadically dense and comprise large swathes of impenetrable bramble, occasional mixed Hawthorn *Crataegus monogyna*, Field Maple *Acer campestre*, and Holly *Ilex aquifolium* scrub, and young Sycamore *Acer pseudoplatanus* thicket. There is extensive evidence of nutrient enrichment and poaching, and the ground flora is degraded, although Bluebell *Hyacinthoides non-scripta* occurs occasionally.
- 4.13 The parkland is partly enclosed by nineteenth-century mixed ornamental woodland screening, comprising mature standard trees of a wide variety of species, including Pedunculate, Turkey Q. *Q. cerris*, and Holm Oak *Q. ilex*, Beech *Fagus sylvatica*, Sycamore, Horse Chestnut *Aesculus hippocastanum*, Aspen *Populus tremuloides*, Scot's Pine *Pinus sylvestris*, and Norway Spruce *Picea abies*. The understorey is very dense and largely comprises Cherry Laurel *Prunus laurocerasus*, Rhododendron *R. ponticum*, and Hawthorn, with occasional Field Maple and Holly.

Eastleigh Copse

- 4.14 A small, predominantly broadleaved woodland copse, triangular in shape, stands to the south of Bartons Road at the northern extent of the site (WL1). The composition includes species typical of Victorian ornamental and game cover planting, such as Beech, Horse Chestnut, Holm Oak, Wych Elm *Ulmus glabra*, Cherry Laurel, Rhododendron, Snowberry *Symphoricarpos albus*, and Butcher's Broom *Ruscus aculeatus*. Of a modest count of eight Ancient Woodland Vascular Plants, (AWVP), four are tree or shrub species that may have been introduced by planting. Only two AWVP species - Butcher's Broom and Bluebell – occur at greater than 'occasional' frequency. The former is often planted as game cover; the latter is not a strong indicator of ancient woodland, and very capable of colonising from old boundary features.
- 4.15 The area of this present-day woodland is drawn as an unafforested unenclosed field on the Ordnance Survey Drawing sheet of c1797. The southern part of the woodland – the base of the present-day triangle – is recorded (as 'small wood') in the tithe apportionment records of 1838, whereas the first edition six-inch-to-the-mile map (surveyed 1859-66) represents the copse in broadly its present-day distribution. It is mapped as mixed - broadleaved and coniferous - woodland, which is strongly indicative of plantation, and as forming the eastern edge of the no-longer extant formal parkland of East Leigh House.
- 4.16 In conjunction with the botanical evidence, the cartographic record suggests that the southern part of the woodland was planted in the early nineteenth-century as a game covert, with the narrower northern extension added in the mid-nineteenth century to screen East Leigh House and its park – possibly from the recently constructed 'Woodlands' manor house (now 'Southleigh Park House') to the east.

Southleigh Copse

- 4.17 A small square of native broadleaved woodland lies to the north-west of the building complex at Southleigh Farm (WL2). This is a recent feature and not represented in OS maps published in the 1950s and 1960s. It is apparent from aerial imagery that approximately half of the present-day canopy cover has developed since the turn of the millennium. A derelict modern building and various abandoned storage structures occur within the woodland and there are extensive areas of made ground or building rubble.
- 4.18 The copse largely comprises relatively early-colonising trees including Ash *Fraxinus excelsior*, Sycamore, and Silver Birch *Betula pendula*, with occasional young and early mature Pedunculate and Turkey Oak. The ground and field layers are dominated by ivy, nettle and bramble; there is a large stand of Japanese Knotweed *Reynoutria japonica* in the north-east of the woodland and various 'garden escape' species occur throughout. The western, southern, and eastern boundaries are formed by species-poor Hawthorn-dominated hedgerows.

Other Wooded Habitat Features

- 4.19 To the north-west of Southleigh Road, a narrow belt of 1990s plantation forms part of the site's western boundary with Denvilles; this comprises a variety of broadleaved species including Ash, Wild Cherry *Prunus avium*, and Common Lime *Tilia x europaea*, with Bramble *Rubus fruticosus* agg., Dogwood *Cornus sanguinea*, and Elder scrub *Sambucus nigra* (WL4).
- 4.20 A group of six densely planted semi-mature Pedunculate Oaks occurs close to the derelict barn (building B1) that lies to the north-west of the Southleigh Road – Eastleigh Road junction (WL5).

- 4.21 Narrow stands of very young (twenty-first century) mixed shelterbelt plantation screen the southern and western edges of the Southleigh farmyard (WL6).
- 4.22 A small linear tree group stands within an area of grassy headland in the open farmland south of Southleigh Farm (WL7). The western half of this feature has largely established since the turn of the millennium; the trees that constitute the eastern half are generally more mature. Pedunculate Oak is the predominant species, alongside Scots Pine, Horse-chestnut and Alder.
- 4.23 Woodland species lists are provided in **Annex 2, Table A2.3**.

Evaluation

- 4.24 Remnant parkland is a Section 41 (S41) 'Habitat of Principal Importance' for nature conservation and categorised as a habitat type of 'very high' distinctiveness in the Biodiversity Metric. The assemblage of complementary wooded habitats that constitute the parkland landscape in the north-east of the site is considered to be of District importance.
- 4.25 Eastleigh Copse is the woodland habitat feature of primary importance beyond the parkland area – although it is not closely referable to the vegetation communities associated within the Lowland Mixed Deciduous Woodland S41 type. The woodland habitat resource outside the parkland area is considered to be of Local importance.

Grassland

Semi-Natural Grassland

- 4.26 Various parcels of herb-poor permanent grassland occur within the site.
- 4.27 GL1 is relatively rank grassland on land that was arable until the construction of the adjacent development off Normandy Way (between 2007 and 2011). It is largely referable to the MG1 NVC community type, and dominated by Barren Brome *Bromus sterilis* and Yorkshire Fog – although vegetation more characteristic of the M10 community occurs in some wetter areas.
- 4.28 GL2 is used as a pony paddock and comprises tightly grazed herb-poor permanent pasture with patches of bramble, nettle, and dock – although some species characteristic of less improved grasslands, including Black Knapweed *Centurea nigra*, occur occasionally. Indicators of more acid or free-draining soil conditions – such as Sheep's Sorrel *Rumex acetosella*, Changing Forget-me-not *Myosotis discolor*, Bulbous Buttercup *Ranunculus bulbosus*, and Mouse-ear Hawkweed *Pilosella officinarum* – are present at the northern extent of this compartment.
- 4.29 Contiguous with GL3, GL2 is ungrazed and supports a rank, and locally damp grassland, dominated by coarse grasses such as Cock's-foot and Yorkshire Fog.
- 4.30 Further tightly grazed and herb-poor horse paddocks occur at GL4 and GL5; characteristic species includes Common Bent *Pilosella officinarum*, Perennial Ryegrass, and Annual *Poa annua* and Rough Meadow Grass *P. trivialis*. Blinks *Montia fontana*, a County Rare species associated with seasonally wet acid grassland, is occasional within both field compartments.
- 4.31 Other small areas of species-poor grassland occur within headlands at GL6, GL7, and GL8. Perennial Rye-grass and Cock's-foot are the predominant grass species, alongside more

occasional Red Fescue *Festuca rubra*. Forbs occur occasionally and include Cow Parsley *Anthriscus sylvestris*, Dandelion species, and Creeping Buttercup. GL6 is distinguished by Grape Hyacinth *Muscari armeniacum* and other garden escapes, whereas GL7 includes extensive nettle beds and some bramble encroachment.

- 4.32 Grassland species lists are provided in **Annex 2, Table A2.3**.

Modified Grassland

- 4.33 Three relatively large agriculturally improved grassland fields occur within the application site.
- 4.34 MG1 stands to the west of the parkland area. The sward is essentially continuous with that of the parkland itself, and is dominated by Perennial Ryegrass and other coarse grasses including Cock's-foot, Creeping Bent *Agrostis stolonifera*, and Yorkshire Fog. Forbs are limited to localised nettle, thistle, and dock, and occasional Creeping Buttercup.
- 4.35 MG2 and MG3 lie to the south of Southleigh Road and are occupied by Tall Fescue *Lolium arundinaceum* swards which are cut for silage. Both grasslands were sown on arable land in or around 2019, concurrent with land take arising from the construction of residential development at Kennett Way and West Brook View, immediately to the east of the current site boundary. MG3 occurs within a large shallow basin constructed for flood attenuation, the more frequently inundated parts of which are becoming colonised by occasional Silverweed *Potentilla anserina*, Broadleaved Dock *Rumex obtusifolius*, and Common Rush *Juncus effusus*.

Evaluation

- 4.36 The grassland resource within the site includes herb-poor permanent pastures and sown or otherwise significantly improved agricultural swards. None of the existing grassland is referable to any S41 habitat type.
- 4.37 The resource of semi-natural or semi-improved grasslands (referable to the 'other neutral grassland' and 'other acid grassland' types) is considered to be of 'Local' importance, whereas the improved or modified grassland is important at within the Zol level only.

Arable Land

- 4.38 The greater part of the site is occupied by several large, intensively managed arable fields. These are sprayed and cultivated close to the field edges, although narrow grassy margins occur in places, adjacent to boundary hedgerows and ditches. The predominant margin species include Cock's-foot and False Oat Grass *Arrhenatherum elatius*, Stone Parsley *Sison amomum*, Cow Parsley, Hedge Bedstraw *Galium mollugo*, Bristly Oxtongue *Helminthotheca echinoides*, Dove's-foot Crane's Bill *Geranium molle*, Common Nettle, and Cleavers.

Evaluation

- 4.39 The intensively farmed cropland does not support a notable arable plant flora and is considered to be of within Zol importance only.

Hedgerows and Lines of Trees

- 4.40 Treeline H02, the roadside vegetation to the west side of Eastleigh Road, is a particularly notable feature, comprising several large and some veteran Pedunculate Oaks.
- 4.41 Most of the hedgerows are species-poor and dominated by Hawthorn and Blackthorn *Prunus spinosa*, although relatively slow-colonising species such as Hazel *Corylus avellana* and Field Maple are also present in several places. The older roadside hedgerows H04 (to the west of Eastleigh Road), H10, and H11 (both to the south of Southleigh Road) are categorised as 'species-rich' in composition.
- 4.42 **Table 4.1** below provides a summary description of each of the hedgerow and tree-lines shown on **Map 3**.

Table 4.1: Hedgerows and Lines of Trees

ID	Woody Species	Notable flora / antiquity indicators	Physical Features	Description
H01	Blackthorn, hawthorn, hazel, elm			Young, largely unmanaged roadside scrub forming incomplete northern boundary hedgerow, declining to bramble at eastern end
H02	Pedunculate oak (predominant), ash, holly, rhododendron	Several veteran oak trees		Roadside tree-line to west of Eastleigh Road
H03	Pedunculate oak and ash	Bluebell		Mature field boundary tree-line
H04	Hawthorn, blackthorn, dogwood, holly, privet, field maple, pedunculate oak, sycamore	High species diversity	On bank	Managed hedgerow to west of Eastleigh Road
H05	Hawthorn (predominant), blackthorn; with oak and ash trees			Managed hedgerow to east of Eastleigh Road
H06	Hawthorn (predominant), blackthorn, dogwood; with oak and ash trees			Managed hedgerow to north of Southleigh Road
H07	Hawthorn (predominant), blackthorn, willow; with oak and ash trees			Incomplete, outgrown field boundary hedgerow forming southwestern edge of parkland
H08	Hawthorn, cherry plum, sycamore; with ash trees			Managed hedgerow to north of Southleigh Road
H09	Pedunculate and Turkey oak, hybrid black poplar, horse chestnut, common lime; with hawthorn scrub			Ornamental tree line to south of parkland
H10	Hawthorn (predominant), blackthorn, field maple, hazel, English elm; with oak trees	Veteran oak tree T86; high species diversity		Managed hedgerow to south of Southleigh Road
H11	Hawthorn (predominant), blackthorn, field maple, hazel, English elm	High species diversity		Managed hedgerow to south of Southleigh Road
H12	Hawthorn (predominant), blackthorn; with ash trees		Ditch	Defunct, outgrown hedgerow within paddocks

ID	Woody Species	Notable flora / antiquity indicators	Physical Features	Description
H13	Hawthorn, with ash, sycamore, oak trees			Managed hedgerow to east of farm entrance
H14	Hawthorn (predominant), blackthorn			Managed hedgerow to south of Southleigh Road
H15	Blackthorn, goat willow, oak			Defunct, outgrown hedgerow (declining to scrub) between paddocks and farm building
H16	Oak trees with hawthorn, field maple			Treeline forming part of western boundary
H17	Blackthorn (predominant), field maple, hazel		Ditch	Managed hedgerow forming part of south-western boundary
H18	Blackthorn and hawthorn, with oak trees		Ditch	Managed hedgerow forming part of south-western boundary
H19	Blackthorn and hawthorn, with oak trees		Ditch	Managed hedgerow forming part of south-western boundary
H20	Hawthorn, blackthorn, with oak trees	Veteran oak tree 506	Ditch	Somewhat sparse and suppressed south-east boundary hedgerow beneath prominent oak trees
H21	Hawthorn, blackthorn, with oak trees	Veteran oak tree 507	Ditch	Somewhat sparse and suppressed south-east boundary hedgerow beneath prominent oak trees
H22	Privet			Tightly cut low hedge to side of farm track

Evaluation

- 4.43 The site supports a network of agricultural field boundary hedgerows, the most notable parts of which are distinguished either by relatively high species diversity or the occurrence of veteran trees. The assemblage of hedgerows and treelines is considered to be of Local importance.
- 4.44 Predominantly native hedgerows are a S41 habitat type.

Watercourses

- 4.45 A network of agricultural field boundary ditches flows predominantly south and east through the southern half of the site. The quality of aquatic habitat is constrained by the physical and hydrological characteristics of these ditches: each is relatively narrow, steeply embanked, V-shaped in profile, and only seasonally wet. The ditch flora includes Hemlock Water Dropwort *Oenanthe crocata* – abundant in places - Greater Pond Sedge *Carex riparia*, Floating Sweet-grass, Hard Rush *Juncus inflexus*, and Starwort *Callitriche stagnalis*. The on-site ditches principally drain to two offsite watercourses: a further ditch, which lies adjacent to the southern boundary at the base of the A27 embankment, and West Brook, a small, recently modified watercourse which flows beyond and parallel to the southern part of the site's eastern boundary.
- 4.46 The embankment ditch includes broader, deeper, and wetter sections around control structures, which support small stands of Common Reed *Phragmites phragmites* and Yellow Flag Iris *Iris pseudacorus*.

- 4.47 Concurrent with the construction of the recent residential development to the west of Horndean Road (APP/14/00547) in or around 2019, the proximate section of West Brook was re-dug as a 'low flow wet ditch', and its line rerouted approximately 15m westward within a newly created wet grassland corridor, with a semi-natural soft landscape treatment. Two discrete downstream sections of the brook are designated as Sites of Importance for Nature Conservation.

Evaluation

- 4.48 The assemblage of watercourses is of within Zol importance only.

5. FAUNA

Amphibians

- 5.1 The records search returned records of individual Common Toads *Bufo bufo* within 2km but no large breeding populations. The most recent GCN record dates from 1988.
- 5.2 The results of the GCN eDNA survey are provided in **Table 5.1** below, together with a brief description of each pond. Pond locations are given in **Map 4**.

Table 5.1: GCN eDNA Survey Results

Pond	GCN eDNA Result	Description
Pond 1	Survey access not provided	Large gravel pit pond on Veolia landfill site, c150m east of site
Pond 2	Survey access not provided; negative results reported per APP/17/00863 and APP/21/01451	Ornamental pond in grounds of Southleigh Park House, c.10m north of site
Pond 3	Entirely dry at time of survey	Dry depression within Hollybank Woods (with the appearance of having been dry for a considerable period of time).
Pond 4	Negative result	c.700m ² pond with wooded margins, surrounded by recent residential development at West Brook View, c.70m east of site
Pond 5	Negative result	c.600m ² clay pit pond within farmland adjacent to south-western boundary. The pond is in a terrestrialised and heavily vegetated condition, with a relatively limited residual quantity of shallow open water.
Pond 6	Negative result	Small shallow pool within parkland spinney.

- 5.3 GCN are considered to be absent from the Zol of the proposed development, which is also considered unlikely to support important populations of other amphibian species.

Evaluation

- 5.4 The amphibian assemblage within the Zol is important at the within Zol level only.

Badgers

- 5.5 Two Badger records were returned from within the search area, both dating from 2006 and located in the vicinity of Warblington railway station, to the west of the site.
- 5.6 No Badger setts were recorded during the 2023 survey, although some fields signs of Badger activity were identified during the survey programme, including scattered maize husks and a single dung-pit located on the southwestern boundary.
- 5.7 It is likely that the site forms part of the foraging territory of a Badger clan located offsite, perhaps within the expanse of wooded habitat to the north and north-east or the road or rail embankments to the south.

Evaluation

- 5.8 The habitat opportunities presented to badger are assessed as being of within Zol importance.

Bats

Desktop Study

- 5.9 Records of various bat species were returned from the 2km search area, including the rare species, Bechstein's Bat, Western Barbastelle *Barbastella barbastellus*, and Alcathe Bat *Myotis alcathoe*.
- 5.10 It is widely recorded that maternity colonies of the rare Bechstein's Bat occur within Southleigh Forest, which lies almost immediately to the north-east, and within the broader complex of East Hampshire woodlands to the north. Bechstein's Bats have been captured during trapping surveys undertaken (most recently in July 2022) to inform the proposed redevelopment of Southleigh Park House (APP/21/01451), almost immediately to the north of the application site.
- 5.11 Radiotracking surveys commissioned by Hampshire and Isle of Wight Wildlife Trust in 2024 have recorded Bechstein's Bats foraging within the parkland part of the application site, and a Barbastelle commuting southward through the site from a maternity roost in Barton's Copse to coastal foraging habitats via underpass crossings of the A27 (*pers. comm. Ecological Consultancy Services Ltd.*).
- 5.12 Similar surveys undertaken in 2017 and 2021 to inform proposals for the development of land north of Long Copse Lane, Emsworth (APP/21/00893), determined that Bechstein's Bats use the corridor of the River Ems as a key southward commuting route, either crossing the A27 or dispersing to east and west along its wooded corridor – progressing westward from the Ems toward the south-eastern extent of the broader draft allocation (but not as far west as the application site itself).

Building Roost Assessment

- 5.13 **Table 5.2** below summarises results of the bat building inspections, emergence/re-entry surveys, and hibernation surveys. Emergence and re-entry behaviour is illustrated on **Map 5b**, with further detail on observed bat activity provided in **Table 5.3** below. Photographs are provided in **Annex 3**.

Table 5.2: Bat Building Survey Results Summary

Building	Description	Building Inspection Results	Hibernation Inspection Results	Emergence/Re-Entry Survey Results	Conclusion
B1	Derelict brick barn with deteriorating pitched fibre cement roof (unlined) and collapsing wooden shed annex, partly covered in ivy	No evidence of roosting bats. Interior of building is easily accessible to bats but exposed to sunlight; potentially suitable gaps behind wooden soffit.	No evidence of roosting bats. No activity recorded during automated sampling	No emergence / re-entry	Moderate suitability structure Roosting bats likely absent
B2	Derelict mid to late twentieth century single-story building; single-skin brick walls with empty door and window gaps, and felted flat roof (collapsed in places due to fire and damp damage)	No evidence of roosting bats. Interior of building is easily accessible to bats but exposed to sunlight and weather; potentially suitable small gaps between brickwork and remnant ceiling joists. Most if not all features easily searchable from low ladder.	No evidence of roosting bats. Pipistrelle and Myotis bat activity recorded during automated sampling but not considered indicative of hibernation (see Table 5.4 below).	No emergence / re-entry	Low suitability structure Roosting bats likely absent
B3	Modern barn structure used as joinery workshop; steel and cement fibre panel construction	No evidence of roosting bats. Internal space is exposed to sunlight and high levels of noise and dust arising from current use. Potentially suitable gaps at overlap of fibre cement panels.	n/a – negligible suitability	No emergence / re-entry	Low suitability structure Roosting bats likely absent
B4	Prefabricated metal storage shed	Intact prefabricated metal panel structure presenting negligible opportunities for roosting bats	n/a – negligible suitability	n/a - negligible suitability	Negligible suitability structure Roosting bats likely absent
B5	Joinery showroom and workshop; two-storey building of brick and flint construction with occasional weatherboarding and hipped slate roof	No evidence of roosting bats. Roof spaces either converted for storage/office use or exposed to very high levels of dust and noise arising from current use. Potentially suitable gaps under weatherboarding, soffits, and ridge tiles.	n/a – negligible suitability	<u>17/07/23</u> : 2 Soprano Pipistrelle and 1 Common Pipistrelle emerged from various elevations <u>3/8/23</u> : 4 Common pipistrelle emerged from various points on roof	Confirmed bat roost: multiple discrete Common and Soprano pipistrelle day roosts within external fabric

Building	Description	Building Inspection Results	Hibernation Inspection Results	Emergence/Re-Entry Survey Results	Conclusion
B6	Modern barn structure used for event hire storage; steel and cement fibre panel construction	No internal survey access. Potentially suitable gaps at overlap of fibre cement panels.	n/a – negligible suitability	No emergence / re-entry	Low suitability structure Roosting bats likely absent
B7	Storage shed; brick and block construction, partly weatherboarded, with unlined cement fibre roof	No evidence of roosting bats. Occasional gaps under weatherboards.	n/a – negligible suitability	No emergence / re-entry	Low suitability structure Roosting bats likely absent
B8	Stables (variously used as stabling, storage, and office space); brick construction with pitched clay tile roof, UPVC soffits	No evidence of roosting bats. Roof in excellent repair but tiles may present occasional gaps.	n/a – negligible suitability	No emergence / re-entry	Moderate suitability structure Roosting bats likely absent

Table 5.3: Emergence / Re-Entry Survey Bat Activity Summary

Date	Buildings Surveyed	Bat Activity
11/07/23	B2 B3 B6	Occasional pipistrelle passes within farmyard and woodland; more sustained foraging by low numbers of pipistrelle bats within vegetation north and west of B3; 1 long-eared bat pass heard near B6
12/07/23	B8	1 brief Soprano Pipistrelle pass
13/07/23	B1	3 Common Pipistrelle passes; 2 long-eared bat passes.
17/07/23	B5	<u>Emergence:</u> 1 Soprano Pipistrelle from beneath bargeboard on wooden shed annex; 1 Soprano Pipistrelle from southern gable end; 1 Common Pipistrelle from behind weatherboarding on courtyard facing southern elevation. <u>Activity:</u> Occasional foraging within farmyard by low numbers of pipistrelle bats; 1 brief Noctule pass early in survey; 1 brief Serotine pass late in survey
03/08/23	B5	<u>Emergence:</u> 4 Common Pipistrelles from three discrete points on roof <u>Activity:</u> Occasional passes by low numbers of pipistrelle bats
07/08/23	B7 B8	Sustained foraging within farmyard and adjacent paddocks by low numbers of pipistrelle bats; two brief Serotine passes late in survey; one potential long-eared bat pass.
10/08/23	B1	Occasional passes by low numbers of pipistrelle bats; two long-eared bat passes

- 5.14 The results of automated hibernation monitoring conducted over 35 nights in January and February are summarised in **Table 5.4** below.

Table 5.4: Automated Hibernation Monitoring Results (total bat passes recorded)

Location	Common pipistrelle	Soprano pipistrelle	Myotis species
B1	0	0	0
B2: western end	94	4	0
B2: eastern end	23	5	3

- 5.15 B2 is exposed to the surrounding woodland through large gaps in the walls and ceiling, and the timing of the recorded passes is considered to suggest that they are likely to have been made by bats foraging around or within the structure, or dispersing along the adjacent roadside vegetation. All except eight calls (recorded between 23 and 28 minutes after sunset) were recorded more than 30 minutes after sunset – *i.e.*, after the typical emergence window for Common *Pipistrellus pipistrellus* and Soprano Pipistrelles *P. pygmaeus*. The majority of recorded passes occurred during periods of milder weather (with air temperature in the range of 8-11°C).

Bat Tree Roost Assessment

- 5.16 Of the relatively few trees proposed for removal, two - the mature roadside oak trees, T54 and T218 – were assessed to have ‘low’ suitability for roosting bats. Although no specific potential roosting features were identified in the course of the ground-level tree assessment, the occurrence of small features in the canopy of these trees cannot be excluded in view of their size and age class.
- 5.17 As described in **Section 2**, emergence surveys were conducted on a freestanding oak tree to the west of the parkland - T29 (moderate suitability) - and three trees at the south-western extent of the parkland: T36 (moderate suitability), T55 (moderate suitability), T423 (low suitability). These surveys were partly undertaken to determine the presence or absence of roosts within trees which, subject to design, might have been affected by the close proximity of residential development (although it is now considered that any such potential effects on these trees have largely been avoided) and partly as an additional means of sampling rare or otherwise notable bat activity near the potential interface between residential development and the high suitability parkland habitat. The results of these surveys are represented in **Table 5.5** and **Map 6**.

Table 5.5: Tree Emergence & Fixed-Point Activity Survey

Date	Bat Activity	
	T29	T36, T55, T423
10/08/23	Sustained foraging by one or few Common Pipistrelles around T29	1 Common Pipistrelle emergence from T423 Occasional Common Pipistrelle activity Brief Noctule, Serotine, and Myotis sp. passes
05/09/23	3 Common Pipistrelle passes 1 Serotine and 1 Myotis sp. pass	Few (<5) Common and Soprano Pipistrelle passes 2 Myotis sp. passes

Activity Transect Surveys

- 5.18 Activity transect survey results are represented in **Maps 7a-7h**.
- 5.19 The predominant activity recorded was the occurrence of low numbers of Common and Soprano pipistrelle bats foraging at intervals along boundary features. Serotine *Eptesicus serotinus* and Myotis species bats were recorded on a few occasions, in various parts of the site. Barbastelle and Leisler's Bat *Nyctalus leisleri* were each recorded once, adjacent to Eastleigh Road and to the south of Eastleigh Copse respectively.

Automated Sampling

- 5.20 As indicated in **Map 8**, automated detectors were deployed in four locations across the site:
1. At the interface of Eastleigh Copse and the pasture grassland to the east;
 2. Adjacent to the shallow pool within the parkland spinney;
 3. On the southern edge of Southleigh Copse;
 4. Within the small tree group that stands broadly equidistant between Southleigh Farm and the A27.

- 5.21 The results of the automated sampling are presented in **Annex 2, Table A2.5**. Summary results are provided in **Table 5.6** below, which indicates the average number of bat passes per night recorded at each sampling location, across the survey programme.

Table 5.6: Average Passes per Night at each Automated Sampling Location

Species	1	2	3	4
Common Pipistrelle	12.9	381.6	49.3	216.4
Soprano Pipistrelle	93.2	145	9.1	18.3
Common / Soprano	12.5	28.5	0.5	0.2
Nathusius' Pipistrelle	0.1	0.3	0.0	0.1
Long-eared species	3.1	5.0	1.5	3.2
Myotis species	10.7	78.9	4.2	7.8
Serotine	1.1	1.4	0.2	0.7
Noctule	1.0	1.2	2.5	3.2
Leisler's	1.0	0.6	0.9	1.1
Noctule/ Leisler's	0.3	1.2	1.5	2.5
Noctule/Serotine/Leisler's	0.7	2.2	2.5	0.9
Barbastelle	1.2	3.9	2.9	3.7

- 5.22 The pipistrelle and Myotis species were disproportionately active at location 2 (the parkland spinney); 77.7% of all Myotis activity was recorded at this location.
- 5.23 Some notable temporal and seasonal variations in activity were recorded. 32% of all Myotis species passes were recorded during a single exceptional night (between 21:02 and 04:43 on 28-29th April) at location 2 – this is presumably indicative of constant foraging activity around the detector by one or more bats, following a sudden increase in temperature toward the end of April. A further 28.3% of all Myotis species passes were recorded (on a more evenly distributed basis) during the September sampling period. This could be taken to mean that the habitat at this location has greater importance for the Myotis species group during 'transitional' periods (outside the maternity season) – although it is difficult to draw definitive conclusions from the purely quantitative data.

Trapping Surveys

- 5.24 Despite suitable conditions, observed activity levels during the trapping surveys were very low, and only four bats were caught - as summarised in **Table 5.7** (refer to **Map 8** for locations).

Table 5.7: Bats Caught during Trapping Surveys

Date	Time	Species	Sex	Weight	Status	Location
22/08/23	21:30	Natterer's Bat	Male	6.5g	Adult	TL08
22/08/23	21:55	Brown Long-eared	Female	8g	Adult, post-lactating	TL08
22/08/23	22:20	Natterer's Bat	Male	8g	Adult	TL08
23/08/23	22:50	Soprano Pipistrelle	Male	5g	Adult	TL02

Evaluation

- 5.25 The site supports a reasonably diverse bat assemblage comprising at least nine bat species or species groups, although the majority of these - including Nathusius' Pipistrelle *P. nathusii*,

Long-eared *Plecotus* bat species, Barbastelle, and the ‘low frequency’ species (Noctule *Nyctalus noctula*, Serotine, and Leisler’s) - were recorded on a relatively infrequent basis, at an average rate of no more than five passes per night at any location.

- 5.26 The greater part of the site is occupied by large, intensively managed, arable fields, which have very limited potential value for bats. Qualitatively observed bat activity was largely limited to low numbers of the two common pipistrelle species foraging at intervals along woodland edges and boundary hedgerows.
- 5.27 The parkland, together with the broader assemblage of wooded habitat within the north-eastern part of the site, represents the key feature of importance for bat conservation with the application site – particularly in view of its proximity to Southleigh Forest and Barton’s Copse. Although no Bechstein’s Bats were caught during the 2023 trapping survey programme, this area presents highly suitable foraging opportunities for this rare species, and it is understood that evidence of foraging behaviour was recorded during radiotracking surveys commissioned by Hampshire and Isle of Wight Wildlife Trust in 2024.
- 5.28 Relatively high levels of *Myotis* bat activity were recorded during automated sampling within the parkland spinney, including notable peaks of activity during one night in late April and across the September sampling period. Some of this activity may be attributable to Bechstein’s Bats, although at least a proportion is likely to be attributable to Natterer’s *M. nattereri* - a congeneric species with similar echolocation characteristics – which was positively identified during trapping surveys.
- 5.29 The Hampshire and Isle of Wight Wildlife Trust 2024 radiotracking surveys are also understood to have indicated that the application site provides a dispersal route for Barbastelle commuting southward toward the coastal marshes and pastures beyond the A27 – albeit that this is predicated on a brief ‘snapshot’ of the seasonal behaviour of one individual bat. Barbastelle was recorded at each sampling location in 2023 but only on a relatively infrequent basis, recalling the observation in the Mammal Society’s comprehensive review of British mammal populations (Matthews *et al.*, 2018) that “*With the advent of widespread use of static acoustic detectors, it has become apparent that the [barbastelle] is widely distributed — although never common — across the rural landscape of southern Britain and parts of Wales.*”
- 5.30 In view of the quality and location of the parkland habitat, and the utilisation of the site by rare bat species associated with offsite maternity colonies, the bat assemblage within the ZOI is considered to be of Regional importance.

Birds

Desktop Study

- 5.31 The southern half of the application site, together with adjacent land within the broader draft allocation, was surveyed on numerous occasions between 2007 and 2016 to inform the Solent Wader and Brent Goose Strategy (SW&BGS): no Brent Geese or other qualifying species were recorded. The allocation site is identified in the SW&BGS as a site with ‘negative records only’. The key local supporting areas for the SPA bird assemblage lie to the south of the A27.
- 5.32 The south-eastern part of the site (*i.e.*, the land to the south-east of the Southleigh Farm building complex) was also assessed over the course of nine winter bird survey visits between November

2013 and March 2014 to inform the then-proposed (now operational) residential development to the west of Horndean Road (APP/14/00547). No Brent Geese or other SPA species were recorded during this survey: the recorded assemblage largely comprised low numbers of woodland and garden species, with flocks of Black-headed Gulls *Chroicocephalus ridibundus* observed on some visits.

Winter Bird Survey

- 5.33 As summarised in **Table 5.8** below, respective totals of 34 and 49 species were recorded during the 2022-23 and 2025-26 surveys, of which 24 were 'Birds of Conservation Concern' or other conservation priority species.

Table 5.8: Wintering Bird Survey Summary Results

Species	BoCC status	Peak Count		Number of visits on which seen	
		2022-23	2025-26	2022-23	2025-26
Blackbird		2	9	3	4
Black-headed Gull	Amber	62	250+	5	4
Blue Tit		2	24	3	3
Buzzard			3		3
Carrion Crow		19	21	10	4
Chaffinch			2		2
Chiffchaff			4		1
Coal Tit		2		1	
Collared Dove			2		1
Common Gull	Amber	13		1	
Duncock*	Amber	1	8	1	3
Feral Pigeon			5		2
Fieldfare			3		3
Goldfinch		46	14	4	4
Goldcrest			1		1
Great Tit		2	11	3	4
Great Spotted Woodpecker		1		3	
Green Woodpecker			1		2
Greenfinch	Red		5		2
Grey Heron		1		1	
Grey Wagtail			1		1
Herring Gull*	Red	184	70+	5	4
House Sparrow*	Red	20	37	3	4
Jackdaw		53	50	6	4
Jack Snipe			1		1
Jay			2		1
Kestrel	Amber		1		3
Lapwing*	Red		12		2
Lesser black-backed gull	Amber		30+		2
Little Egret		2		3	
Long-tailed Tit		2	7	3	1
Magpie		24	30	8	4
Mallard	Amber	1	3	1	1
Meadow Pipit	Amber	12	8	6	4
Mistle Thrush	Red	5	2	3	2
Moorhen	Amber	1		1	
Nuthatch			1		1
Peregrine			1		1
Pheasant		1	6	2	5
Pied Wagtail			6		4
Raven			1		1

Red-legged Partridge			8		3
Redwing			110+		3
Reed Bunting			1		3
Robin		2	19	2	4
Rook	Amber	92	35	5	3
Skylark*	Red	22		5	
Snipe	Amber	5	72	3	5
Song Thrush*	Amber	3		2	
Sparrowhawk			1		1
Starling*	Red	84	230+	4	4
Stock Dove	Amber	16	4	4	2
Stonechat		1	1	1	1
Skylark*	Red		15		4
Tawny Owl			1		1
Teal	Amber	3		1	
Woodpigeon	Amber	128	400+	6	4
Wren	Amber	1	6	1	4

*=S41 species

- 5.36 The wintering assemblage is typical of open arable farmland, and included reasonably large flocks of Black-headed and Herring Gulls *Larus argentatus*, Rooks *Corvus frugilegus*, Starlings *Sturnus vulgaris*, and Wood Pigeon *Columba palumbus*.
- 5.37 Counts of up to 72 Common Snipe *Gallinago gallinago* were recorded through the use of thermal imaging from within the existing flood attenuation basin in the south-east corner of the site in early 2026 – responding to a wetland habitat opportunity presented by a period of exceptionally wet winter weather.
- 5.38 Low numbers of the SPA-qualifying species Teal and Little Egret were recorded during the 2022-23 survey programme: the former in a group of three on a single occasion, the latter, singly or in pairs, on three of the ten survey visits. Both species were recorded within the recently created West Brook wetland corridor adjacent to the southern part of the site's eastern boundary; neither was encountered in 2025-26.
- 5.39 Lapwing, apparently added as a named component of the broader Chichester and Langstone Harbours SPA waterbird assemblage through the SPA network review process, was encountered in small flocks of 5 and 12 individuals, during two of the 2025-26 survey visits.

Breeding Bird Survey

- 5.40 As summarised in **Table 5.9** below, a total of 55 species was recorded during the 2023 breeding bird survey programme, of which 42 were considered to be potentially breeding within the site and its close surrounds. These totals included 28 'Birds of Conservation Concern' or other conservation priority species, of which 17 were considered to be potentially breeding within the Zol.

Table 5.9: Breeding bird survey summary results

Species	Breeding status	BoCC status	Notes
Skylark*	Breeding	Red	Up to 10 territories
Starling*	Breeding	Red	
Mediterranean Gull	Breeding	Amber	
Stock Dove	Probable	Amber	
Woodpigeon	Probable	Amber	
Collared Dove	Probable		
Jay	Probable		
Magpie	Probable		
Jackdaw	Probable		
Coal Tit	Probable		
Blue Tit	Probable		
Great Tit	Probable		
Long-tailed Tit	Probable		
Chiffchaff	Probable		
Blackcap	Probable		
Whitethroat	Probable	Amber	4 - 5 pairs
Firecrest^	Probable		
Goldcrest	Probable		
Wren	Probable	Amber	
Nuthatch	Probable		
Treecreeper	Probable		
Blackbird	Probable		
Song Thrush*	Probable	Amber	3 – 4 pairs
Robin	Probable		
House Sparrow*	Probable	Red	Around farm complex
Duncock*	Probable	Amber	
Chaffinch	Probable		
Bullfinch*	Probable	Amber	
Greenfinch	Probable	Red	4 – 5 pairs
Goldfinch	Probable		
Linnet*	Possible	Red	Recorded on two occasions
Coot	Possible		
Pheasant	Possible		
Tawny Owl	Possible	Amber	
Great Spotted Woodpecker	Possible		
Green Woodpecker	Possible		
Kestrel	Possible	Amber	
Carrion Crow	Possible		
Swallow	Possible		
Mistle Thrush	Possible	Red	
Yellowhammer*	Possible	Red	Recorded on one occasion
Little-ringed Plover^	Possible		
Great Black-backed Gull	Observed	Amber	
Brent Goose	Observed	Amber	
Mallard	Observed	Amber	
Grey Heron	Observed		
Buzzard	Observed		
Black-headed Gull	Observed	Amber	
Common Gull	Observed	Amber	
Herring Gull*	Observed	Red	
Lesser Black-backed gull	Observed	Amber	
Common Tern	Observed	Amber	
Barn Owl^	Observed		
Swift	Observed	Red	
Rook	Observed	Amber	

- 5.41 The breeding assemblage largely comprises ‘woodland and garden’ species, although some farmland birds – particularly including Skylark *Alauda arvensis* – are also present. Yellowhammer *Emberiza citrinella* was recorded on a single occasion and Linnet *Linaria cannabina* twice.
- 5.42 Barn Owl *Tyto alba* was observed foraging within the parkland on several occasions. No tree or building roost was identified during surveys, although there are anecdotal reports of a tree roost on the site’s southern boundary.

Evaluation

- 5.43 With reference to the evaluation criteria set out in **Section 2**, the breeding and wintering bird assemblages are considered to be of District importance.

Dormice

- 5.44 A single Hazel Dormouse record was returned, from north of Havant. Dormouse populations are known to occur within the vicinity of Rowlands Castle and Horndean to the north, and further west along the M27/A27 corridor.
- 5.45 No evidence of Dormice was recorded during the 2023 nest-tube survey; the species is considered to be absent from the Zol.

Invertebrates

- 5.46 Summary results of the ‘Invertebrate Habitat Potential’ (IHP) rapid assessment are presented in **Table 5.10** below. For the purposes of this assessment, the site was split into its three principal compartments – the land to the south of Southleigh Road, and to the west and east of Eastleigh Road – with the latter compartment further subdivided to capture the discrete characteristics of the spinney woodland within the parkland area.

Table 5.10: Summary Results of IHP Rapid Assessment (grading scale: A = exceptional, to E = absent/negligible)

Compartment	HE1	HE2	HE3	HE4	HE5	HE6	HE7	HE8	HE9	HE10	HE11
Parkland spinney	A	B	C	C	C	D	C	D	B	C	E
NE quadrant of site	B	B	C	E	D	D	C	D	B	C	E
NW quadrant of site	C	D	C	D	E	D	D	D	D	D	D
Land south of Southleigh Rd	E	E	D	C	D	D	D	D	C	E	D

HE1: Decaying wood

HE2: Rotational management

HE3: Nectar resources

HE4: Wet substrates

HE5: Open water

HE6: Structural patchwork

HE7: Sunny still air

HE8: Humid still air

HE9: Connectivity

HE10: Ecoline

HE11: Bare earth

- 5.47 The ‘exceptional’ occurrence of dead and decaying wood within the parkland spinney was identified as the individual habitat feature of greatest importance for invertebrate conservation. In view of this and the localised occurrence of wetland features, the spinney was attributed with the highest overall habitat quality grading of the four principal survey compartments. A relatively high grading was attributed to the remainder of the parkland and associated woodland habitat in the site’s north-eastern quadrant, whereas the north-west quadrant and the land south of

Southleigh Road each scored relatively poorly, with all micro-habitat indicators graded between moderate (C) and negligible/absent (E).

- 5.48 As listed in **Annex 2, Table A2.6**, a total of 248 invertebrate taxa were identified during the 2023 survey, including one species listed as Nationally Notable, the tree ant *Lasius brunneus* – although this nominal status is considered ‘out of date’ in relation to the current distribution of the species, which is locally common in much of south-east England.
- 5.49 Summary results of the Pantheon analysis of the recorded invertebrate assemblage are provided in **Table 5.11** below. The ‘bark and sapwood decay’ fauna was considered to be in ‘favourable’ condition on the basis of the number of associated species recorded. Other species assemblage types are attributed with ‘unfavourable’ condition in relation to the respective numerical thresholds – although it is possible that further targeted survey work would record sufficient ‘heartwood decay’ and ‘scrub edge’ fauna to elevate these assemblage types to ‘favourable’ condition.

Table 5.11: Summary Results of Pantheon analysis

Species Assemblage Type	No. spp.	% rep.	SQI	Condition (number of species recorded in relation to threshold value)
Bark & sapwood decay	27	5	111	Favourable (27/19 species)
Scrub edge	9	4	100	Unfavourable* (9/11 species)
Heartwood decay	3	2	100	Unfavourable* (3/6 species)
Fungal fruiting bodies	3	3	100	Unfavourable (2/15 species)
Rich flower resource	2	<1	100	Unfavourable (2/15 species)
Open short sward	1	<1	100	Unfavourable (1/13 species)

*Favourable condition may be achievable subject to further survey

Evaluation

- 5.50 Given the presence of deadwood and other old growth features, the parkland area, and particularly the spinney, were identified as the features of principal importance for invertebrate conservation on the basis of both the ‘Invertebrate Habitat Potential’ rapid assessment and Pantheon analysis. The arable and grassland fields are considered to have very low value for invertebrates.
- 5.51 On balance, the invertebrate assemblage and the features on which it depends are considered to be of District importance.

Reptiles

- 5.52 Several records of the three common and widespread reptile species – Slow Worm *Anguis fragilis*, Common Lizard *Lacerta vivipara*, and Grass Snake *Natrix helvetica* – were returned from within the search area. Two Adder *Vipera berus* records, the most recent dating from 2006, were returned from the vicinity of Staunton Country Park to the north.
- 5.53 A reserved matters application submitted pursuant to the now-operational development of land to the west of Normandy Way (‘Land South of Bartons Road, Havant’) in 2018 included proposals to translocate ‘low’ populations of Slow Worm and Common Lizard into areas of grassland to the east and west of Eastleigh Copse – and it is presumed that these were implemented.

- 5.54 The distribution of potentially suitable reptile habitat within the application site is largely limited to field margins, grassy headlands, small areas of rank neglected pasture, and localised areas of grassland-scrub interface within the parkland. The results of the 2023 reptile refugia survey are represented in **Map 11**, and summarised in **Table 5.12** below.

Table 5.12 Reptile Survey Results

Date	Slow Worm				Common Lizard			
	F	M	SA	J	F	M	SA	J
09/05/23	24	13	10	37			1	
23/05/23	25	1	2	7				
22/08/23	28	5	14	1				
29/08/23	37	6		8				
11/09/23			4					
21/09/23			3					
26/09/23			9					

F = adult female, M = adult male, SA = subadult, J = juvenile

- 5.55 Slow Worm was recorded at a moderately high density within the limited areas of suitable habitat available, including a central grassy headland extending south from Southleigh farmyard, at the edge of the ranker grasslands to east and west of Eastleigh Copse, and, less frequently, in areas of suitable edge habitat within the Southleigh parkland. Common Lizard was recorded on one occasion within the former (headland) area only.

Evaluation

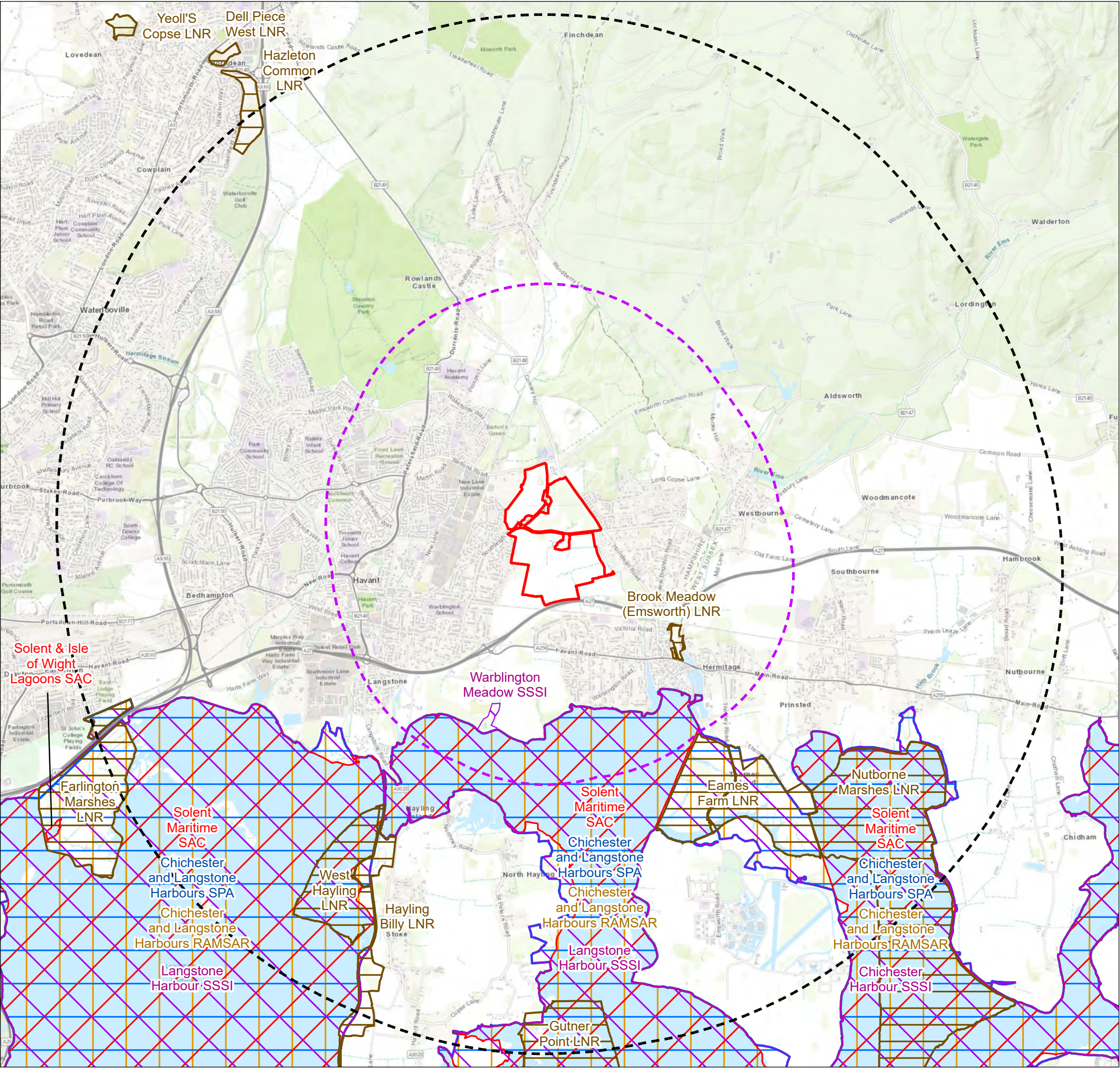
- 5.56 The Zol supports populations of two common and widespread reptile species, Slow Worm and Common Lizard, and is also likely utilised by a third, Grass Snake, on at least a transient basis. The reptile assemblage is considered to be of Local importance.

Water Voles

- 5.57 Numerous Water Vole records were returned from the desktop search area, particularly from within the catchment of the River Ems, to the east of Emsworth.
- 5.58 The watercourses within the site have limited suitability to support Water Vole as they do not remain wet throughout the year. Although small mammal burrows were recorded along parts of the ditch network, these were attributed to rats on the basis of field evidence. No evidence of Water Vole was recorded within the site or adjacent, recently modified section of West Brook and the species is considered to be absent from the Zol.

Maps

Map 1	Site Location & Statutorily Protected Sites
Map 2a	Sites Protected by Policy
Map 3	Habitats & Vegetation
Map 4	GCN Survey Results
Map 5a	Bat Building Inspection Results
Map 5b	Bat Building Emergence Survey Results
Map 6	Bat Tree Emergence Survey Results
Map 7a-h	Bat Activity Survey Results
Map 8	Bat Trapping & Automated Sampling Locations
Map 9	Breeding Bird Survey Results
Map 10	Dormouse Survey Results
Map 11	Reptile Survey Results



MAP 1 Statutorily Designated Nature Conservation Sites

- KEY
- Site boundary
 - 2km linear distance from site boundary
 - 5km linear distance from site boundary
 - Special Areas of Conservation (SAC)
 - Special Protection Areas (SPA)
 - Ramsar
 - Sites of Special Scientific Interest (SSSI)
 - Local Nature Reserves (LNR)

SCALE: 1:42,000 at A3

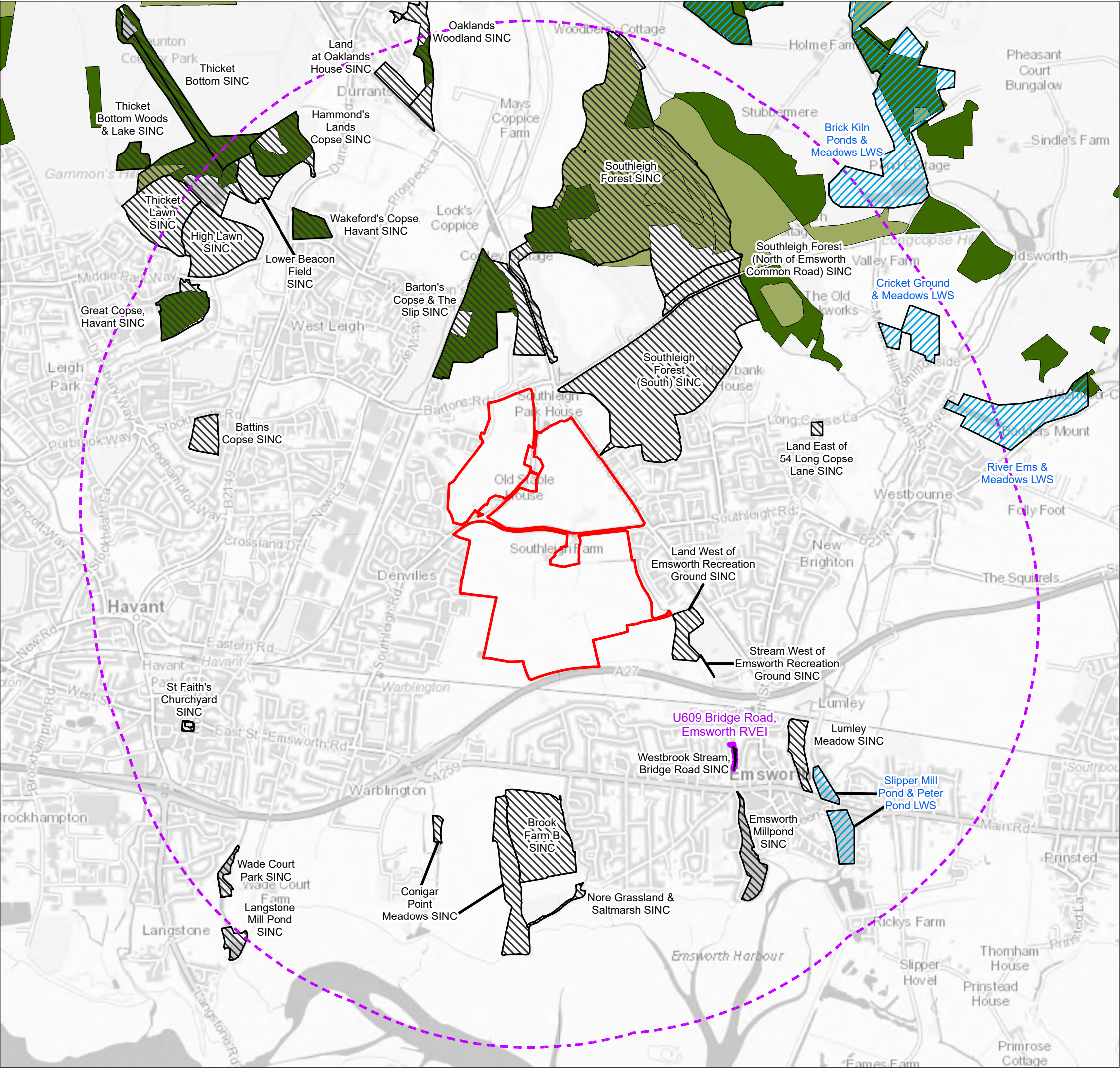
0 500 1,000 1,500 2,000 Metres



CLIENT: Bloor Homes

PROJECT: Southleigh, Havant

DATE: 19 February 2026



MAP 2 Sites Protected by Policy

KEY

- Site boundary
- 2km linear distance from site boundary
- West Sussex Local Wildlife Sites (LWS) - approximate boundaries
- Hampshire Sites of Nature Conservation Interest (SINC)
- Hampshire Road Verges of Ecological Importance (RVEI)

Natural England's Provisional Ancient Woodland Inventory

- Ancient & Semi-Natural Woodland
- Ancient Replanted Woodland

SCALE: 1:20,500 at A3

0 250 500 750 1,000 Metres

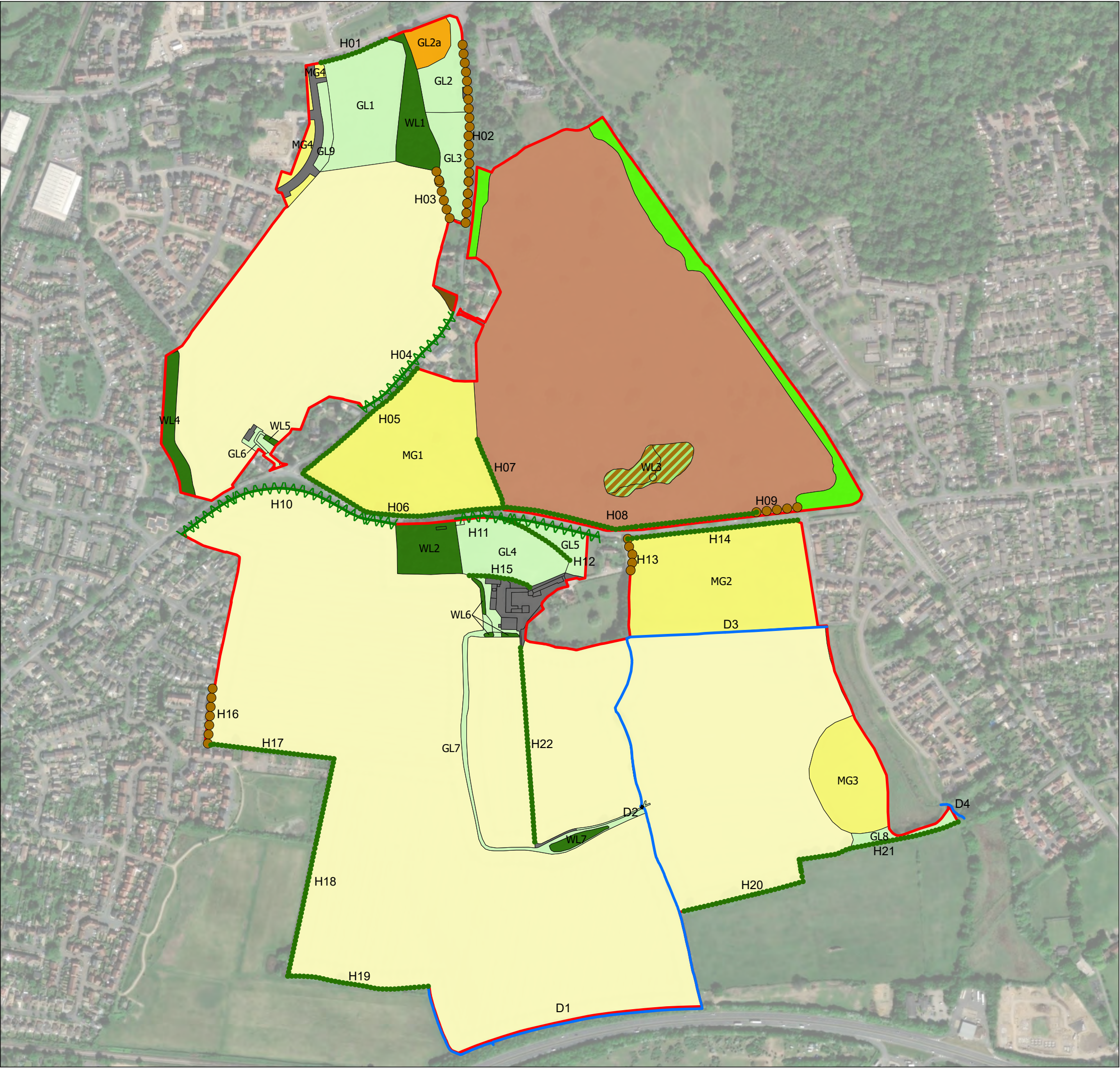
N



CLIENT: Bloor Homes

PROJECT: Southleigh, Havant

DATE: 19 February 2026



MAP 3 Habitats and Vegetation

- KEY
- Site boundary
 - Species-rich native hedgerow
 - Native hedgerow
 - Line of trees
 - Ditches
 - Culvert
 - Cereal crops
 - Developed land; sealed surface
 - Lowland mixed deciduous woodland
 - Mixed scrub
 - Other lowland acid grassland
 - Other neutral grassland
 - Other woodland; broadleaved
 - Modified grassland
 - Other woodland; mixed
 - Wood-pasture and parkland

SCALE: 1:5,750 at A3

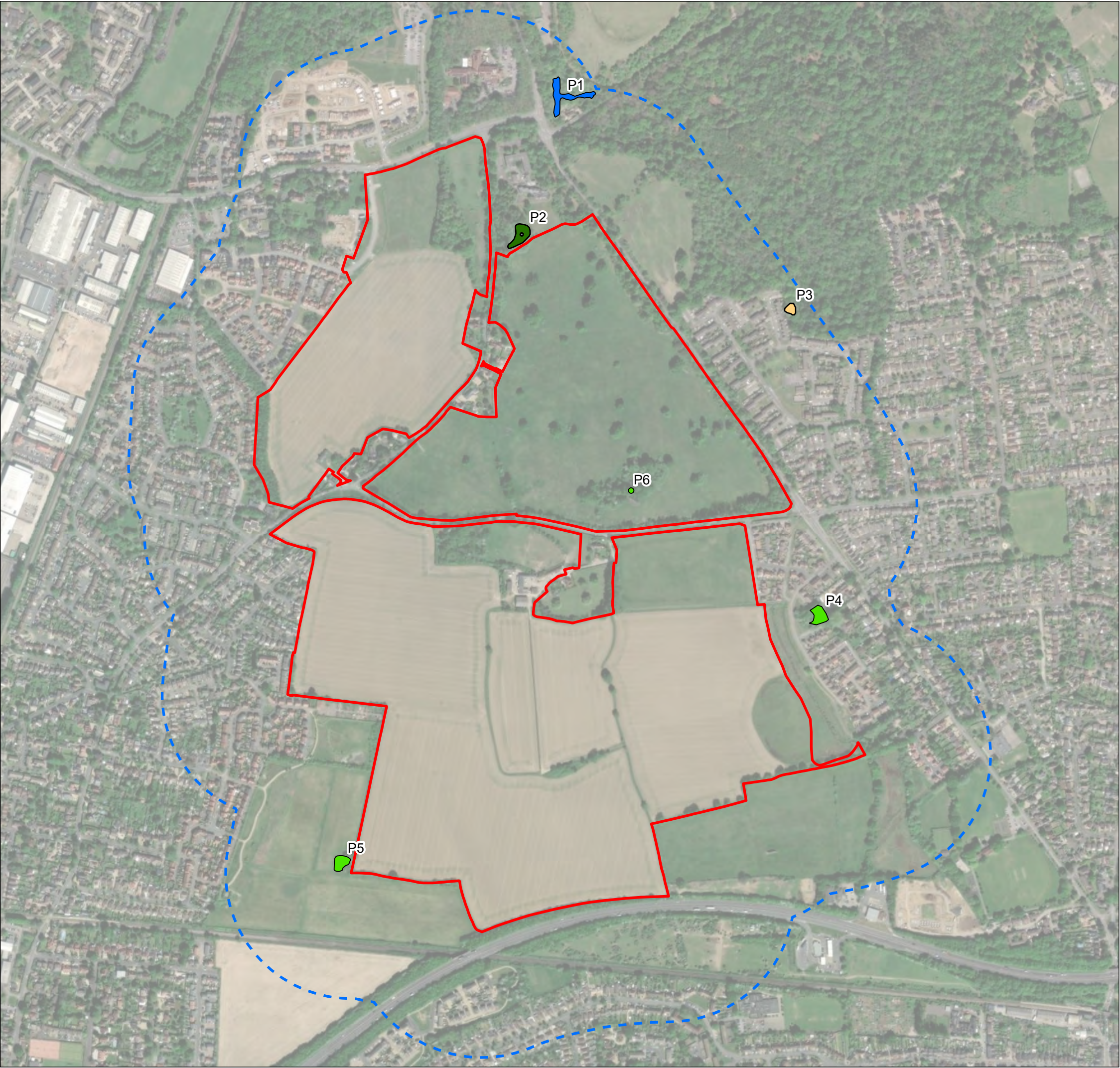
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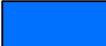
CLIENT: Bloor Homes

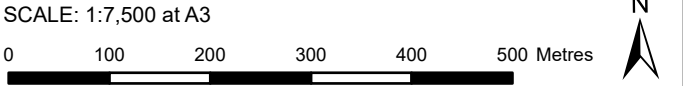
PROJECT: Southleigh, Havant

DATE: 26 February 2026



MAP 4 GCN Survey Results

- KEY
-  Site boundary
 -  250m linear distance from site boundary
 -  Dry at time of survey
 -  Negative eDNA result
 -  No survey access
 -  No survey access. Negative eDNA result reported by Southleigh Park House applicant



CLIENT: Bloor Homes

PROJECT: Southleigh, Havant

DATE: 19 February 2026



MAP 5a Building Inspection Results

KEY

- Site boundary
- Suitability for roosting bats:
- Moderate
- Low
- Negligible

SCALE: 1:1,750 at A3

0

20

40

60

80

100 Metres



CLIENT: Bloor Homes

PROJECT: Southleigh, Havant

DATE: 01 July 2025



MAP 5b Building Emergence Survey Results

- KEY
- Site boundary
 - Buildings
 - Surveyor position
 - NVA position
 - Common Pipistrelle observed flight
 - Soprano Pipistrelle observed flight
 - Emergence

SCALE: 1:750 at A3

0 10 20 30 40 50 Metres



CLIENT: Bloor Homes

PROJECT: Southleigh, Havant

DATE: 01 July 2025



MAP 6 Tree Emergence Survey Results

- KEY
- Site boundary
 - Tree surveyed
 - Surveyor position
 - NVA position
 - Common Pipistrelle observed flight
 - Emergence

SCALE: 1:1,000 at A3

0 10 20 30 40 50 Metres



CLIENT: Bloor Homes

PROJECT: Southleigh, Havant

DATE: 01 July 2025



KEY

- Site boundary
- Common Pipistrelle (heard not seen)
- North transect route
- South transect route
- (p) Pass

SCALE: 1:5,750 at A3
0 100 200 300 400 Metres



CLIENT: Bloor Homes
PROJECT: Southleigh, Havant
DATE: 19 February 2026



MAP 7b Bat Activity Transect Survey Dusk
25/05/2023

KEY

- Site boundary
- Common Pipistrelle (heard not seen)
- Soprano Pipistrelle (heard not seen)
- Barbastelle (heard not seen)
- Unidentified bat (heard not seen)
- Common Pipistrelle observed flight
- Common Pipistrelle observed flight
- Soprano Pipistrelle observed flight
- North transect route
- South transect route
- (f) Foraging
- (p) Pass
- x3 Number of bats

SCALE: 1:5,750 at A3
0 100 200 300 400 Metres



CLIENT: Bloor Homes
PROJECT: Southleigh, Havant
DATE: 19 February 2026



MAP 7c Bat Activity Transect Survey Dusk
20/06/2023

KEY

- Site boundary
- Common Pipistrelle (heard not seen)
- Soprano Pipistrelle (heard not seen)
- Myotis species (heard not seen)
- Common Pipistrelle observed flight
- Soprano Pipistrelle observed flight
- North transect route
- South transect route
- (c) Commuting
- (f) Foraging
- (p) Pass
- x3 Number of bats

SCALE: 1:5,750 at A3
0 100 200 300 400 Metres



CLIENT: Bloor Homes
PROJECT: Southleigh, Havant
DATE: 19 February 2026



KEY

- Site boundary
- Common Pipistrelle (heard not seen)
- Soprano Pipistrelle (heard not seen)
- Myotis species (heard not seen)
- Noctule (heard not seen)
- Serotine (heard not seen)
- Common Pipistrelle observed flight
- Soprano Pipistrelle observed flight
- North transect route
- South transect route
- (f) Foraging
- (p) Pass

SCALE: 1:5,750 at A3

0 100 200 300 400 Metres



CLIENT: Bloor Homes

PROJECT: Southleigh, Havant

DATE: 19 February 2026



MAP 7e Bat Activity Transect Survey
Dawn 13/07/2023

KEY

- Site boundary
- Common Pipistrelle (heard not seen)
- Soprano Pipistrelle (heard not seen)
- Myotis species (heard not seen)
- Serotine (heard not seen)
- Common Pipistrelle observed flight
- Soprano Pipistrelle observed flight
- North transect route
- South transect route
- (f) Foraging
- x3 Number of bats

SCALE: 1:5,750 at A3

0 100 200 300 400 Metres



CLIENT: Bloor Homes

PROJECT: Southleigh, Havant

DATE: 19 February 2026



KEY

- Site boundary
- Common Pipistrelle (heard not seen)
- Soprano Pipistrelle (heard not seen)
- Serotine (heard not seen)
- Common Pipistrelle observed flight
- Common Pipistrelle observed flight
- Soprano Pipistrelle observed flight
- Soprano Pipistrelle observed flight
- Serotine observed flight
- North transect route
- South transect route
- (f) Foraging
- (p) Pass
- x3 Number of bats

SCALE: 1:5,750 at A3
0 100 200 300 400 Metres



CLIENT: Bloor Homes
PROJECT: Southleigh, Havant
DATE: 19 February 2026



KEY

- Site boundary
- Common Pipistrelle (heard not seen)
- Soprano Pipistrelle (heard not seen)
- Myotis species (heard not seen)
- Leisler's Bat (heard not seen)
- Serotine (heard not seen)
- Low-frequency bat (heard not seen)
- Common Pipistrelle observed flight
- North transect route
- South transect route
- (c) Commuting
- (f) Foraging
- (p) Pass

SCALE: 1:5,750 at A3

0 100 200 300 400 Metres



CLIENT: Bloor Homes

PROJECT: Southleigh, Havant

DATE: 19 February 2026



MAP 7h Bat Activity Transect Survey Dusk
04/10/2023

KEY

- Site boundary
- Common Pipistrelle (heard not seen)
- Soprano Pipistrelle (heard not seen)
- Serotine (heard not seen)
- Common Pipistrelle observed flight
- Common Pipistrelle observed flight
- Soprano Pipistrelle observed flight
- North transect route
- South transect route
- (c) Commuting
- (f) Foraging
- (p) Pass
- (s) Social calling
- x3 Number of bats

SCALE: 1:5,750 at A3

0 100 200 300 400 Metres



CLIENT: Bloor Homes

PROJECT: Southleigh, Havant

DATE: 19 February 2026



MAP 8 Trapping Survey Locations

- KEY
-  Site boundary
 -  Automated detector locations
 -  Bat trapping locations

SCALE: 1:5,750 at A3

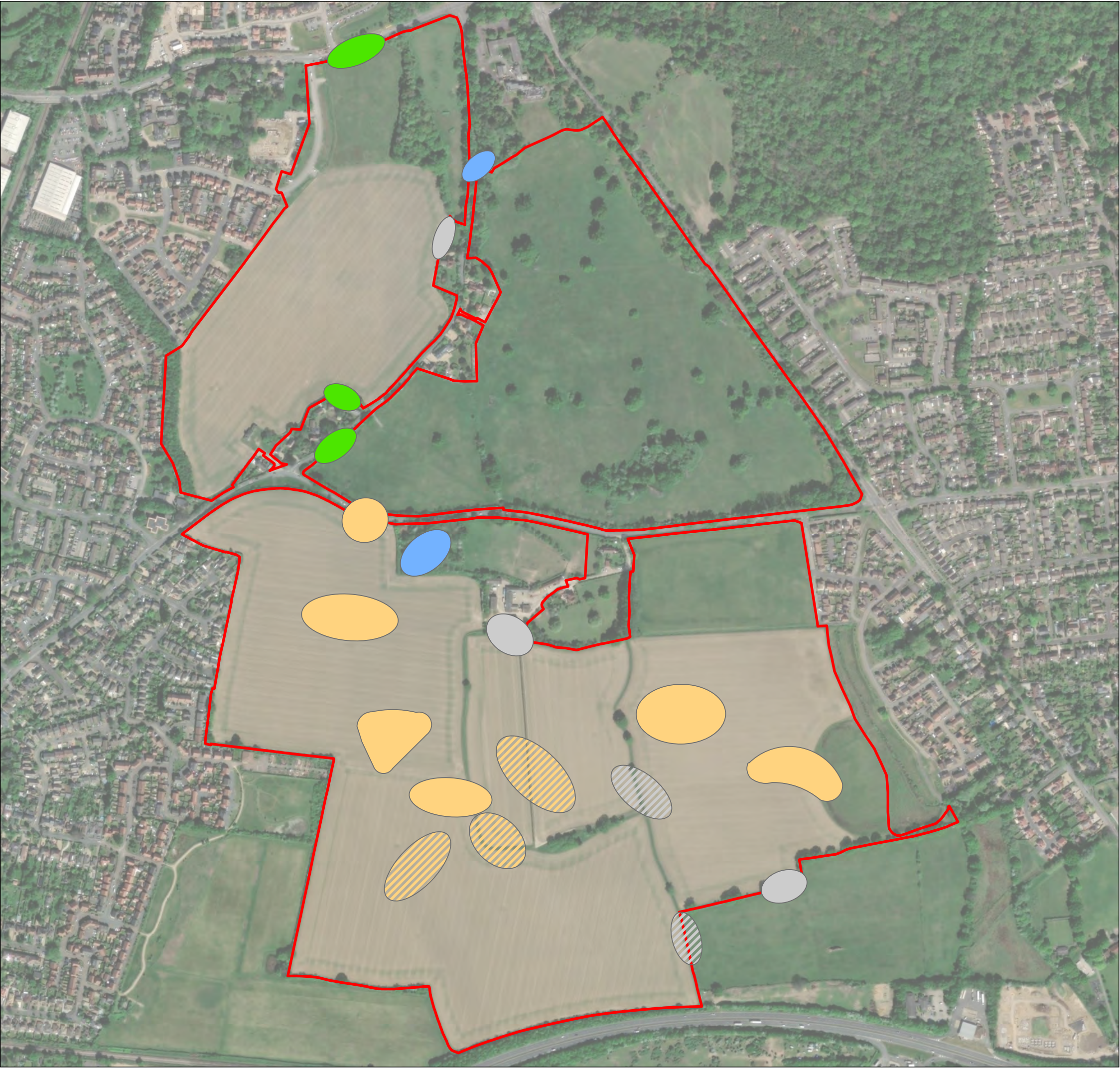
0 100 200 300 400 Metres



CLIENT: Bloor Homes

PROJECT: Southleigh, Havant

DATE: 19 February 2026



MAP 9 Breeding Bird Survey Results Summary

- KEY
- Site boundary
 - Confirmed Greenfinch territory
 - Confirmed Song Thrush territory
 - Confirmed Skylark territory
 - Possible Skylark territory
 - Confirmed Whitethroat territory
 - Possible Whitethroat territory

SCALE: 1:5,750 at A3

0 100 200 300 400 Metres



CLIENT: Bloor Homes

PROJECT: Southleigh, Havant

DATE: 19 February 2026



MAP 10 Dormouse Nest Tube & Box Locations

- KEY
- Site boundary
 - Box
 - Tube

SCALE: 1:5,750 at A3

0 100 200 300 400 Metres



CLIENT: Bloor Homes

PROJECT: Southleigh, Havant

DATE: 19 February 2026



MAP 11 Reptile Survey Results

KEY

-  Site boundary
-  Slow-worm
-  Common lizard
-  Refugia

SCALE: 1:6,000 at A3

0 100 200 300 400 Metres



CLIENT: Bloor Homes

PROJECT: Southleigh, Havant

DATE: 19 February 2026

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Annex 1

Legislation & Policy

LEGISLATION

The Environment Act 2021

The Environment Act 2021 placed 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 required the Government to produce an Environmental Improvement Plan, to report on progress towards its goals annually, to meet the targets that are set in relation to the improvement of the natural environment and to produce remedial plans should this not be achieved.

In relation to water quality, the Act placed new duties on the Government, Environment Agency and sewerage undertakers to reduce the frequency and harm of discharges from storm overflows on the environment, and for monitoring the quality of watercourses affected by those overflows.

It also included 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 also has investigation and enforcement powers against public authorities failing to comply with environmental law when exercising their functions.

The Act made provision for 10% biodiversity gain to become a condition of planning permission in England, through amendments to the Town and Country Planning Act 1990. These amendments came into force on the 12th February 2024 (delayed to 2nd April 2024 for 'small sites') and are implemented through a series of new statutory instruments collectively referred to in this document as the 'Biodiversity Net Gain Regulations' (detailed further below). The 10% biodiversity gain is measured through a biodiversity metric published by the Department of the Environment, Food and Rural Affairs (DEFRA) on behalf of 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.

The Act also created 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 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.

The Biodiversity Net Gain Regulations

The Biodiversity Net Gain provisions of the Environment Act 2021 referred to above were implemented through several pieces of secondary legislation, collectively referred to in this document as the ‘Biodiversity Net Gain Regulations’, that came into force on 12 February 2024 (delayed to 2 April 2024 for sites meeting the published definition of a ‘small site’). The Biodiversity Net Gain Regulations are as follows:

- The Biodiversity Gain (Town and Country Planning)(Modifications and Amendments)(England) Regulations 2024
- The Biodiversity Gain (Town and Country Planning)(Consequential Amendments) Regulations 2024
- The Biodiversity Gain Site Register Regulations 2024
- The Biodiversity Gain Site Register (Financial Penalties and Fees) Regulations 2024
- The Biodiversity Gain Requirements (Irreplaceable Habitat) Regulations 2024
- The Biodiversity Gain Requirements (Exemptions) Regulations 2024
- The Environment Act 2021 (Commencement No. 8 and Transitional Provisions) Regulations 2024

Collectively, these Regulations implement the requirement under the Environment Act 2021 for a 10% biodiversity gain, as measured by a metric, to become a condition of planning permission in England.

A publicly accessible register of Biodiversity Gain Sites was published on the date that these Regulations came into force, along with the Statutory Biodiversity Metric (produced by Defra on behalf of the Secretary of State) and associated guidance (see below).

The required biodiversity gain can be delivered on and/or offsite (subject to adherence to a biodiversity net gain hierarchy detailed in guidance – see below) and establishes the basis for purchasing off-site credits to meet the 10% obligation if required. In most cases the land used to deliver biodiversity gain must be maintained for at least 30 years, and the biodiversity gain planning condition requires a Biodiversity Gain Plan to be submitted to and approved by the planning authority prior to commencement of development.

Off-site biodiversity gains must be secured either through a Section 106 Agreement or Conservation Covenant, and 'significant' on-site biodiversity gains must be secured either through a Section 106 Agreement or a planning condition.

The legislation 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. 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."

Through the above Regulations, the Government has established an initial list of 'irreplaceable habitats' that must be recorded in the metric if present on site but which cannot be 'traded' through the biodiversity net gain process. Defra has confirmed the intention to consult on this initial list of habitats during 2024 and adjust it if necessary.

Guidance on Biodiversity Net Gain

To help those involved in the planning process, the Defra and the Department for Levelling Up, Housing and Communities (DLUHC) have published guidance on the technical aspects of biodiversity net gain and planning practice guidance respectively, available at the links below:

<https://www.gov.uk/guidance/understanding-biodiversity-net-gain>

<https://www.gov.uk/guidance/biodiversity-net-gain>

Biodiversity net gain (BNG) is already enshrined in the key principles of the National Planning Policy Framework (NPPF), and some local planning policies include a requirement to deliver net gain above the minimum statutory 10% figure.

In addition to the above, British Standard BS: 8683:2021 *Process for Designing and Implementing Biodiversity Net Gain – Specification* builds on and adds to previous UK Good Practice Guidance on Biodiversity Net Gain produced by CIEEM, CIRIA and IEMA.

In addition to habitat creation or enhancement undertaken to achieve biodiversity net gains, the NPPF (and often local policy) also seeks general biodiversity enhancement measures, which often include measures not directly accounted for in the Defra Metric, such as the provision of nest boxes.

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*, Sand Lizard *Lacerta agilis*, Smooth Snake *Coronella austriaca* 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 a key 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 designated under the Ramsar Convention held in Iran in 1971 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, SACs 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 Conservation of Habitats and Species Regulations 2017 (as amended) and the National Planning Policy Framework (NPPF) 2024.

The 'competent authority' determining whether a plan or project should proceed 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 Conservation of Habitats and Species 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 International Site, either alone or in combination with other plans and projects'. This stage of the HRA process is known as 'screening', and 'measures intended to avoid or reduce the harmful effects' of the subject plan or project cannot be taken into account at this stage.

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, to determine if there would be an adverse effect on the integrity of the affected International Site(s). A precautionary approach must be taken with respect to determining whether or not there would be an adverse 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 and no alternative to achieving the objectives of these reasons that are less harmful to the International Site(s), 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 International Site. 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 guidance¹ 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.

Depending on which entity is responsible for authorising a plan or project, competent authorities can include (but are not limited to) local planning authorities, planning committees, the Secretary of State and statutory agencies such as Natural England and the Environment Agency.

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).

¹ <https://www.gov.uk/guidance/duty-to-protect-protect-restore-european-sites>

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. Natural England are responsible for assessing the condition of these areas and agreeing management plans for their conservation.

Public bodies have a duty to take reasonable steps to conserve and enhance the special features of sites of special scientific interest (SSSIs) when carrying out their statutory duties and giving others permission for works, such as reviewing planning applications.

Natural England has produced, for every SSSI in England, a list of 'Operations Requiring Natural England's Consent' (ORNECs). Activities listed as ORNECs cannot be carried out within the relevant SSSI unless Natural England has issued their written assent to the activity taking place.

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.

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. Guidance for selecting and designating such sites have been produced by Defra. These sites are not legally protected but are given some protection through the planning system. These sites may be declared as 'County Wildlife Sites' (CWSs), 'Sites of Importance for Nature Conservation' (SINCs), or 'Sites of Nature Conservation Importance' (SNCIs) in local 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 and related guidance.

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 (S41) of the NERC Act 2006. Although these habitats are not legally protected, the NPPF, Government Circular 06/05, good practice guidance, the NERC Act 2006 and the Environment Act 2021 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 classed as 'important' under the criteria set out by the Regulations 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 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 Levelling Up, Housing and Communities.

Ancient Woodland & Veteran Trees

Ancient woodlands are defined in England as areas continuously wooded since at least 1600 AD (although certain open areas such as rides and glades within woodlands are also considered part of a woodland and brief periods of tree cover removal will not remove ancient woodland status). 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. For this reason, Natural England's Provisional Ancient Woodland Inventory (PAWI) draws a distinction between Ancient and Semi Natural Woodland (ASNW) and 'Plantation on an Ancient Woodland Site' (PAWS). The inventory also lists ancient pasture woodland.

Ancient woodland is not a statutory designation and does not provide legal protection, but local authorities are directed 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 irreplaceable habitats such as 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 at: <https://www.gov.uk/guidance/ancient-woodland-ancient-trees-and-veteran-trees-advice-for-making-planning-decisions>

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 (as amended)

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 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. Impact avoidance and/or mitigation measures may be required to address any predicted impacts upon protected species and may

necessitate a the obtaining of 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 native in the UK, seven of which are Species of Principal Importance in England under S41 of the NERC Act 2006. 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 Conservation of Habitats and Species 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 Conservation of Habitats and Species 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.

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 Conservation of Habitats and Species 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.

European Otter

The European Otter *Lutra lutra* 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 Conservation of Habitats and Species Regulations 2017 (as amended). Collectively, this legislation makes it an offence to:

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

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

Eurasian Beaver

The Eurasian Beaver *Castor fiber* is a European Protected Species under Schedule 2 of the Conservation of Habitats and Species Regulations 2017 (as amended). As a result of this protection, it is considered an offence to:

- Deliberately disturb a Beaver - this includes any action likely to impair their ability to survive, breed or rear their young
- Deliberately injure, capture or kill a Beaver;
- Damage or destroy the breeding site or resting place of a Beaver;
- Possess, control or transport a Beaver; and
- [offer to] Sell or exchange Beavers.

This applies whether the Beaver is alive or dead and includes Beaver parts and derivatives.

Development proposals affecting the Eurasian Beaver require a European Protected Species licence from Natural England.

The Wildlife and Countryside Act 1981 (as amended) also prohibits the release of Beavers into the wild unless under licence, and makes it an offence to use any trap or snare for the purpose of killing, taking, restraining or injuring Beavers.

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.

The Smooth Snake *Coronella austriaca* and the Sand Lizard *Lacerta agilis* are the rarest reptile species in Britain. In addition to the protection that is afforded to the widespread species of reptile listed above, these species are protected further under Schedule 5 (Sections 9.4b and 9.4c) of the Wildlife and Countryside Act 1981 (as amended). They are also European Protected Species protected under the Conservation of Habitats and Species Regulations 2017 (as amended). This legislation makes it an offence to:

- Intentionally or deliberately kill, injure or capture Sand Lizards or Smooth Snakes;
- Intentionally, deliberately or recklessly disturb Sand Lizards or Smooth Snakes in such a way as to be likely to significantly affect the ability of any significant group of Sand Lizards or Smooth Snakes to survive, breed, or rear or nurture their young or the local distribution or abundance of either species;

- Intentionally or recklessly damage, destroy or obstruct any place used by Sand Lizards or Smooth Snakes for shelter or protection, or intentionally or recklessly disturb a Sand Lizard or Smooth Snake whilst it is occupying such a place;
- Damage or destroy a breeding site or resting place of a Sand Lizard or Smooth Snake;
- Keep, sell, or exchange Sand Lizards or Smooth Snakes or their eggs; and
- Deliberately take or destroy their eggs.

Development proposals affecting Smooth Snake or Sand Lizard require a European Protected Species mitigation licence from Natural England.

Water Vole

The Water Vole *Arvicola terrestris* is a NERC Act 2006 S41 Species of Principal Importance in England. The legal protection for Water Voles was increased in 2008 to fully cover the species under Section 5 of the Wildlife and Countryside Act 1981 (as amended). The legislation makes it an offence to:

- Intentionally or deliberately (but not recklessly) kill, injure or take Water Voles;
- Intentionally, deliberately or recklessly damage, destroy or obstruct access to any structure or place used by Water Voles for shelter or protection;
- Intentionally, deliberately or recklessly disturb Water Voles whilst they occupy a structure or place used for that purpose;
- Sell Water Voles or offer or expose for sale or transport for sale; and
- Possess or control live or dead Water Voles or derivatives.

Developers who wish to maintain, build on or alter areas used by Water Voles must ensure that unnecessary damage is avoided and all reasonable steps are taken to minimise impacts on Water Voles and their burrows. The Wildlife and Countryside Act provides a defence against the offences listed above, provided the action is the incidental result of an otherwise lawful operation and could not reasonably have been avoided.

A licence to displace Water Voles must be obtained from Natural England before conducting any activities involving displacement operations (this is different to a conservation licence, which is required for survey methods that involve disturbing Water Voles or their burrows, or capturing them). To obtain a displacement licence, it is necessary to demonstrate that the activity/activities will result in a conservation benefit for Water Voles.

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 (as amended in Scotland) 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.

White-Clawed Crayfish

The White-Clawed Crayfish *Austropotamobius pallipes* is a NERC Act S41 Species of Principal Importance in England. Outside designated sites (e.g. SACs), the White-Clawed Crayfish receives limited protection under Schedule 5 (Sections 9.1, 9.5a and 9.5b) of the Wildlife and Countryside Act 1981 (as amended), the Conservation of Habitats and Species Regulations 2017 (as amended) and the Salmon and Freshwater Fisheries Act 1975. This legislation does not provide strict protection of individual crayfish or their habitats but it does prevent prohibit the capture of this species without a licence. A conservation licence must therefore be obtained from Natural England before conducting any mitigation involving the capture and handling of this species.

European Eel

The Eels Regulations 2009 (as amended in 2011) aim to combat the population decline of the European eel *Anguilla anguilla* through protection of migration routes and controls on the numbers of eels allowed to be taken. In order to protect migration routes, any structures which may prevent upstream or downstream migration of eels must be reported to the Environment Agency. Eel passages must be constructed where needed and maintained in a good condition.

Freshwater Fish

The Salmon and Freshwater Fisheries Act 1975 protects freshwater fish, particularly salmon and trout. It prevents the destruction of spawning grounds and the obstruction of migratory passages through the building of weirs, dams etc.

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 development scenarios are discussed below.

European Protected Species Mitigation Licences

A European Protected Species mitigation licence (EPSML) 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 Conservation of Habitats and Species Regulations 2017 (as amended); including *inter alia* all species of bats, Hazel Dormouse, Great Crested Newt, Sand Lizard, Smooth Snake, European Otter and Eurasian Beaver. 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.

Other Protected Species Mitigation Licences

Natural England can issue mitigation licences for reasons of “overriding public interest” in respect of animal and plant species listed on Schedules 5, 6 and 8 of the Wildlife and Countryside Act 1981 (as amended), excluding birds and European Protected Species (as these have separate licensing systems). In the context of development, the most relevant species are likely to include Adder, Grass Snake, Common Lizard, Slow-worm and several species of plant.

Applicants must demonstrate that the licence is for the purpose of overriding public interest, and also that there are “no other satisfactory solutions”. In practice, therefore, this type of licence is likely to be difficult to obtain for most types of development.

Conservation Licences

In the context of development, conservation licences are normally only relevant to mitigation involving the capture of Water Voles or White-Clawed Crayfish. Conservation licences are granted to permit the trapping and translocation of these species on the condition that the development activity is properly planned and executed and thereby contributes to the conservation of the population of the species.

Badger Licences

Licences to disturb Badgers and their setts in respect of development (including closure of setts if required) 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 (INNS)

There are a number of species not ordinarily resident in the UK, such as Japanese Knotweed, Himalayan Balsam and others. 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 land owner, once they are aware that it is present, and the species is allowed to spread into adjoining areas, then this could potentially constitute an offence.

Further guidance on INNS can be found on the website of the GB Non Native Species Secretariat: <https://www.nonnativespecies.org/>

Japanese Knotweed is 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.

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 2024

The National Planning Policy Framework (NPPF) 2024 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 195).

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 and incorporating features which support priority or threatened species such as swifts, bats and hedgehogs;
- 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 incorporate biodiversity improvements in and around developments should be encouraged, especially where this can secure measurable net gains for biodiversity.

In the case of SSSIs and irreplaceable habitats, exceptions may be made if it can be 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.

Section 15 includes the following text on air quality:

- Planning policies and decisions should sustain and contribute towards compliance with relevant limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and Clean Air Zones, and the cumulative impacts from individual sites in local areas;
- Opportunities to improve air quality or mitigate impacts should be identified, such as through traffic and travel management, and green infrastructure provision and enhancement. So far as possible these opportunities should be considered at the plan-making stage, to ensure a strategic approach and limit the need for issues to be reconsidered when determining individual applications; and
- Planning decisions should ensure that any new development in Air Quality Management Areas and Clean Air Zones is consistent with the local air quality action plan.

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.

Planning Practice Guidance

Revised and updated Planning Practice Guidance (PPG) was launched by the Department for Communities and Local Government (now the Department for Levelling Up, Housing and Communities) 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.

Regional Level

Regional plans (such as the South East Plan Regional Spatial Strategy) have been revoked, but some specific policies have been saved. The only policy saved from the South East Plan is Policy NRM6, which relates to the Thames Basin Heaths Special Protection Area (TBH SPA).

Local Level

Policy CS11 of the Havant Borough Core Strategy (2011) sets out a series of principles for the protection of the 'special environment' and heritage of the borough. In relation to nature conservation, it promotes development that:

- *Protects and where possible enhances the borough's statutory and non-statutory designated landscape, habitats and features of biological, hydrological or geological interest. Protection and enhancement will be achieved by appropriate adaptation and mitigation measures including wardening, education and information and the creation of new habitats, water bodies/courses planting of new trees and woodland.*
Has particular regard to the following hierarchy of nature conservation designations within the borough (as identified on the Proposals Map): (i) Special Protection Areas (SPA), Special Areas of Conservation (SAC) and Ramsar [International](ii) Sites of Special Scientific Interest (SSSI) and National Nature Reserves [National]. (iii) Sites of Importance for Nature Conservation (SINC), Local Nature Reserves (LNR), other Ancient Woodland not identified in (ii) above [Local].
- *Supports an ongoing programme of survey of habitats and species and designation of Sites of Importance for Nature Conservation.*
- *Incorporates partnership working with conservation organisations to improve public understanding of biodiversity and to manage public access to designated sites, particularly on the coast, to reduce harm to nature conservation interests.*
- *Incorporates partnership working with landowners and developers to ensure land management practices restore, enhance and where appropriate create new valued landscapes, habitats and their soil structure, particularly the ancient woodland remnants of the Forest of Bere and coastal salt marsh.*
- *Protects wildlife habitats and wildlife corridors to prevent the fragmentation of existing habitats and to allow species, for example Brent Geese, to respond to the impacts of climate change by making provision for habitat adaptation e.g. coastal managed realignment and species migration.*
- *Responds to the emerging evidence from the Solent Disturbance and Mitigation Project, the published recommendations, and future related research.*

Policy DM23 of the Havant Borough Local Plan (Allocations) sets out the approach to the protection of Brent Geese and/or waders outside of statutory designated areas:

Planning permission will be granted for developments that avoid important sites for Brent Geese and/or waders outside of the statutory designated areas, identified on the Policies Map.

Where this cannot be avoided, development proposals on or adjacent to an important Brent Goose and/or wader site outside of the statutory designated areas will need to demonstrate levels of impact, alone and in combination with other proposals subject to the tests of the Habitats Regulations. Where a negative impact upon a site cannot be avoided or satisfactorily mitigated, and the tests of the Habitats Regulations are met as necessary, replacement feeding/roosting habitat, on a no net loss basis, will be sought.

Where a negative impact upon an important site cannot be avoided or mitigated and replacement feeding/roosting habitat is not or cannot be provided on a no net loss basis, the proposal will be refused.

Planning permission will be granted for development on or adjacent to uncertain sites for Brent Geese and/or waders outside of the statutory designated areas, where appropriate surveys are undertaken and it is determined that the site has no importance.

Policy DM24 sets out the approach to recreational effects upon Special Protection Areas:

Planning permission will be granted for residential developments that avoid or mitigate a likely significant effect on the SPAs, caused by recreational disturbance through the incombination effect of net additional dwellings. This mitigation can be provided through:

a) A financial contribution.

b) A developer provided package of measures associated with the proposed development designed to avoid or mitigate any significant effect on the SPAs subject to meeting the tests of the Habitats Regulations.

c) A combination of measures in (a) and (b) above. Where these measures cannot be provided development proposals will be refused, unless the applicant can show, subject to meeting the tests of the Habitats Regulations, that there would not be an adverse effect on the integrity of the SPAs.

The provisions of this policy do not exclude the possibility that some residential schemes, due to their size/and or location, may require individual assessment under the Habitats Regulations on advice from Natural England and additional site specific avoidance or mitigation measures.

A number of relevant draft policies are included in the emerging Havant Borough Local Plan:

- Draft Policy 19 sets out the proposed approach to the achievement of BNG through the planning system;
- Draft Policy 20 sets out the proposed approach to internationally and nationally designated conservation sites;
- Draft Policy 21 sets out the proposed approach to locally designated sites and other important components of the local ecological network;
- Draft Policy 22 sets out the proposed approach to the avoidance of recreational effects on Special Protection Areas;
- Draft Policy 23 sets out the proposed approach to the avoidance of water quality effects on internationally designated sites;
- Draft Policy 24 sets out the proposed approach to the protection of protected and notable species, with particular reference to Bechstein's Bat;
- Draft Policy 25 sets out the proposed approach to Solent Wader and Brent Goose Strategy Sites.

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

The Government’s Environmental Improvement Plan 2023 is the first revision of the 25 Year Environment Plan published in 2018. It sets out ten goals aimed at restoring nature – of which the ‘apex goal’ is to halt the decline of biodiversity. The EIP 2023 includes targets and commitments to:

- Halt the decline in species abundance by 2030;
- Restore or create more than 140,000 hectares of wildlife-rich habitat outside protected sites by 2028;
- Improve the Red List Index for England by 2042;
- Achieve favourable condition for 48% of designated features in Marine Protected Areas by 2028;
- Complete update condition assessments for all SSSIs by 2028;
- Increase tree canopy and woodland cover by 0.26% by 2028;
- Reduce water pollution from agricultural nitrogen, phosphorus and sediments by at least 40% by 2038; and
- Reduce phosphorus loadings from treated wastewater by 80% by 2038.

Other targets have been set in relation to, water demand, residual waste, air quality, and. pollution from abandoned metal mines and agriculture.

The *UK Biodiversity Action Plan 2007* (UK BAP) has been superseded by the *UK Post-2010 Biodiversity Framework* 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.

Progress towards the National biodiversity targets are measured by the UK's Joint Nature Conservation Committee (JNCC) through a suite of biodiversity 'indicators', with annual reports published here: <https://jncc.gov.uk/our-work/uk-biodiversity-indicators/>

Blueprint for Halting and Reversing Biodiversity Loss: the UK's National Biodiversity Strategy and Action Plan for 2030

At the meeting of the Conference of the Parties to the Convention on Biological Diversity (CBD) in Montreal in 2022, 196 countries agreed the Kunming-Montreal Global Biodiversity Framework (GBF). This framework, an ambitious set of four goals and 23 targets to halt and reverse biodiversity loss by 2030, sets out the shared pathway towards the vision of a world living in harmony with nature by 2050. The Blueprint for Halting and Reversing Biodiversity Loss: The UK's National Biodiversity Strategy and Action Plan for 2030 (NBSAP 2030) sets out how the UK will implement each of the targets set by the GBF in the UK.

Approach to implementing the GBF in the UK and the UK Overseas Territories and Crown Dependencies (UKOTs and CDs)

Environmental policy is a devolved function in the UK, subject to a small number of reserved areas. This means that the four countries can implement the 23 targets of the GBF in a manner that suits their individual circumstances. However, all share the following priorities as described in the UK Biodiversity Framework (UKBF):

- Protecting and restoring nature;
- Sustainable use and resource management; and
- Mainstreaming and finance.

The UK-specific targets are set out in Annex A of the NBSAP 2030. These include ensuring that:

- At least 30% of degraded ecosystems are under effective restoration by 2030 (Target 2);
- At least 30% of inland, marine and coastal waters are under effective conservation and management by 2030 (Target 3);
- Urgent management actions are implemented to halt human-induced extinction of threatened species (Target 4);
- The impacts of invasive alien species are reduced by 2030 (Target 6);
- Risks and negative impacts of pollution from all sources are reduced by 2023 (Target 7);
- Area, quality, connectivity and access to green and blue space is significantly and sustainably increased through biodiversity-inclusive urban planning (Target 12); and
- Full integration of biodiversity and its multiple values into policies, regulations, planning and development processes, poverty eradication strategies, strategic environmental assessments, environmental impact assessments and, as appropriate, national accounting (Target 14).

These targets were submitted to the Convention on Biological Diversity in August 2024. Progress towards targets will be monitored via a set of UK Biodiversity Indicators and reported on via an online tool, <https://ort.cbd.int/national-targets?countries=gb>.

Local level

Havant Borough Council Biodiversity Strategy (2025)

The Havant Borough Council Biodiversity Strategy provides an overview of the borough's biodiversity and ecological network, and identifies opportunities for the enhancement of priority habitat types.

Biodiversity Opportunity Areas (BOAs)

Local Nature partnerships have in most areas of England now identified BOAs and produced documentation setting out the existing features of ecological importance within those areas, and a state of how opportunities to enhance biodiversity could be actioned. These provide a useful starting point when considering how individual planning applications might best go about contributing toward enhancements to the natural environment.

Local Nature Recovery Strategies (LNRSs)

In pursuance of obligations under the Environment Act 2021, the Secretary of State for the Environment, Food and Rural Affairs identified 48 'strategy areas' that collectively cover the whole of England, and appointed a 'responsible authority' to produce an LNRS for each strategy area. An LNRS must contain a habitat map for the area and a statement of biodiversity priorities to include a description of the opportunities that are available for recovering or enhancing biodiversity.

When complete, the Hampshire LNRS will effectively supersede some earlier documents including local BAPs. The Defra Biodiversity Metric utilises multipliers to disincentivise development that causes the loss of habitats that are considered to be priorities under an LNRS for the area, and reward proposals that create or enhance them.

Annex 2

Data Tables

Table A2.1: Hibernation Survey Automated Sampling Metadata

Date	Max temp / °C	Min temp / °C
25/01/2023	6	0
26/01/2023	7	2
27/01/2023	7	1
28/01/2023	6	1
29/01/2023	9	4
30/01/2023	9	1
31/01/2023	11	3
01/02/2023	10	4
02/02/2023	11	7
03/02/2023	12	8
04/02/2023	9	7
05/02/2023	8	1
06/02/2023	9	1
07/02/2023	8	-1
08/02/2023	8	-3
09/02/2023	9	-1
10/02/2023	9	-2
11/02/2023	10	7
12/02/2023	8	6
13/02/2023	9	3
14/02/2023	12	0
15/02/2023	12	4
16/02/2023	11	8
17/02/2023	12	10
18/02/2023	13	9
19/02/2023	13	6
20/02/2023	12	6
21/02/2023	9	5
22/02/2023	10	4.5
23/02/2023	9.5	3.5
24/02/2023	10	-1
25/02/2023	7	2

26/02/2023	8	0
27/02/2023	8	-2.5
28/02/2023	8	-1.5
01/03/2023	7	4
02/03/2023	8.5	0.5
03/03/2023	6.5	3
04/03/2023	6	3
05/03/2023	5	2
06/03/2023	9	1
07/03/2023	6	1

Table A2.2: Automated Bat Survey Metadata

Date	Max temp / °C	Min temp / °C	Max windspeed	Rain
24/04/23	12	4	12	Yes
25/04/23	12	2	9	No
26/04/23	12	6	10	No
27/04/23	13	10	13	Yes
28/04/23	19	12	12	No
25/05/23	20	10	10	No
26/05/23	20	8	12	No
27/05/23	21	8	9	No
28/05/23	22	11	13	No
29/05/23	19	9	16	No
20/06/23	23	17	10	No
21/06/23	22	16	13	No
22/06/23	27	15	10	No
23/06/23	25	13	14	No
24/06/23	26	16	9	No
12/07/23	19	13	16	No
13/07/23	19	12	14	Yes
14/07/23	20	15	18	No
15/07/23	19	11	26	Yes
16/07/23	21	14	21	No
09/08/23	23	16	10	No
10/08/23	23	12	10	No
11/08/23	26	18	15	No
12/08/23	20	16	18	Yes
13/08/23	20	15	16	No

06/09/23	21	17	6	Yes
07/09/23	29	14	7	No
08/09/23	29	18	7	No
09/09/23	29	14	10	No
10/09/23	30	15	9	No
04/10/23	18	10	6	Yes
05/10/23	18	12	6	No
06/10/23	20	10	12	No
07/10/23	23	14	8	No
08/10/23	23	7	6	No

Table A2.3: Woodland Species Lists (DAFOR)

Species	Common Name	WL1	WL2	WL3
<i>Acer campestre</i>	Maple		O	O
<i>Acer pseudoplatanus</i>	Sycamore	O		LF
<i>Aesculus hippocastanum</i>	Horse Chestnut		O	
<i>Alliaria petiolata</i>	Wild Garlic	A		
<i>Alnus glutinosa</i>	Alder			O
<i>Anthriscus sylvestris</i>	Cow Parsley	A		F
<i>Arctium</i> sp.	Burdock sp.	R		R
<i>Arum maculatum</i>	Lords and Ladies	R	O	O
<i>Betula pendula</i>	Silver Birch	F		
<i>Carex remota</i>	Remote Sedge		R	
<i>Crataegus monogyna</i>	Hawthorn	O		LF
<i>Dactylis glomerata</i>	Cocksfoot	O	O	F
<i>Dryopteris affinis</i> agg.	Scaly Male-fern		R	
<i>Fagus sylvatica</i>	Beech		A	
<i>Festuca rubra</i>	Red Fescue			
<i>Ficaria verna</i>	Lesser Celandine	O		O
<i>Fraxinus excelsior</i>	Ash	A	R	R
<i>Galium aparine</i>	Cleavers	F	A	F
<i>Geranium robertianum</i>	Herb Robert		O	O
<i>Geum urbanum</i>	Wood Avens	O		O
<i>Glyceria fluitans</i>	Floating Sweet-grass			R
<i>Hedera helix</i>	Ivy	A	F	F
<i>Heracleum sphondylium</i>	Hogweed	O		
<i>Hyacinthoides non-scripta</i>	Bluebell		F	R
<i>Ilex aquifolium</i>	Holly		O	O
<i>Jacobaea vulgaris</i>	Ragwort			R
<i>Lamium album</i>	White Dead-nettle	R		R
<i>Prunus avium</i>	Wild Cherry		R	
<i>Prunus laurocerasus</i>	Cherry Laurel		LF	

<i>Pteridium aquilinum</i>	Bracken		R	
<i>Quercus ilex</i>	Holm Oak		R	
<i>Quercus robur</i>	Pedunculate Oak	O	O	A
<i>Ranunculus repens</i>	Creeping Buttercup	O		O
<i>Rhododendron ponticum</i>	Rhododendron		LF	
<i>Rubus fruticosus</i> agg.	Blackberry	F	F	LA
<i>Rumex acetosa</i>	Common Sorrel			O
<i>Rumex obtusifolius</i>	Broad-leaved Dock	O		O
<i>Rumex sanguineus</i>	Wood Dock	O		
<i>Ruscus aculeatus</i>	Butcher's-broom		F	
<i>Sambucus nigra</i>	Elder	O	R	R
<i>Stachys sylvatica</i>	Hedge Woundwort		O	
<i>Symphoricarpos albus</i>	Snowberry		O	
<i>Tamus communis</i>	Black Bryony		R	
<i>Taraxacum</i> sp.	Dandelion	O		
<i>Taxus baccata</i>	Yew		R	
<i>Ulmus glabra</i>	Wych elm		O	
<i>Urtica dioica</i>	Stinging Nettle	D	F	LF
<i>Veronica hederifolia</i> subsp. <i>hederifolia</i>	Ivy-leaved Speedwell	F	F	O
Totals		25	29	27

Table A2.4: Grassland Species Lists (DAFOR)

Species	Common Name	GL1	GL1a	GL2	GL2a	GL3	GL4	GL5
<i>Agrostis capillaris</i>	Common Bent			F	F	F	A	A
<i>Alopecurus pratensis</i>	Meadow Foxtail	O				LD	F	R
<i>Anisantha sterilis</i>	Barren Brome	LA						
<i>Anthoxanthum odoratum</i>	Sweet Vernal Grass			O	O	F	LO	
<i>Anthriscus sylvestris</i>	Cow Parsley	O						
<i>Aphanes australis</i>	Slender Parsley Pieri				R			
<i>Arctium</i> sp.	Burdock sp.			R				
<i>Arrhenatherum elatius</i>	False Oat-grass	O	O					
<i>Bellis perennis</i>	Daisy		R	A	A		O	O
<i>Betula pendula</i>	Silver Birch					R		
<i>Brachypodium sylvaticum</i>	False Woodbrome	O						
<i>Bromus hordeaceus</i>	Soft Brome	R	F			O		
<i>Calliergonella cuspidata</i>	Moss						O	O
<i>Carex hirta</i>	Hairy Sedge					LF		
<i>Carex nigra</i>	Common Sedge	R	F					
<i>Carex pendula</i>	Pendulous Sedge	R	R					
<i>Carex remota</i>	Remote Sedge	R	O					
<i>Carex riparia</i>	Greater Pond Sedge	O	F					
<i>Centaurea nigra</i>	Black Knapweed			F	O	O		
<i>Cerastium fontanum</i>	Common Mouse-ear	R	O	F	F		F	O
<i>Cerastium glomeratum</i>	Sticky Mouse-ear			O	O		F	O
<i>Cirsium arvense</i>	Creeping Thistle	R		O	O	O	R	R
<i>Crepis vesicaria</i>	Beaked Hawk's-beard	R						
<i>Dactylis glomerata</i>	Cocksfoot	LF		O	O	A		
<i>Ervilla hirsuta</i>	Hairy Tare	F	O					
<i>Eupatorium cannabinum</i>	Hemp-agrimony	R			R			

<i>Festuca rubra</i>	Red Fescue			F	F	A	O	F
<i>Fraxinus excelsior</i>	Ash					R		
<i>Galium aparine</i>	Cleavers			LA	LA	LF		
<i>Geranium dissectum</i>	Cut-leaved Crane's-bill	F	F	A	A	O	R	
<i>Geranium molle</i>	Dovesfoot Cranesbill			R	R			
<i>Heracleum sphondylium</i>	Hogweed	R		LF	LF			
<i>Holcus lanatus</i>	Meadow Soft-grass	A	A	F	F	A		O
<i>Hyacinthoides non-scripta</i>	Bluebell	R				R		
<i>Hypochaeris radicata</i>	Cat's-ear	R		A	A	O	F	F
<i>Jacobaea vulgaris</i>	Ragwort	R	O	R	R	O	R	R
<i>Juncus effusus</i>	Soft Rush	R	A					
<i>Juncus inflexus</i>	Hard Rush	O	F					
<i>Lolium perenne</i>	Perennial Rye-grass						O	O
<i>Lotus pedunculatus</i>	Greater Bird's-foot Trefoil					R		
<i>Luzula campestris</i>	Field Woodrush	R		O	F	O		
<i>Malva moschata</i>	Musk Mallow			R	R			
<i>Montia fontana</i>	Blinks						O	O
<i>Myosotis discolor</i>	Changing Forget-me-not			R	F			
<i>Pilosella officinarum</i>	Mouse-eared Hawkweed				R			
<i>Plantago lanceolata</i>	Ribwort Plantain			A	A	F	F	F
<i>Plantago major</i>	Greater Plantain						R	LF
<i>Poa annua</i>	Annual Meadow-grass			R	R		A	F
<i>Poa trivialis</i>	Rough-stalked Meadow-g.					F	F	
<i>Potentilla reptans</i>	Creeping Cinquefoil	R				R		
<i>Prunella vulgaris</i>	Selfheal			R	R		O	
<i>Prunus spinosa</i>	Sloe			R	LA			
<i>Pulicaria dysenterica</i>	Fleabane	F	F			LF	R	
<i>Quercus robur</i>	Pedunculate Oak					R		
<i>Ranunculus acris</i>	Meadow Buttercup	O		R	R	O	O	F
<i>Ranunculus bulbosus</i>	Bulbous Buttercup			R	A	O		
<i>Ranunculus repens</i>	Creeping Buttercup	O	F			LF	LO	LF
<i>Rhytidiadelphus squarrosus</i>	Springy Turf-moss						F	F
<i>Rubus fruticosus agg.</i>	Blackberry	R		LA	O			
<i>Rumex acetosa</i>	Common Sorrel					R		
<i>Rumex acetosella</i>	Sheeps Sorrel			R	A			
<i>Rumex conglomeratus</i>	Clustered Dock	A	O					
<i>Rumex crispus</i>	Curled Dock	R	R	R	LO			
<i>Rumex obtusifolius</i>	Broad-leaved Dock	O	O	LF	LF	LF	LF	LF
<i>Sagina procumbens</i>	Mossy Pearlwort						R	LO
<i>Stellaria graminea</i>	Lesser Stitchwort			R	R	LF		
<i>Taraxacum sp.</i>	Dandelion	O	O	O	O		O	O
<i>Tragopogon pratensis</i>	Goat's-beard	R						
<i>Trifolium dubium</i>	Lesser Trefoil			A	A		F	F
<i>Trifolium repens</i>	White Clover	R	R					
<i>Urtica dioica</i>	Stinging Nettle	O		LA	LA	LA		LO
<i>Veronica chamaedrys</i>	Germander Speedwell	O		O	O	A		
<i>Veronica serpyllifolia</i>	Thyme-leaved Speedwell						O	R
<i>Vicia sativa</i>	Common Vetch	O	O		R			
Totals		39	22	35	38	32	28	25

Table A2.5: Automated Bat Sampling Results (total passes per night)

Date	Loc	PP	SP	PP/ SP	NP	LE	M	S	N	L	N/L	N/L /S	Bb	Total
24/04/2023	1													0
25/04/2023	1		1											1
26/04/2023	1	1	5				1							7
27/04/2023	1													0
28/04/2023	1	36	11					29		8	2	2	4	92
Sub-total		37	17	0	0	0	1	29	0	8	2	2	4	100
24/04/2023	2						1							1
25/04/2023	2	23	2											25
26/04/2023	2	187	56											243
27/04/2023	2	29	21				3							53
28/04/2023	2	2057	579		5	6	1135	4	1		3	2	7	3799
Sub-total		2296	658	0	5	6	1139	4	1	0	3	2	7	4121
24/04/2023	3													0
25/04/2023	3		1											1
26/04/2023	3	2												2
27/04/2023	3													0
28/04/2023	3	4												4
Sub-total		6	1	0	0	0	0	1	0	0	0	1	0	10
24/04/2023	4													0
25/04/2023	4													0
26/04/2023	4								1					1
27/04/2023	4													0
28/04/2023	4	27												27
Sub-total		27	0	0	0	0	0	0	1	0	0	0	0	31
Month total		2366	676	0	5	6	1140	34	2	8	5	5	11	4262
25/05/2023	1										1			1
26/05/2023	1		2						1					3
27/05/2023	1										1			1
28/05/2023	1		8				3							11
29/05/2023	1		1											1
Sub-total		0	11	0	0	0	3	0	1	0	2	0	0	17
25/05/2023	2	599	120			1	68	3			1	5	7	804
26/05/2023	2	782	70				33	4					21	910
27/05/2023	2	162	22			8	72	8	1			7	12	292
28/05/2023	2	1298	63			10	28	6	1				15	1421
29/05/2023	2	333	74			4	15	7				1	10	444
Sub-total		3174	349	0	0	23	216	28	2	0	1	13	65	3871
25/05/2023	3	18	8										1	27
26/05/2023	3	9				1								10
27/05/2023	3	6	1							3	1			11
28/05/2023	3	7	17			1			2				2	29

[illegible]

Date	Loc	PP	SP	PP/ SP	NP	LE	M	S	N	L	N/L	N/L /S	Bb	Total
23/07/2023	2	76	71	3		3			4			1	1	159
24/07/2023	2	127	102	2			4	1	2	1	1		3	243
Sub-total		303	299	5	0	3	21	2	6	3	1	3	8	654
12/07/2023	3	32	1			3	1							37
13/07/2023	3	55	10			1								66
14/07/2023	3	3									1			4
15/07/2023	3	8												8
16/07/2023	3	5	2							1		2		10
Sub-total		103	13	0	0	4	1	0	0	1	1	2	0	125
12/07/2023	4	564	22				34	1			1			622
13/07/2023	4	1062	16	4		6			13			4		1105
14/07/2023	4	2334	3									3		2340
15/07/2023	4	5												5
16/07/2023	4	34	78				3		1					116
Sub-total		3999	119	4	0	6	37	1	14	0	1	7	0	4188
Month total		4405	486	9	0	17	63	3	31	4	3	12	8	5041
09/08/2023	1	12	95	1		4	62	1			2			177
10/08/2023	1	49	111	4		40	100					2	5	311
11/08/2023	1	41	97	7		1	8	2		6		1		163
12/08/2023	1	127	166	8		1	38				1		2	343
13/08/2023	1	31	73				8		2	4		3	7	128
Sub-total		260	542	20	0	46	216	3	2	10	3	6	14	1122
09/08/2023	2	109	108	20		7	8	1	5	1		3	1	263
10/08/2023	2	266	188	1			21		6		4	5	3	494
11/08/2023	2	201	276	5			25	1	9		1	5	2	525
12/08/2023	2	274	71	7		1	32	3				1	1	390
13/08/2023	2	158	36	7		2	9		1		1	5		219
Sub-total		1008	679	40	0	10	95	5	21	1	6	19	7	1891
09/08/2023	3	66	19			5	28		10	3		6	28	165
10/08/2023	3	52	27			4	5	1	21		4	22	17	153
11/08/2023	3	31	16			1	5		8		10	1	12	84
12/08/2023	3	3	2			1			1					7
13/08/2023	3	5	6			1	2	3	5			1	3	26
Sub-total		157	70	0	0	12	40	4	45	3	14	30	60	435
09/08/2023	4	59	15			3	22	6	15	1	8	2	22	153
10/08/2023	4	548	76			4	31		27		17	13	24	740
11/08/2023	4	82	56			11	5		13	4	4	1	22	198
12/08/2023	4	12	31				1		4		2		11	61
13/08/2023	4	464	55			5	3		4	15			7	553
Sub-total		1165	233	0	0	23	62	6	63	20	31	16	86	1705
Month total		2590	1524	60	0	91	413	18	131	34	54	71	167	5153
06/09/2023	1	3	278	50		9	12		5		3		3	363
07/09/2023	1	2	296	29		2	1	1	4			1		336

Date	Loc	PP	SP	PP/ SP	NP	LE	M	S	N	L	N/L	N/L /S	Bb	Total
08/09/2023	1	4	358	42	1	2	25	2	1				1	436
09/09/2023	1	6	355	50	2	6	2		2	2			1	426
10/09/2023	1	57	548	177	1	3	19	2	9				15	831
Sub-total		72	1835	348	4	22	59	5	21	2	3	1	20	2392
06/09/2023	2	1174	357	262	1	2	273	2			2	4	7	2084
07/09/2023	2	879	371	300	1	16	114	2	1	3	4	3	6	1700
08/09/2023	2	1255	294	65	1	50	229		2	1	4	3	4	1908
09/09/2023	2	1063	324	98	1	34	187				3	2	6	1718
10/09/2023	2	1297	547	205	2	3	203	3		2	6	2	6	2276
Sub-total		5668	1893	930	6	105	1006	7	3	6	19	14	29	9686
06/09/2023	3	94	51	4		8	31	1	6		11	2	14	222
07/09/2023	3	168	42	3		5	9		3		1	1	7	239
08/09/2023	3	128	15	7		4	5			2		13	5	179
09/09/2023	3	108	29	5		3	17		1			2	6	171
10/09/2023	3	107	10		1	6	6		3	2	19		7	161
Sub-total		605	147	19	1	26	68	1	13	4	31	18	39	972
06/09/2023	4	295	59		1	22	82	1	20	1	19	1	3	504
07/09/2023	4	253	37		1	9	4	3	1	6	4		1	319
08/09/2023	4	245	35			10	16	4		1	3		2	316
09/09/2023	4	44	20		2	7	22	3		4		1	2	105
10/09/2023	4	51	28		1	3	7		2		21		2	115
Sub-total		888	179	0	5	51	131	11	23	12	47	2	10	1359
Month total		7233	4054	1297	16	204	1264	24	60	24	100	35	98	14409
04/10/2023	1	44	169	21		1	6			3			1	245
05/10/2023	1	10	118	7		1	3			1			2	142
06/10/2023	1	8	257	4		3	1					3	1	277
07/10/2023	1	22	194	38		1	1							256
08/10/2023	1													0
Sub-total		84	738	70	0	6	11	0	0	4	0	3	4	920
04/10/2023	2	90	136			4	60					3	8	301
05/10/2023	2	59	183	7		5	26				3	5	6	294
06/10/2023	2	200	165	6		7	17				3		6	404
07/10/2023	2	142	123	6		9	42	2		7	1	1		333
08/10/2023	2	103	93	5	1	2	33		1			2	1	241
Sub-total		594	700	24	1	27	178	2	1	7	7	11	21	1573
04/10/2023	3	2	9			2	1							14
05/10/2023	3		8											8
06/10/2023	3	2									1			3
07/10/2023	3	1	4			3						3		11
08/10/2023	3	1	3			3	1					1		9
Sub-total		6	24	0	0	8	2	0	0	0	1	4	0	45
04/10/2023	4					1			1				6	8
05/10/2023	4	5	6			2	1						2	16

Date	Loc	PP	SP	PP/ SP	NP	LE	M	S	N	L	N/L	N/L /S	Bb	Total
06/10/2023	4	5	16			6	1				1			29
07/10/2023	4	287	23	4		9	6	2	1			3	11	346
08/10/2023	4	67	18			10	2	1	1		1		13	113
Sub-total		364	63	4	0	28	10	3	3	0	2	3	32	512
Month total		1048	1525	98	1	69	201	5	4	11	10	21	57	3050

PP = common pipistrelle; PS = soprano pipistrelle; NP = Nathusius' pipistrelle; LE = long-eared sp. bat; M = Myotis sp. bat; S = serotine; N = noctule; L = Leisler's bat; Bb = barbastelle.

Table A2.6: Invertebrate Survey Species List

Species	Family	Order	Conservation status
Agelena labyrinthica	Agelenidae	Araneae	Common
Amaurobius fenestralis	Amaurobiidae	Araneae	Common
Amaurobius similis	Amaurobiidae	Araneae	Common
Anyphaena accentuata	Anyphaenidae	Araneae	Common
Araneus diadematus	Araneidae	Araneae	Common
Araniella cucurbitina <i>sensu stricto</i>	Araneidae	Araneae	Common
Gibbaranea gibbosa	Araneidae	Araneae	Common
Mangora acalypha	Araneidae	Araneae	Common
Nuctenea umbratica	Araneidae	Araneae	Common
Zilla diodia	Araneidae	Araneae	Locally common
Clubiona compta	Clubionidae	Araneae	Common
Clubiona lutescens	Clubionidae	Araneae	Common
Dictyna arundinacea	Dictynidae	Araneae	Common
Dictyna uncinata	Dictynidae	Araneae	Common
Harpactea hombergi	Dysderidae	Araneae	Common
Bathypantes gracilis	Linyphiidae	Araneae	Common
Erigone atra	Linyphiidae	Araneae	Common
Gonatium rubens	Linyphiidae	Araneae	Common
Neriere peltata	Linyphiidae	Araneae	Common
Pardosa pullata	Lycosidae	Araneae	Common
Pardosa saltans	Lycosidae	Araneae	Common
Trochosa terricola	Lycosidae	Araneae	Common
Philodromus albidus	Philodromidae	Araneae	Common
Philodromus dispar	Philodromidae	Araneae	Common
Pholcus phalangioides	Pholcidae	Araneae	Common
Pisaura mirabilis	Pisauridae	Araneae	Common
Heliophanus flavipes	Salticidae	Araneae	Common
Salticus scenicus	Salticidae	Araneae	Common
Metellina segmentata	Tetragnathidae	Araneae	Common
Pachygnatha degeeri	Tetragnathidae	Araneae	Common
Tetragnatha extensa	Tetragnathidae	Araneae	Common
Tetragnatha montana	Tetragnathidae	Araneae	Common
Paidiscura pallens	Theridiidae	Araneae	Common

Species	Family	Order	Conservation status
Anelosimus vittatus	Theridiidae	Araneae	Common
Platnickina tincta	Theridiidae	Araneae	Common
Xysticus cristatus	Thomisidae	Araneae	Common
Zora spinimana	Zoridae	Araneae	Common
Protapion fulvipes	Apionidae	Coleoptera	Common
Agrilus laticornis	Buprestidae	Coleoptera	Locally common
Byturus tomentosus	Byturidae	Coleoptera	Common
Cantharis nigricans	Cantharidae	Coleoptera	Common
Malthinus seriepunctatus	Cantharidae	Coleoptera	Common
Malthodes marginatus	Cantharidae	Coleoptera	Common
Malthodes minimus	Cantharidae	Coleoptera	Common
Rhagonycha fulva	Cantharidae	Coleoptera	Common
Rhagonycha lignosa	Cantharidae	Coleoptera	Common
Abax parallelepipedus	Carabidae	Coleoptera	Common
Bembidion lampros	Carabidae	Coleoptera	Common
Calodromius spilotus	Carabidae	Coleoptera	Common
Dromius quadrimaculatus	Carabidae	Coleoptera	Common
Nebria brevicollis	Carabidae	Coleoptera	Common
Pterostichus madidus	Carabidae	Coleoptera	Common
Clytus arietis	Cerambycidae	Coleoptera	Common
Grammoptera ruficornis	Cerambycidae	Coleoptera	Common
Rutpela maculata	Cerambycidae	Coleoptera	Common
Crepidodera aurata	Chrysomelidae	Coleoptera	Common
Crepidodera aurea	Chrysomelidae	Coleoptera	Common
Cryptocephalus pusillus	Chrysomelidae	Coleoptera	Common
Psylliodes affinis	Chrysomelidae	Coleoptera	Common
Cis boleti	Ciidae	Coleoptera	Common
Calvia quattuordecimguttata	Coccinellidae	Coleoptera	Common
Coccinella septempunctata	Coccinellidae	Coleoptera	Common
Exochomus quadripustulatus	Coccinellidae	Coleoptera	Common
Halyzia sedecimguttata	Coccinellidae	Coleoptera	Common
Propylea quattuordecimpunctata	Coccinellidae	Coleoptera	Common
Tytthaspis sedecimpunctata	Coccinellidae	Coleoptera	Common
Anthonomus pedicularius	Curculionidae	Coleoptera	Common
Anthonomus rubi	Curculionidae	Coleoptera	Common
Curculio glandium	Curculionidae	Coleoptera	Common
Curculio venosus	Curculionidae	Coleoptera	Common
Dryocoetes villosus	Curculionidae	Coleoptera	Locally common
Exomias araneiformis	Curculionidae	Coleoptera	Common
Magdalis armigera	Curculionidae	Coleoptera	Common
Mecinus pascuorum	Curculionidae	Coleoptera	Common
Nedys quadrimaculatus	Curculionidae	Coleoptera	Common
Orchestes fagi	Curculionidae	Coleoptera	Common

Species	Family	Order	Conservation status
Phyllobius virideaeris	Curculionidae	Coleoptera	Common
Scolytus intricatus	Curculionidae	Coleoptera	Common
Scolytus multistriatus	Curculionidae	Coleoptera	Common
Scolytus rugulosus	Curculionidae	Coleoptera	Common
Sitona lineatus	Curculionidae	Coleoptera	Common
Strophosoma melanogrammum	Curculionidae	Coleoptera	Common
Dasytes aeratus	Dasytidae	Coleoptera	Common
Agabus bipustulatus	Dytiscidae	Coleoptera	Common
Hydroporus planus	Dytiscidae	Coleoptera	Common
Agriotes acuminatus	Elateridae	Coleoptera	Common
Agriotes pallidulus	Elateridae	Coleoptera	Common
Athous haemorrhoidalis	Elateridae	Coleoptera	Common
Gyrinus substriatus	Gyrinidae	Coleoptera	Common
Helophorus brevipalpis	Helophoridae	Coleoptera	Common
Anacaena globulus	Hydrophilidae	Coleoptera	Common
Brachypterus glaber	Kateretidae	Coleoptera	Common
Cartodere bifasciata	Latridiidae	Coleoptera	Common
Cartodere nodifer	Latridiidae	Coleoptera	Common
Corticarina minuta	Latridiidae	Coleoptera	Common
Corticara gibbosa	Latridiidae	Coleoptera	Common
Dorcus parallelipipedus	Lucanidae	Coleoptera	Common
Cordylepherus viridis	Malachiidae	Coleoptera	Common
Malachius bipustulatus	Malachiidae	Coleoptera	Common
Mycetophagus quadripustulatus	Mycetophagidae	Coleoptera	Common
Epuraea aestiva	Nitidulidae	Coleoptera	Common
Meligethes aeneus	Nitidulidae	Coleoptera	Common
Oedemera lurida	Oedemeridae	Coleoptera	Common
Oedemera nobilis	Oedemeridae	Coleoptera	Common
Anobium punctatum	Ptinidae	Coleoptera	Common
Anobium fulvicorne	Ptinidae	Coleoptera	Locally common
Pyrochroa coccinea	Pyrochroidae	Coleoptera	Locally common
Pyrochroa serraticornis	Pyrochroidae	Coleoptera	Common
Salpingus planirostris	Salpingidae	Coleoptera	Common
Melolontha melolontha	Scarabaeidae	Coleoptera	Common
Anaspis fasciata	Scraptiidae	Coleoptera	Common
Anaspis maculata	Scraptiidae	Coleoptera	Common
Anaspis regimbarti	Scraptiidae	Coleoptera	Common
Anaspis rufilabris	Scraptiidae	Coleoptera	Common
Uleiota planatus	Silvanidae	Coleoptera	Locally common
Anotylus rugosus	Staphylinidae	Coleoptera	Common
Bolitochara bella	Staphylinidae	Coleoptera	Common
Drusilla canaliculata	Staphylinidae	Coleoptera	Common
Gabrius splendidulus	Staphylinidae	Coleoptera	Common

Species	Family	Order	Conservation status
<i>Habrocerus capillaricornis</i>	Staphylinidae	Coleoptera	Common
<i>Bisnius fimetarius</i>	Staphylinidae	Coleoptera	Common
<i>Philonthus decorus</i>	Staphylinidae	Coleoptera	Common
<i>Xantholinus linearis</i>	Staphylinidae	Coleoptera	Common
<i>Bitoma crenata</i>	Zopheridae	Coleoptera	Locally common
<i>Forficula auricularia</i>	Forficulidae	Dermaptera	Common
<i>Phytomyza ilicis</i>	Agromyzidae	Diptera	Common
<i>Pegomya solennis</i>	Anthomyiidae	Diptera	Common
<i>Dilophus febrilis</i>	Bibionidae	Diptera	Common
<i>Calliphora vomitoria</i>	Calliphoridae	Diptera	Common
<i>Dasineura urticae</i>	Cecidomyiidae	Diptera	Common
<i>Medetera truncorum</i>	Dolichopodidae	Diptera	Common
<i>Poecilobothrus nobilitatus</i>	Dolichopodidae	Diptera	Common
<i>Empis livida</i>	Empididae	Diptera	Common
<i>Empis tessellata</i>	Empididae	Diptera	Common
<i>Opomyza germinationis</i>	Opomyzidae	Diptera	Common
<i>Rhagio scolopaceus</i>	Rhagionidae	Diptera	Common
<i>Scathophaga stercoraria</i>	Scathophagidae	Diptera	Common
<i>Beris vallata</i>	Stratiomyidae	Diptera	Common
<i>Chloromyia formosa</i>	Stratiomyidae	Diptera	Common
<i>Pachygaster atra</i>	Stratiomyidae	Diptera	Common
<i>Cheilosia albitarsis</i>	Syrphidae	Diptera	Common
<i>Epistrophe eligans</i>	Syrphidae	Diptera	Common
<i>Episyrphus balteatus</i>	Syrphidae	Diptera	Common
<i>Eristalis pertinax</i>	Syrphidae	Diptera	Common
<i>Helophilus pendulus</i>	Syrphidae	Diptera	Common
<i>Myathropa florea</i>	Syrphidae	Diptera	Common
<i>Platycheirus albimanus</i>	Syrphidae	Diptera	Common
<i>Sphaerophoria scripta</i>	Syrphidae	Diptera	Common
<i>Volucella pellucens</i>	Syrphidae	Diptera	Common
<i>Haematopota pluvialis</i>	Tabanidae	Diptera	Common
<i>Eriothrix rufomaculata</i>	Tachinidae	Diptera	Common
<i>Chaetostomella cylindrica</i>	Tephritidae	Diptera	Common
<i>Nephrotoma appendiculata</i>	Tipulidae	Diptera	Common
<i>Cyphoderus albinus</i>	Cyphoderidae	Entomobryomorpha	Common
<i>Pogonognathellus longicornis</i>	Tomoceridae	Entomobryomorpha	Common
<i>Acanthosoma haemorrhoidale</i>	Acanthosomatidae	Hemiptera	Common
<i>Elasmostethus interstinctus</i>	Acanthosomatidae	Hemiptera	Common
<i>Anthocoris confusus</i>	Anthocoridae	Hemiptera	Common
<i>Anthocoris nemoralis</i>	Anthocoridae	Hemiptera	Common
<i>Anthocoris nemorum</i>	Anthocoridae	Hemiptera	Common
<i>Philaenus spumarius</i>	Aphrophoridae	Hemiptera	Common
<i>Alebra albostriella</i>	Cicadellidae	Hemiptera	Common

Species	Family	Order	Conservation status
Alebra wahlbergi	Cicadellidae	Hemiptera	Common
Allygus mixtus	Cicadellidae	Hemiptera	Common
Iassus lanius	Cicadellidae	Hemiptera	Common
Ribautiana ulmi	Cicadellidae	Hemiptera	Common
Coreus marginatus	Coreidae	Hemiptera	Common
Gerris lacustris	Gerridae	Hemiptera	Common
Drymus sylvaticus	Lygaeidae	Hemiptera	Common
Heterogaster urticae	Lygaeidae	Hemiptera	Common
Kleidocerys resedae	Lygaeidae	Hemiptera	Common
Scolopostethus thomsoni	Lygaeidae	Hemiptera	Common
Closterotomus norwegicus	Miridae	Hemiptera	Common
Deraeocoris ruber	Miridae	Hemiptera	Common
Deraeocoris lutescens	Miridae	Hemiptera	Common
Dryophilocoris flavoquadrinotatus	Miridae	Hemiptera	Common
Harpocera thoracica	Miridae	Hemiptera	Common
Heterotoma planicornis	Miridae	Hemiptera	Common
Lygocoris pabulinus	Miridae	Hemiptera	Common
Miris striatus	Miridae	Hemiptera	Common
Orthotylus marginalis	Miridae	Hemiptera	Common
Phylus coryli	Miridae	Hemiptera	Common
Phylus melanocephalus	Miridae	Hemiptera	Common
Pinalitus cervinus	Miridae	Hemiptera	Common
Plagiognathus arbustorum	Miridae	Hemiptera	Common
Plagiognathus chrysanthemi	Miridae	Hemiptera	Common
Psallus perrisi	Miridae	Hemiptera	Common
Psallus varians	Miridae	Hemiptera	Common
Rhabdomiris striatellus	Miridae	Hemiptera	Common
Stenotus binotatus	Miridae	Hemiptera	Common
Himacerus apterus	Nabidae	Hemiptera	Common
Notonecta glauca	Notonectidae	Hemiptera	Common
Eurydema oleracea	Pentatomidae	Hemiptera	Common
Pentatoma rufipes	Pentatomidae	Hemiptera	Common
Trioza urticae	Trioziidae	Hemiptera	Common
Bombus hypnorum	Apidae	Hymenoptera	Common
Bombus lapidarius	Apidae	Hymenoptera	Common
Bombus pascuorum	Apidae	Hymenoptera	Common
Bombus terrestris	Apidae	Hymenoptera	Common
Crossocerus podagricus	Crabronidae	Hymenoptera	Common
Pemphredon lugubris	Crabronidae	Hymenoptera	Common
Andricus aries	Cynipidae	Hymenoptera	Common
Andricus kollari	Cynipidae	Hymenoptera	Common
Biorhiza pallida	Cynipidae	Hymenoptera	Common
Lasius brunneus	Formicidae	Hymenoptera	Nationally notable A

Species	Family	Order	Conservation status
<i>Lasius platythorax</i>	Formicidae	Hymenoptera	Common
<i>Myrmica scabrinodis</i>	Formicidae	Hymenoptera	Common
<i>Temnothorax nylanderi</i>	Formicidae	Hymenoptera	Locally common
<i>Amblyteles armatorius</i>	Ichneumonidae	Hymenoptera	Common
<i>Vespula vulgaris</i>	Vespidae	Hymenoptera	Common
<i>Armadillidium vulgare</i>	Armadillidiidae	Isopoda	Common
<i>Oniscus asellus</i>	Oniscidae	Isopoda	Common
<i>Philoscia muscorum</i>	Philosciidae	Isopoda	Common
<i>Adela reaumurella</i>	Adelidae	Lepidoptera	Common
<i>Agriphila straminella</i>	Crambidae	Lepidoptera	Common
<i>Chrysoteuchia culmella</i>	Crambidae	Lepidoptera	Common
<i>Dyseriocrania subpurpurella</i>	Eriocraniidae	Lepidoptera	Common
<i>Camptogramma bilineata</i>	Geometridae	Lepidoptera	Locally common
<i>Cameraria ohridella</i>	Gracillariidae	Lepidoptera	Common
<i>Ochlodes sylvanus</i>	Hesperiidae	Lepidoptera	Common
<i>Thymelicus sylvestris</i>	Hesperiidae	Lepidoptera	Common
<i>Celastrina argiolus</i>	Lycaenidae	Lepidoptera	Common
<i>Abrostola tripartita</i>	Noctuidae	Lepidoptera	Locally common
<i>Agrotis clavis</i>	Noctuidae	Lepidoptera	Locally common
<i>Agrotis exclamationis</i>	Noctuidae	Lepidoptera	Locally common
<i>Noctua pronuba</i>	Noctuidae	Lepidoptera	Locally common
<i>Ochropleura plecta</i>	Noctuidae	Lepidoptera	Locally common
<i>Aglais io</i>	Nymphalidae	Lepidoptera	Common
<i>Aglais urticae</i>	Nymphalidae	Lepidoptera	Common
<i>Maniola jurtina</i>	Nymphalidae	Lepidoptera	Common
<i>Melanargia galathea</i>	Nymphalidae	Lepidoptera	Common
<i>Pararge aegeria</i>	Nymphalidae	Lepidoptera	Common
<i>Pieris brassicae</i>	Pieridae	Lepidoptera	Common
<i>Pieris rapae</i>	Pieridae	Lepidoptera	Common
<i>Archips podana</i>	Tortricidae	Lepidoptera	Common
<i>Grapholita compositella</i>	Tortricidae	Lepidoptera	Common
<i>Tortrix viridana</i>	Tortricidae	Lepidoptera	Common
<i>Aeshna cyanea</i>	Aeshnidae	Odonata	Common
<i>Chorthippus brunneus</i>	Acrididae	Orthoptera	Common
<i>Conocephalus fuscus</i>	Conocephalidae	Orthoptera	Common
<i>Meconema thalassinum</i>	Meconematidae	Orthoptera	Common
<i>Leptophyes punctatissima</i>	Phaneropteridae	Orthoptera	Common
<i>Pholidoptera griseoptera</i>	Tettigoniidae	Orthoptera	Common
<i>Roeseliana roeselii</i>	Tettigoniidae	Orthoptera	Common
<i>Valenzuela flavidus</i>	Caeciliusidae	Psocoptera	Common
<i>Elipsocus hyalinus</i>	Elipsocidae	Psocoptera	Common
<i>Graphopsocus cruciatus</i>	Stenopsocidae	Psocoptera	Common
<i>Cornu aspersum</i>	Helicidae	Pulmonata	Common

Appendix 3

Building Photographs

B1 Exterior



B1 Interior



B2 Exterior



B2 Interior



B3 Exterior



B3 Internal roof-space



B4 Exterior



B6 Exterior



B5 Exterior



B5 Internal roof-space



B7 – Exterior



B7 – Interior



B8 – Exterior



B8 – Interior

