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Ecological Survey & Assessment
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OPEN SPACES, NORTH LITTLEHAMPTON, TODDINGTON LANE, LITTLEHAMPTON

ECOLOGICAL IMPACT ASSESSMENT

Final Document

November 2025

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

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ECOLOGICAL IMPACT ASSESSMENT

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EXECUTIVE SUMMARY

Ecological Survey and Assessment Ltd (ECOSA) have been appointed by Persimmon Homes to undertake an Ecological Impact Assessment to support a planning application for the redevelopment of Open Spaces, North Littlehampton. The site coastal and floodplain grazing marsh, hedgerows, sedge beds and ditches. The proposals entail the redevelopment of the site for new playing fields, car park, changing facilities, allotments and public access.

The main findings of the Ecological Impact Assessment are:

- There are two Local Wildlife Sites and one Designated Road Verge within two kilometres of the site;
- The site comprises areas of coastal and floodplain grazing marsh, hedgerows, ditches and sedge beds;
- The site supports foraging and commuting bats, breeding and wintering birds, an exceptional population of slow-worm and a good population of common lizard. American mink was also confirmed on site. The site also has suitability for brown hare and European hedgehog;
- The proposals will result in the loss of open standing water, tree line and scrub habitats and may cause disturbance or harm to foraging and commuting bats, breeding birds, reptiles, brown hare and European hedgehog;
- Proposed mitigation measures include creation of new reedbed habitats, a sensitive lighting scheme, sensitive timing of works, an updating badger walkover prior to commencement of works, a translocation exercise with regards to reptiles;
- Proposed enhancement measures include the provision of a barn owl box within the wider site, creation of hibernacula and provision of invertebrate towers;
- Given the impacts identified, and the mitigation, compensation and enhancement measures proposed it is considered that the proposals accord with all relevant local and national planning policy.
- If the planning application boundary changes or the proposals for the site alter, a re-assessment of the scheme in relation to ecology may be required. Given the mobility of animals and the potential for colonisation of the site over time, updating survey work may be required, particularly if development does not commence within 18 months of the date of the most recent relevant survey.

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1.0 INTRODUCTION

1.1 Background

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

Within this document where reference is made to 'the site' this refers to Open Space and reference to the 'wider site' relates to the wider North Littlehampton development.

The Ecological Impact Assessment has been written to support a Reserved Matters application to Arun District Council for the site. Under planning reference LU/47/11 there are four conditions relating to ecology (**Table 1**).

Table 1: Ecological conditions

Condition	Details
17	Prior to the submission of any reserved matters applications, a scheme shall be submitted for the creation of the proposed central wetland area and the restoration of habitat onsite. The scheme shall be submitted to and approved in writing by the Local Planning Authority. Thereafter the development shall be constructed as set out in the approved scheme and any subsequent amendments shall be agreed in writing with the Local Planning Authority.
19	Development shall not begin until further ecological surveys have been carried out and submitted to the Local Planning Authority. These surveys shall relate to water voles, bats, birds, invertebrates and reptiles.
20	Prior to the commencement of development on any phases of development east of the new road than spans the railway line (running north – south), details of appropriate mitigation, and a programme of implementation, in relation to water voles, bats, birds, invertebrates and reptiles shall be submitted to an approved in writing by the LPA.
21	No development within any phase or sub phase shall commence until details of an ecological management plan for the construction phase of that element of the development has been submitted to and approved in writing by the Local Planning Authority. The management plan shall be implemented in accordance with the approved plans.

1.2 The Site

The site is located in Littlehampton, West Sussex, centred on National Grid Reference (NGR) TQ 0434 0396 (**Map 1**).

The site comprises open areas of floodplain grazing marsh with ditches and hedgerows. The site is set to the east of the wider North Littlehampton development.

1.3 Aims and Scope of Report

The information within this report is based on a field survey and desktop study and relevant species-specific surveys carried out between November 2024 and October

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2025. The report describes the habitats and species (hereafter referred to as ecological features) within the site's Zone of Influence (Paragraph 3.2), and provides a detailed assessment of potential ecological effects of the proposed development of the site. It identifies the need for any measures to avoid, mitigate or compensate for significant adverse effects[1] ecological features and outlines enhancements to the site's ecology to be implemented as part of the development. The objectives of the assessment are:

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

1.4 Site Proposals

The proposals entail new sports pitches, a car parking area and community facilities building, the provision of allotments and public access (creations of footpaths) to open space to the east. Access to the sports pitch will be created from Phase 6A to the site and new footpaths will be created around the edges of the site and will connect to Phase 6A to the north west of the site.

The Ecological Impact Assessment is based on the proposals plan produced by Persimmon Homes, dated August 2025 (Drawing No. 547_PL_1C0d, Rev. A) (**Appendix 1**).

Planning permission is being sought during late 2025 and early 2026 with construction proposed to commence soon after permission has been granted.

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

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2.0 PLANNING POLICY CONTEXT

2.1 Introduction

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

2.2 National Policy

The National Planning Policy Framework (NPPF) sets out the government's requirements for the planning system in England. The original document was published in 2012 with the most recent revised NPPF published in December 2024. A number of sections of the NPPF are relevant when taking into account development proposals and the environment. As set out within Paragraph 11 of the NPPF "*Plans and decisions should apply a presumption in favour of sustainable development*". However, Paragraph 195 goes on to state that "*The presumption in favour of sustainable development does not apply where the plan or project is likely to have a significant effect on a habitats site (either alone or in combination with other plans or projects), unless an appropriate assessment has concluded that the plan or project will not adversely affect the integrity of the habitats site.*".

The NPPF sets out that development proposals should not only minimise the impacts on biodiversity but also to provide enhancement. Paragraph 187 states that the planning system should contribute to and enhance the natural environment by *"…minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures...".*

A number of principles are set out in Paragraph 193, including that where harm cannot be adequately avoided then it should be mitigated for, or as a last resort, compensated for. Where impacts occur on nationally designated sites, the benefits must clearly outweigh any adverse impact and incorporating biodiversity in and around developments should be encouraged. Specific reference is also made to the protection of irreplaceable habitats[3], including ancient woodland[4]. Where loss to irreplaceable habitats occurs planning permission would normally be refused unless there are wholly exceptional reasons and an adequate compensation strategy is in place. Paragraph

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

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

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193 also states "*development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate.*" Paragraph 194 also sets out that potential SPAs, SACs and listed or proposed Ramsar sites or sites acting as compensation for SPAs, SACs and Ramsar sites, should receive the same protection as habitat sites.

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

2.3 Local Policy

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

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

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

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

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

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

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3.0 METHODS

3.1 Introduction

This section details the methods employed during the Ecological Impact Assessment. Any significant limitations to the assessment are also considered.

3.2 Zone of Influence

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

3.3 Scoping

Protected species considered within the Ecological Impact Assessment are those species/species groups considered likely to be encountered given the geographical location and context of the site. Where the site was found to be suitable to support these species/species groups, and adverse effects cannot be avoided from the outset, further species-specific surveys are undertaken. These are discussed within the results section (Section 4.0) of the current report. Where such a species is unlikely to be present on site a justification for likely absence is provided. Species considered likely absent from the site are not then considered in the assessment of ecological effects and mitigation/compensation measures section (Section 5.0) of this report.

3.4 Desk Study

3.4.1 Biological Records Centre

Sussex Biodiversity Record Centre (SxBRC) was consulted on 20th November 2024 for the following data:

- Records of non-statutory designated sites (Local Wildlife Sites (LWSs)) within two kilometres of the site boundary. See **Appendix 2** for details; and
- Records of legally protected and notable species (flora and fauna) within two kilometres of the site boundary, including Species of Principal Importance (**Appendix 3**).

[5] The Zone of Influence (ZoI), as defined by CIEEM, is the area over which ecological features may be subject to significant effects as a result of the proposed project and associated activities (CIEEM, 2018).

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3.4.2 Multi-Agency Geographic Information for the Countryside

The Multi-Agency Geographic Information for the Countryside (MAGIC) database (DEFRA, 2025) was reviewed on 3rd November 2025 to establish the location of statutory designated sites located within the vicinity of the site. This included a search for all internationally and nationally designated sites such as Special Protection Areas (SPAs), Special Areas of Conservation (SACs), Wetlands of International Importance (Ramsar sites), Sites of Special Scientific Interest (SSSIs), National Nature Reserves (NNRs) and Local Nature Reserves (LNRs) within two kilometres of the site. See **Appendix 2** for details. Where appropriate, the desk study search area has been extended to take account of any appropriate statutory designated sites which need consideration in terms of potential in-direct effects and which support particularly mobile species, particularly those specifically mentioned in local planning policy. The Impact Risk Zones (IRZ) were also obtained from MAGIC, which are used to help guide and assess planning applications for likely effects on SSSIs.

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

3.4.3 Other Sources of Information

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

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

Where relevant, information regarding previous survey works carried out by WYG has been referenced.

3.5 Field Survey

3.5.1 Survey Methods

The field survey followed a modified version of UK Habitat Classification (UKHab) methodology (UKHab Ltd, 2023) and included a search for evidence of, and an assessment of the site's suitability to support, protected and notable species as

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recommended by CIEEM (CIEEM, 2017). The field survey covered all accessible areas of the site, including boundary features. Habitats described in Section 4.0, have been mapped (Map 2), photographs and target notes provided, where relevant.

The UKHab Survey Application, developed using the digital survey platform Coreo was used to map habitats in the field, collect the field survey data and photograph the site.

3.5.2 UKHab Survey

An assessment was made of all habitats within the site, which were classified based on the standardised UKHab survey methodology (UKHab Ltd, 2023). Which was modified to make the habitat assessment compatible with the habitat classification within the Biodiversity Net Gain Metric (DEFRA, 2024). The UKHab classification system comprises two major parts, a hierarchical Primary Habitat system and a list of Secondary Codes. The classification of Primary Habitats is hierarchical with five levels.

It should be noted that not all habitats will be classified to Level 5, for example modified grassland is classified at Level 3 and no Level 4 or Level 5 habitat is applicable. In addition, where Level 4 or 5 habitats are considered to be present on site there may be a requirement for further surveys by a specialist botanist to confirm or classify these habitat types.

Where Biodiversity Net Gain Metric habitats are not classified under any of the hierarchical levels within the UKHab methodology the relevant secondary codes definitions have been used to identify these habitats.

During the field survey notes and photographs were taken in order to evidence the surveyor's classification of each habitat type.

Any invasive species[6] encountered as an incidental result of the survey were recorded.

Protected and Notable Species Appraisal

A preliminary appraisal of the site's suitability to support legally protected and notable species was carried out. Specific methods for species/species groups considered during the appraisal are provided in **Appendix 4**.

3.5.3 Survey Details

The field survey was carried out by Hugh Turner, Principal Ecologist of ECOSA and Ryan Brazendale, Assistant Ecologist of ECOSA on 18th March 2025. The weather conditions were sunny with approximately 10% cloud cover, an ambient temperature of 10°C and a moderate wind.

[6] Plant species included on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended). The survey was not specifically aimed at assessing the presence of these species and further specialist advice may need to be sought.

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

3.5.4 Field Survey Limitations

Ecological surveys are limited by factors which affect the presence of plants and animals such as the time of year, migration patterns and behaviour. The field survey has therefore not produced a complete list of plants and animals and in the absence of evidence of any particular species should not be taken as conclusive proof that the species is absent or that it will not occur in the future.

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

3.6 Bat Survey

3.6.1 Survey Methods

Ground Level Tree Assessment

The ground level tree assessment was undertaken in line with current best practice guidelines (Collins, 2023). An assessment was made of the suitability of the trees on the site and immediately on the site boundary (**Map 3**) to support roosting bats based on the presence of Potential Roost Features such as holes, cracks, splits, loose bark and ivy cladding. The assessment of the potential for trees on the site to support roosting bats is based on a four-point scale as detailed in **Appendix 5**.

Bat Emergence Survey

The bat emergence survey was undertaken in line with current best practice guidelines (Collins, 2023). In accordance with the guidelines for trees assessed as supporting PRF-M bat roosting features three dusk emergence surveys were undertaken in order to ascertain the presence/likely absence of roosting bats from within the trees.

The surveys were carried out by four experienced ECOSA surveyors, positioned at previously identified vantage points around the trees. These vantage point locations allowed a sufficient coverage of the Potential Roosting Features identified on the trees impacted by the proposals.

During the surveys surveyors recorded the time, species, location and direction of flight for each bat encountered, with particular attention paid to establishing bat access/egress locations to any roosts within the trees.

Bat Transect Survey

Bat transect surveys were undertaken in line with current best practice guidelines (Collins, 2023). Given that the site has been assessed as having high suitability for

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supporting foraging and commuting bats one bat transect survey was carried out each season to allow an assessment of the status and importance of foraging/commuting bats at the site to be made.

A team of two surveyors walked a pre-determined transect route across the site on each occasion (**Map 4**), walking the same transect route on each survey. The transect route ensured that the surveyors visited key areas of foraging and commuting habitat within the site, such as mature hedgerows, woodland edge and watercourses as well as less suitable habitats. The transects survey commenced with a 30-minute vantage point survey at sunset and lasted for at least two hours depending on the level of bat activity recorded.

The transect route was split into equal sections and was walked at a steady speed so that the activity levels on each section and from each survey are comparable.

At the end of each transect survey, data was downloaded and then analysed using BatExplorer (Version 2.2.6.0). This program is designed to analyse bat call data by identifying key call characteristics such as call shape, call length, call 'distance' (i.e. the time period between two consecutive calls) and peak frequency.

The species calls were subsequently checked manually by a suitably qualified ecologist using the spectrogram feature of BatExplorer to verify their identities. Where suitable recordings were obtained, bats were identified to species level. For some groups, notably long-eared bat species[7] and *Myotis*[8] bat species, specific identification was not always possible.

The GPS feature of the Batlogger M allows the location of the surveyor at the time of each bat call registration to be recorded. This data is exported to BatExplorer and used to create a 'heat map' of activity at the site for each bat species recorded.

The GPS feature shows the location of the surveyor when the registration was recorded, not the location of the bat. Where bats were heard but not seen it has been assumed that they are flying in the vicinity of the surveyor. Where bats were seen some distance from the surveyor the locations of these bats were noted.

7 There are two species of long-eared bat, the brown long-eared bat *Plecotus auritus* and the grey long-eared bat *Plecotus austriacus*. These species can only be separated by examination of physical characteristics and Phylogenetic Analysis Identification of bat droppings. Unless confirmation of identification has been made by visual identification the two species shall be referred to in this report as long-eared bat. The brown long-eared bat is the commonest of the two species typically being found roosting within large roof voids although small voids and trees are also utilised. The grey long-eared bat is rare and confined to southern England and like the brown long-eared typically roosts in roof voids.
8 There are seven species of *Myotis* bats in Britain. *Myotis* bats are very difficult to identify specifically, this can generally only be done by examination of physical features and Phylogenetic Analysis Identification of bat droppings. Many of these bats are common and will utilise buildings for roosting often occupying small and inaccessible voids. For the purpose of this report all species shall be referred to as *Myotis* bats unless a specific identification has been possible.

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Bat Automated Detector Survey

In addition to the transect surveys automated detector surveys were undertaken in line with current best practice guidelines (Collins, 2023) between April and October 2025 inclusive.

Three Wildlife Acoustics Song Meter 4 (SM4 FS) detectors with SMM-U2 microphones were deployed at the site for five consecutive nights each month between April and October 2025.

The automated detectors were secured in suitable habitat with the microphone positioned to face towards the nearest open space. The devices were programmed to record between 30 minutes before sunset, until 30 minutes after sunrise the following morning on each night they were deployed. The settings utilised on the automated detectors are provided in **Appendix 6**.

The detectors were deployed at the same location during each survey period in order to allow a determination of the levels of activity at the site in each survey period. The locations at which the automated detectors were deployed are provided in **Map 5**.

At the end of each automated survey period, the remote bat detectors were retrieved from the site, data was downloaded and then analysed using Kaleidoscope Pro© (Version 5.1.9G). This program is designed to analyse large volumes of bat call data using an automated classifier (Bats of Europe Version 5.1.0). More information on the settings used for the conversion process are provided in **Appendix 6**.

The species calls were subsequently checked manually by a suitably qualified ecologist using the Kaleidoscope software, to verify their identities. Sonobat® (v2.9.7) was used to confirm the species identity for ambiguous bat calls. Where suitable recordings were obtained, bats were identified to species level. For some groups, notably long-eared bat species[7] and *Myotis*[8] bat species, specific identification was not always possible.

The data was then exported to Microsoft Excel for detailed analysis (i.e. counts of bat registrations) of various parameters.

The number of registrations recorded is not a measure of the number of bats present on site; the number of registrations provides a quantitative assessment of the level of bat activity at a particular location (i.e. the greater the number of registrations, the greater the level of bat activity). The data cannot differentiate between, for example, a single bat passing the detector 10 times or 10 bats passing the detector on a single occasion. The detectors were programmed to count each two-second call as a single bat pass.

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In order to standardise the number of bat calls recorded the data was then used to calculate an "Activity Index" for various different parameters to be assessed. This involved dividing the number of registrations by the number of nights which detectors were deployed. This data is then represented as number of registrations per night.

3.6.2 Survey Details

Ground Level Tree Assessment

The ground level tree assessment was carried out by Samantha Faggetter, Senior Ecologist of ECOSA (Natural England Bat Licence 2024-12530-CL18-BAT) on 25th March 2025. The weather conditions were dry with approximately 50% cloud cover, an ambient temperature of 10°C and calm.

Bat Emergence Survey

The bat emergence surveys were undertaken between August and September 2025. **Table 2** provides details of each emergence survey.

Table 2: Bat emergence survey details

Survey Date	Tree No.	Survey Timings	Weather Conditions	Sunset Time
7th August 2025	1	Start: 20:22 End: 22:07	General conditions: Dry Start temperature: 17°C End temperature: 17°C Cloud Cover: 100-90% Wind Speed: A light wind	20:37
14th August 2025	2	Start: 20:09 End: 21:54	General conditions: Dry Start temperature: 21°C End temperature: 16°C Cloud Cover: 0% Wind Speed: Calm	20:24
1st September 2025	1 and 2	Start: 19:32 End: 21:25	General conditions: Dry Start temperature: 16°C End temperature: 16°C Cloud Cover: 60-10% Wind Speed: A light wind	19:47
18th September 2025	1 and 2	Start: 18:58 End: 21:03	General conditions: Dry Start temperature: 19°C End temperature: 19°C Cloud Cover: 90% Wind Speed: Calm	19:13

During the bat emergence surveys the surveyors were equipped with Batlogger M bat detectors. One Night Vision Aid (NVA) kits for each tree was also used during each survey. Each NVA kit comprises; a Sony A7s (MK1) camera which has been modified to capture infrared light, a Batbox Baton bat detector and two rayTEC VAR2-i8-1 Long Range Infra-Red Illuminator lamps. The bat box baton was attached to the Sony A7s to provide a 'bat detector' soundtrack on the video recording.

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Recordings made with the detectors were later analysed using BatExplorer (Version 2.2.6.0). This program is designed to analyse bat call data by identifying key call characteristics such as call shape, call length, call 'distance' (i.e. the time period between two consecutive calls) and peak frequency to confirm the identity of any species encountered. Video recordings made with the NVA cameras were analysed using VLC Media Player.

The bat emergence surveys were coordinated by Hugh Turner, Principal Ecologist of ECOSA (Natural England Bat Licence 2025-84781-CL18-BAT) assisted by suitably qualified and experienced ECOSA surveyors.

Bat Transect Survey

The bat transect surveys were undertaken between April and October 2025 with a total of three dusk bat transect surveys. **Table 3** provides details of each survey.

Table 3: Bat transect survey details

Survey Date	Survey Type	Duration	Weather Conditions	Sunset Time
9th April 2025	Dusk	19:45 – 21:40	Dry, 10–7°C, a light wind with 5–0% cloud cover	19:48
20th August 2025	Dusk	20:12 – 22:12	Dry, 19–16°C, a light wind with 30–70% cloud cover	20:12
13th October 2025	Dusk	18:13 – 20:13	Dry, 12°C, a light wind, with 100% cloud cover	18:13

The bat transect surveys were coordinated and led by Hugh Turner, Principal Ecologist of ECOSA (Natural England Bat Licence No. 2025-84781-CL18-BAT), assisted by suitably qualified and experienced ECOSA surveyors.

The detector programming and data analysis was conducted by Hugh Turner, Principal Ecologist of ECOSA.

Bat Automated Detector Survey

The automated detector surveys were undertaken between April and October 2025 with a total of 105 nights recording undertaken. **Table 4** provides details of each recording period.

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Table 4: Automated detector survey details

Survey Period	Date	Weather Conditions[9]				Sunset	Sunrise
		Temperature (°C)		Wind (km/h)	Precipitation (mm)		
		High	Low				
April 2025	22nd	13	7	14	0.0	20:07	05:57
	23rd	14	8	13	0.0	20:09	05:55
	24th	15	9	16	0.2	20:11	05:53
	25th	15	9	18	0.0	20:13	05:51
	26th	16	10	17	0.0	20:15	05:49
May 2025	23rd	17	11	19	0.0	21:03	04:58
	24th	18	12	21	0.0	21:05	04:56
	25th	18	12	20	0.0	21:06	04:55
	26th	19	13	22	0.0	21:07	04:54
	27th	19	13	23	0.0	21:08	04:53
June 2025	16th	20	14	18	0.0	21:17	04:47
	17th	21	14	19	0.0	21:18	04:47
	18th	21	15	20	0.0	21:19	04:46
	19th	22	15	21	0.0	21:20	04:46
	20th	22	15	22	0.0	21:20	04:46
July 2025	27th	23	16	18	0.0	20:57	05:22
	28th	23	16	19	0.0	20:56	05:23
	29th	24	17	20	0.0	20:54	05:24
	30th	24	17	21	0.0	20:53	05:25
	31st	24	17	22	0.0	20:52	05:26
August 2025	4th	23	16	18	0.0	20:42	05:34
	5th	23	16	19	0.0	20:41	05:35
	6th	22	16	20	0.0	20:39	05:36
	7th	22	15	21	0.0	20:37	05:38
	8th	22	15	22	0.0	20:35	05:39
	10th	19	13	18	0.0	19:27	06:30

[9] Weather data is sourced from online weather data (World Weather Online, 2025)

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Survey Period	Date	Weather Conditions[9]				Sunset	Sunrise
		Temperature (°C)		Wind (km/h)	Precipitation (mm)		
		High	Low				
September 2025	11th	19	13	19	0.0	19:25	06:31
	12th	18	12	20	0.0	19:23	06:33
	13th	18	12	21	0.0	19:20	06:34
	14th	18	12	22	0.0	19:18	06:36
October 2025	7th	15	10	16	0.0	18:29	07:18
	8th	15	10	17	0.0	18:27	07:19
	9th	14	9	18	0.0	18:25	07:21
	10th	14	9	19	0.0	18:22	07:22
	11th	14	9	20	0.0	18:18	07:24

The automated detectors were deployed by a suitably experienced ECOSA ecologist. The detector programming and data analysis was conducted by Hugh Turner, Principal Ecologist of ECOSA.

3.6.3 Survey Limitations

Some bat species, e.g. long-eared bats *Plecotus* species[7], generally emerge from their roosts in total darkness and do not produce strong echolocations, and therefore these bats can be difficult to observe and record during bat surveys, leading to under-recording.

The quality of both hand-held and automated bat detector recordings is based, to a large extent, on the proximity of a bat to the detector's microphone. Obstructions such as vegetation or environmental variables such as rainfall and wind noise from vegetation will all influence the quality of sound reaching the microphone and thus some bat echolocation recordings are of insufficient quality for specific identification. Bats routinely alter their echolocations in relation to behaviour and their environment. It is not always possible to make a robust identification of every bat recording.

3.7 Otter Survey

3.7.1 Survey Methods

A detailed investigation was undertaken of all accessible banks of the ditches on site in order to record any evidence of otter such as spraints, footprints, feeding remains, otter slides, holts and couches. Any evidence encountered was mapped where appropriate. Where possible the survey was undertaken from within the watercourse in order to maximise the likelihood of encountering field signs.

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3.7.2 Survey Details

The otter survey was carried out by Joe Hunt, Field Ecologist of ECOSA and Beth Lord, Assistant Ecologist of ECOSA on 16th May 2025. The weather conditions were sunny with 0% cloud cover, an ambient temperature of 18°C and no wind.

3.7.3 Survey Limitations

There were no significant limitations to the otter survey.

3.8 Badger Survey

3.8.1 Survey Methods

The survey involved a detailed investigation of the site and its immediate boundaries to identify evidence of badger residence, foraging or territorial activity. This evidence can take the form of latrines, setts, paths between setts or leading to feeding areas, scratching posts at the base of tree trunks, hair traces, snuffle holes formed during foraging, and footprints (Reynolds & Harris, 2005).

Where badger paths were identified these were back tracked in order to establish whether they led to any sett entrances.

Where setts are identified, the location of entrances and direction in which they are travelling are plotted and an assessment of the made of the level of activity of each entrance. If badger setts are considered to be potentially vulnerable to interference, this information, the assessment of impacts on these setts, and proposed mitigation, is provided in a separate confidential annex.

3.8.2 Survey Details

The badger survey was carried out by Samantha Faggetter, Senior Ecologist of ECOSA on 25th March 2025. The weather conditions were dry with approximately 50% cloud cover, an ambient temperature of 10°C and no wind.

3.8.3 Survey Limitations

There were no significant limitations to the badger survey.

3.9 Hazel Dormouse Survey

3.9.1 Survey Methods

The hazel dormouse survey was undertaken in line with current best practice guidelines (Bright, et al., 2006).

The hazel dormouse survey involved the erection of 80 dormouse tubes within suitable dormouse habitat throughout the site at intervals of approximately 15 metres. The locations of these tubes are marked on **Map 6**. The nest tubes were subsequently

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checked for evidence of dormouse on a monthly basis between April and September 2025.

In accordance with survey guidance, a value is assigned to each month, which is weighted depending on the likelihood of finding evidence of dormouse in a given month. These scores are based on the erection of 50 dormouse nest tubes. The values for each month that the tubes are in place are then added together. In accordance with survey guidance, absence of dormouse should not be assumed for a search effort of less than 20 points[10]. **Table 5** shows points assigned for each month during the survey undertaken.

Table 5: Hazel dormouse survey Index of Probability scores

Month	Index of Probability Score
April	1
May	4
June	2
July	2
August	5
September	7
Total	**21**

The level of survey effort carried out at site currently provides a search effort of 21, which allows a robust assessment of the likely absence of dormouse at the site to be undertaken.

3.9.2 Survey Details

The dormouse tubes were erected on 4th April 2025 with monthly visits undertaken between April to September 2025. **Table 6** provides details of each hazel dormouse survey.

Table 6: Hazel dormouse survey details

Survey Date	Weather Conditions	Temperature (°C)	Wind	Cloud Cover (%)
29th April 2025	Sunny	22	WF1-2 - A light breeze	0
30th May 2025	Overcast	19	WF0 - Calm	100
23rd June 2025	Sunny, Dry	20	WF1-2 - A light breeze	5
5th August 2025	Sunny	16	WF1-2 - A light breeze	5
2nd September 2025	Rain	15	WF3-WF4 - A moderate breeze	100
26th September 2025	Overcast	17	WF0 - Calm	100

[10] Each month, between April and November, inclusive is assigned an index of probability score, based on optimum survey timings.

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The hazel dormouse surveys were co-ordinated and led by Hugh Turner, Principal Ecologist of ECOSA and assisted by suitably qualified ECOSA surveyors.

The survey was undertaken using 80 dormouse tubes comprising corrugated plastic tubes of standard dimensions (Bright, et al., 2006) with plywood insert secured in the relevant habitat with heavy duty garden wire.

3.9.3 Survey Limitations

There were no significant limitations to the dormouse survey.

3.10 Water Vole Survey

3.10.1 Survey Methods

The survey was undertaken in accordance current best practice guidance (Strachan, et al., 2011) (Dean, et al., 2016) and consisted of a detailed water vole survey of the ditches on site.

Where possible, the banks were accessed from within the ditches to maximise the identification of water vole signs including burrows, latrines and feeding remains in order to establish the presence/likely absence of the species from the watercourse. In addition, an assessment of the vegetation and bank structure was undertaken to assess its suitability for water vole.

Where evidence of water vole was encountered this was mapped. The best index of water vole abundance is established through number of latrines present in any one given stretch of habitat which provides an indication of the relative density of the species based on the presence of breeding individuals.

The presence/absence of mink, otter and brown rat signs were also recorded noting abundance of evidence recorded. The presence of these three species has a bearing on the likely presence of water vole.

3.10.2 Survey Details

The spring water vole survey was carried out by Joe Hunt, Field Ecologist of ECOSA and Beth Lord, Assistant Ecologist of ECOSA on 16th May 2025. The weather conditions were sunny with 0% cloud cover, an ambient temperature of 18°C and no wind.

The summer water vole survey was carried out by Joe Hunt, Field Ecologist of ECOSA and Briza Alves, Assistant Ecologist of ECOSA on 10th July 2025. The weather conditions were sunny with 5% cloud cover, an ambient temperature of 27°C and no wind.

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3.10.3 Survey Limitations

There were no significant limitations to the water vole survey.

3.11 Bird Survey

3.11.1 Survey Methods

Breeding Bird Survey

Breeding bird transects surveys were undertaken using a modified version the British Trust for Ornithology (BTO) Breeding Bird Survey (Baillie, et al., 2012) and followed the Bird Survey Guidelines for Assessing Ecological Impacts (Bird Survey & Assessment Steering Group, 2023). Six visits were undertaken between late March and early July. Surveys were split by approximately two weeks.

The bird surveyor walked a pre-determined transect route across the site, on each occasion walking the same transect route (**Map 7**). The transect route ensured that the surveyor visited key areas of habitat for breeding birds such as woodland, wetland and large expanses of grassland / arable land, as well as less suitable habitats. The transect was punctuated by pauses to scan and listen for territorial birds. The transect survey was always undertaken during the morning and began within one hour of sunrise. The route across the site was varied so that time-location bias was minimised. Surveys were undertaken in suitable weather conditions i.e. without strong winds or heavy rainfall.

The survey was aimed at recording the presence of Schedule 1[11] and / or British Trust for Ornithology red[12] or amber listed Birds of Conservation Concern (Stanbury, et al., 2021) and assessing the number of active territories of notable species within the site. Green listed species were recorded but no attempt was made to identify their territories. Territorial activity was mainly defined by the presence of singing birds, however other evidence such as courtship and display, agitated behaviour, nest building, distraction display, recently fledged young, occupied nests and / or birds carrying food was also used.

On completion of the surveys evidence of territorial birds and confirmed breeding evidence was transferred onto a single map. Clusters of registrations on this map coincide with the activity of territory holding birds, although with some species this varies with biology. The maps were then analysed to determine the number of pairs of

[11] Birds listed on Schedule 1 of the Wildlife and Countryside Act (1981 as amended) are afforded additional protection making it an offence to: Intentionally or recklessly disturb any bird while it is nest building, or is at a nest containing eggs or young; or; Intentionally or recklessly disturb the dependent young of any such bird.
[12] The UK's birds are split in to three categories of conservation importance - red, amber and green. Red is the highest conservation priority, with species needing urgent action. Amber is the next most critical group, followed by green.

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each notable breeding species present, a process open to subjectivity in interpretation, and requiring professional judgement.

The detectability of bird species and associated territorial activity is affected by a variety of factors including, but not limited to, species detectability, species abundance, temporal variations in activity, species phenology, habitat structure, survey effort and observer ability. During the breeding bird survey methods to reduce these potential impacts included; using experienced ornithologists and undertaking a robust number of surveys spread over the main breeding season. As a result, a comprehensive assessment of the breeding bird assemblage at the site was completed.

Wintering Bird Survey

A mixture of walked transect and vantage point surveys (**Map 8**) were undertaken the site at approximately two-week intervals from November 2024 to March 2025 inclusive, to determine the usage of the site by wintering birds. The survey largely consisted of the surveyor/s scanning the site using telescope and binoculars to identify the bird species utilising the site. Largely, the open areas such as fields were not traversed as this generates disturbance that may deter birds and therefore compromise the results of the survey. However, hedgerows and woodlands were walked to record the birds present.

The wintering bird survey methodology was based on that carried out as part of the Solent Waders and Brent Goose Strategy (King, 2010). Seven wintering bird surveys were carried out across the site between November 2024 and March 2025. The surveys aimed to determine the presence of notable or protected wintering bird species with particular reference to those associated with the internationally designated sites in the vicinity of the survey site and those associated with the Solent Waders and Brent Goose Strategy.

The detectability of bird species and associated territorial activity is affected by a variety of factors including, but not limited to, species detectability, species abundance, temporal variations in activity, species phenology, habitat structure, survey effort and observer ability. During the wintering bird survey methods to reduce these potential impacts included; using experienced ornithologists and undertaking a robust number of surveys spread over the winter season. As a result, a comprehensive assessment of the wintering bird assemblage at the site was completed.

3.11.2 Survey Details

Breeding Bird Survey

A total of seven survey visits were undertaken between March and July 2025. **Table 7** provides details of each breeding bird survey.

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Table 7: Breeding bird survey details

Survey Date	Weather Conditions
19th March 2025	Clear, 1.5–10°C, no wind and 0% cloud cover
28th April 2025	Dry, 8–14°C, no wind and 0% cloud cover
7th April 2025	Clear, 5–10°C, a light wind and 10% cloud cover
20th May 2025	Cloudy, 14–17°C, a light wind and 80% cloud cover
3rd June 2025	Rain, 12–15°C, a moderate wind and 100% cloud cover
1st July 2025	Dry, Sunny, 27–24°C, no wind and 5% cloud cover

The breeding bird survey was carried out by experienced ornithologists Lucy Covell, Senior Ecologist of ECOSA, Ian Williamson and Graeme Down.

During the breeding bird survey, the surveyors were equipped with RSPB 10x25 binoculars or Swarovski 8.5x42 binoculars.

Wintering Bird Survey

A total of seven survey visits were undertaken between November 2024 and March 2025. **Table 8** provides details of each wintering bird survey.

Table 8: Wintering bird survey details

Survey Date	Duration	Weather Conditions
18th November 2024	07:15 – 11:30	7 – 10°C, sunny.
13th December 2024	08:00 – 12:30	4 – 6°C, overcast, a light breeze.
14th January 2025	08:00 – 13:30	4 – 8°C, sunny spells, a light breeze.
30th January 2025	09:00 – 14:00	4 – 9°C, sunny, a light breeze.
11th February 2025	07:40 – 13:15	3 – 4°C, cloudy, a light breeze.
24th February 2025	07:50 – 13:40	9 – 11°C, light rain, a light breeze.
11th March 2025	06:45 – 12:35	6 – 9°C, cloudy, a light breeze.

The wintering bird survey was carried out by experienced ornithologists, Ian Williamson, ECOSA field surveyor, Megan Woolley, Ecologist and Simon Boswell, Principal Ecologist of ECOSA.

During the wintering bird survey, the surveyors were/was equipped with Hawke UK Nature-Trek 8x32 or Swarovski 8.5x42 binoculars.

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3.11.3 Survey Limitations

There were no significant limitations to the bird surveys.

3.12 Reptile Survey

3.12.1 Survey Methods

The reptile survey was undertaken in accordance with current best practice guidelines (Froglife, 2015).

The reptile survey consisted of the laying bitumen felt mats approximately 500 millimetres x 500 millimetres in areas of suitable habitat on the site. Typically, this included areas of suitable habitat with good exposure to the sun. The mats were distributed in all areas considered to offer suitable reptile habitat. The locations of these mats are marked on **Map 9**.

The use of such refugia is an effective way of surveying for all species of reptile and current survey guidance states that seven inspections are sufficient to confirm presence/likely absence. Survey visits were undertaken in marginal weather conditions such as cold but sunny weather or hazy and somewhat overcast conditions, as this will maximise the thermal value of the refugia for basking reptiles.

During each visit surveyors also undertook a visual inspection survey of other suitable refugia in the site and other suitable basking locations. During the survey a note was also made of any suitable hibernation features present within the site.

3.12.2 Survey Details

A total of 253 reptile refugia were distributed on 4th April 2025 with seven inspection visits undertaken between April and June 2025. **Table 9** provides details of each reptile survey.

Table 9: Reptile survey details

Survey Date	Air Temperature (°C)	Weather Conditions
28th April 2025	14	Sunny, no wind with 5% cloud cover
1st May 2025	20	Sunny, calm with 0% cloud cover
9th May 2025	17	Sunny, Wind: calm with 0% cloud cover
12th May 2025	17	Overcast, calm with 100% cloud cover
20th May 2025	16	Sunny, a light breeze with 30% cloud cover
30th May 2025	18	Overcast, calm with 100% cloud cover
10th June 2025	18	Dry, a light breeze with 95% cloud cover

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The reptile survey was coordinated by Hugh Turner of ECOSA assisted by suitably experienced ECOSA surveyors.

3.12.3 Survey Limitations

There were no significant limitations to the reptile survey.

3.13 Great Crested Newt Survey

3.13.1 Survey Methods

Habitat Suitability Index (HSI) Assessment

Those ponds and waterbodies located within a 500-metre radius of the site (**Map 10**), where access permitted, were subject to a Habitat Suitability Index (HSI) assessment (Oldham, et al., 2000). HSI is a numerical index between 0 and 1, derived from an assessment of ten habitat variables known to influence the presence of great crested newt such as geographical location, water body size and permanence, presence of predatory fish and wildfowl, availability of suitable terrestrial habitat and proximity to other ponds. Each factor is scored based on its level of suitability for great crested newt. An HSI of 1 is optimal habitat (high probability of occurrence), while an HSI of 0 is very poor habitat (minimal probability of occurrence). The HSI is calculated on a single pond basis, but takes into account surrounding terrestrial habitat and local pond density. If a pond has a very low HSI score (<0.5) there would typically be a minimal chance of great crested newt presence.

This qualitative score can then be used, with caution, to indicate whether further detailed investigations are necessary or whether a particular waterbody can be 'scoped out' as unsuitable for great crested newts. However, professional judgement should be used rather than simply relying on the HSI to eliminate ponds from further assessment. Further detailed investigations would involve targeted surveys carried out between mid-March and mid-June to determine presence/absence of great crested newt and if present then an assessment of population status.

Environmental DNA (eDNA) Survey

The great crested newt environmental DNA (eDNA) sampling was undertaken following current best practice guidelines (Biggs, et al., 2014).

Given the presence of a number of waterbodies within 500 metres of the site boundary an environmental DNA (eDNA) analysis was undertaken to establish the presence / likely absence of great crested newt from within the ponds which were accessible (**Map 10**).

The field sampling entailed the collection of 20 samples of 30 millilitres of water from pre-selected sub-sampling sites around the margin of each waterbody. Sub-sampling

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sites are chosen to include areas where great crested newt are likely to be present such as areas of vegetation where they may be egg laying and areas of open water where they may be displaying. The 20 samples are then mixed into a single sterile bag from which six samples of water of 15ml are taken each of which is preserved in 35ml of ethanol. The samples are then refrigerated until analysis at the lab. The samples were sent to SureScreen Scientific eDNA testing service for analysis which were analysed in line with current guidance (Biggs, et al., 2014). The samples were taken within the required season (mid-April to June) when great crested newt eDNA is likely to be present within the pond and therefore, the analysis result indicates the presence or likely absence of the species from a given waterbody.

3.13.2 Survey Details

Habitat Suitability Index (HSI) Assessment

The great crested newt HSI assessment was carried out by Joe Hunt, Field Ecologist of ECOSA (Natural England Great Crested Newt Licence No. 2025-82923-SCI-CL08) and Charlotte Mollon of ECOSA on 1st May 2025. The weather conditions were dry with approximately 30% cloud cover, an ambient temperature of 18°C and a light wind.

Environmental DNA (eDNA) Survey

The eDNA sampling was carried out by Joe Hunt, Field Ecologist of ECOSA (Natural England Great Crested Newt Licence No. 2025-82923-SCI-CL08) and Charlotte Mollon of ECOSA on 1st May 2025. The weather conditions were dry with approximately 30% cloud cover, an ambient temperature of 18°C and a light wind.

3.13.3 Survey Limitations

Access to some of the off-site ponds for the eDNA surveys was not granted and therefore these ponds could not be surveyed.

3.14 Invertebrate Survey

3.14.1 Survey Methods

The survey carried out was a generalised survey with certain species groups targeted, these included;

- Grasshoppers, crickets and allies (Orthoptera)
- Dragonflies and damselfies (Odonata)
- Hoverflies and larger brachycera (Diptera)
- Larger bugs such as shield-bugs (Hemiptera)
- Bees and wasps (Hymenoptera)
- Leaf-beetles, ladybirds, click-beetles, long-horn beetles (Coleoptera)
- Various other more readily identified species

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The main emphasis of the survey was to find as many rare and notable species as possible, within the reviewed group.

During the terrestrial invertebrate surveys the following field survey methods were utilised.

Visual Observation: The surveyor visually inspected suitable nectar-producing plants for insects. Certain species of plant are known for being particularly attractive to insects and these were the focus of this method. Within the wider site typical species included bramble *Rubus fruticosus* aggregate, common fleabane *Pulicaria dysenterica*, ow parsley *Anthriscus sylvestris*, creeping thistle *Cirsium arvense*, hawthorn *Crataegus monogyna*, ground ivy *Glechoma hederacea*, common ragwort *Jacobaea vulgaris*, meadow vetchling *Lathyrus pratensis*, and creeping buttercup *Ranunculus repens*. Where a stand of flowers was particularly busy with insects then the surveyor would spend several minutes watching and recording species and where hand examination was required then a net was used for capture.

Sweep Netting: This involved the surveyor using a net to sweep areas of grassy and herbaceous vegetation, scrub and lower-hanging leaves of trees. The net was then inspected and species within the net recorded.

Deadwood Survey: Survey of deadwood can be fairly destructive with deadwood habitat dismantled to record invertebrates. During this survey this approach was not adopted and surveys of deadwood habitats consisted of visual inspection of deadwood and gentle lifting and replacing of bark and lumps of deadwood. Bark and wood around the base of dead trees was lifted and logs were turned.

Species Selection

During the survey particular attention was placed on species groups with high proportions of which can be identified in the field. In particular, butterflies and hoverflies are useful in this respect, although a substantial proportion of the latter group require microscopic examination. However, a large range of species groups were covered particularly when they could be identified in the field.

3.14.2 Survey Details

Dates and details of each invertebrate survey are provided in **Table 10**.

Table 10: Invertebrate survey details

Survey Date	Temperature	Weather Conditions
20th May 2025	24°C	Clear, sunny and warm and a light northern wind

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Survey Date	Temperature	Weather Conditions
3rd July 2025	28°C	Clear, sunny and hot with a light south-westerly wind
12th August	24-31°C	Dry and hot, <10% cloud cover, light breeze

The invertebrate surveys were coordinated and carried out by Simon Colenutt, Managing Principal Ecologist of ECOSA.

Equipment

The surveyor carried a hand-net to capture invertebrates and a Lichen candelaris 20x hand lens to aid the identification insects in the field. Where it was necessary to take specimens for later identification under a microscope and using specialist keys, a pooter was used for collection purposes. Predatory species were potted separately. In addition, 10x32 NL Pure Swarovski binoculars were used to aid identification in the field.

3.14.3 Survey Limitations

The UK experienced three significant heatwaves during the summer of 2025 in mid-June, early July and mid-August. These resulted in early parching of vegetation and a significant reduction in invertebrate activity. The July and August survey visits were noticeable in the general lack of invertebrates particularly around plant species where one would normally expect a high level of activity. It is considered that this may have had a negative impact on the species diversity and numbers of individuals recorded.

As a consequence of the survey design, no generalised trapping was carried out and so species that are normally elusive when carrying out visual surveys but are more frequently recorded when trapping will be underrepresented. Similarly, no nighttime light trapping was carried out so that nocturnal species have not been recorded.

3.15 Criteria used to Assess Ecological Value

The evaluation criteria used in this report are based on ECOSA's professional judgement and publicly available publications, survey data and other sources as referenced in the main text. The evaluation is based on a sliding scale of importance as follows; international and European, national, regional, county, local and site. There are a wide range of characteristics which contribute to the importance of ecological features, and these may justify an increase or reduction in the value of an ecological feature. Where deviations occur, these will be explained in the evaluation section of this report (Section 4.0). Current published relevant guidance, including information sources such as A Nature Conservation Review (Ratcliffe, 1977) and Guidelines for Ecological Impact Assessment in the United Kingdom (CIEEM, 2018) have also been used to inform the assessment.

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4.0 BASELINE ECOLOGICAL CONDITIONS AND EVALUATION

4.1 Introduction

This section details the results of the Ecological Impact Assessment undertaken for the site. It assesses the baseline ecological conditions of the site at the time the desktop study was completed and based on the findings of the field survey and subsequent protected species surveys. This section also provides an assessment of the ecological value of ecological features present at the site.

4.2 Statutory and Non-statutory Designated Sites

4.2.1 Baseline Ecological Conditions

Details of designated sites are provided in the paragraphs below.

Statutory Designated Sites

There are no statutory designated sites of nature conservation interest situated within two kilometres of the site boundary.

Non-Statutory Designated Sites

There are three non-statutory designated sites of nature conservation interest situated within two kilometres of the site boundary. These are:

- Poling Copse (LWS) – Located approximately 1.5 kilometres to the north of the site and designated for its ancient woodland habitat, providing refuge for woodland species, including notable plants and invertebrates.
- Arun Valley, Watersfield to Arundel (LWS) – Located approximately 1.9 kilometres to the north of the site and designated for its extensive wetland and floodplain habitats, which support breeding and wintering bird populations, invertebrates, and plant communities of conservation interest.
- Eldon Way (Designated Road Verge) – Located approximately 1.9 kilometres to the south-west of the site and designated for supporting species-rich grassland and acting as a wildlife corridor for pollinators and small mammals.

Further information on sites designated for nature conservation are provided in **Appendix 2**.

4.2.2 Evaluation

The LWS and Designated Road Verge are assessed as being of county value.

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4.3 Habitats

4.3.1 Baseline Ecological Conditions

Desktop Study Results

Consultation with SxBRC returned records of coastal and floodplain grazing marsh on site and produced records of 36 notable plant species within the desktop study area, as well as species that could occur within coastal and floodplain grazing marsh, including marsh-mallow *Althaea officianalis* and marsh ragwort *Jacobaea aquatica*.

Field Survey Results

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

Coastal and Floodplain Grazing Marsh

The site is dominated by coastal and floodplain grazing marsh. The grassland supports a long sward and tussocky structure (**Figure 1**). Species recorded in this area include Yorkshire fog *Holcus lanatus*, meadow foxtail *Alopecurus pratensis*, timothy *Phleum pratense*, annual meadow-grass *Poa annua*, sweet vernal grass *Anthoxanthum odoratum*, soft rush *Juncus effusus* and hard rush *Juncus inflexus*, with herbaceous species recorded including cow parsley, creeping thistle, ground ivy, common ragwort, meadow vetchling and creeping buttercup.



Figure 1: Coastal and floodplain grazing marsh to the east of the site

Sedge Beds

Small areas of sedge beds were recorded to the east of the site. These areas were wet at the time of the initial field survey but were recorded as dry during subsequent field surveys. Species recorded within the sedge beds included greater pond sedge *Carex riparia*, lesser pond sedge *Carex acutiformis* and remote sedge *Carex remota*.

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Native Hedgerow

Small sections of native hedgerow are present along ditches. The hedgerows are unmanaged with limited connectivity to other habitats and comprise native species including hawthorn *Crataegus monogyna* and bramble.

Ditches

There are a number of ditches across the site that run off from the Black Ditch that runs along the northern boundary of the site (**Figure 2**). The ditches held a small amount of water at the time of the initial field survey and supported species associated with the coastal and floodplain grazing marsh.



Figure 2: The Black Ditch present along the northern boundary of the site

4.3.2 Evaluation

The habitat of greatest ecological value on site is the coastal and floodplain grazing marsh, a Habitat of Principal Importance. The coastal and floodplain grazing marsh is assessed as being of local value, while the other habitats on site are assessed as being of site value.

4.4 Bats

4.4.1 Baseline Ecological Conditions

Desktop Study Results

Consultation with SxBRC produced records of 15 species of bat within the desktop study area, including barbastelle *Barbastella barbastellus*, serotine *Cnephaeus serotinus*, *Myotis* bat species, alcathoe bat *Myotis alcathoe*, Daubenton's bat *Myotis daubentonii*, whiskered bat *Myotis mystacinus*, whiskered/Brandt's *Myotis mystacinus/brandtii*, Natterer's bat *Myotis nattereri*, noctule bat *Nyctalus noctula*, pipistrelle *Pipistrellus* bat species, Nathusius's pipistrelle *Pipistrellus nathusii*, common pipistrelle *Pipistrellus pipistrellus*, soprano pipistrelle *Pipistrellus pygmaeus*, long-eared bat *Plecotus* species, brown long-eared bat *Plecotus auritus*.

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Consultation with MAGIC produced records of seven granted EPSM licences with regard to bats within the desktop study area. These licences affect resting places for common pipistrelle, brown long eared bat and Natterer's bat and breeding places for common pipistrelle, soprano pipistrelle and brown long-eared bat. The most recent record is from 2017 while the nearest record is located approximately 200 metres to the south of the site.

Field Survey Results

Building Assessment

There is a single building on site, a small outbuilding of brick construction with a pitched clay tile roof (**Figure 3**). The building supports a number of access points, including missing tiles (**Figure 4**) and gaps round the broken door; however the roof is unlined and the dilapidated nature of the building makes it unlikely to support larger numbers of bats during poor weather conditions. Overall, the building is assessed as having moderate suitability to support roosting bats.



Figure 3: Brick outbuilding on site



Figure 4: Missing tiles on roof

Foraging and Commuting Habitat

The tree line, ditch, pond and coastal and floodplain grazing marsh provide excellent foraging and commuting opportunities for bats and are well connected to wider habitats in the landscape. Therefore the site is assessed as having high suitability to support foraging and commuting bats.

Bat Ground Level Tree Assessment Results

The results of the ground level tree assessment of the on-site trees are provided in **Table 11**. Details of tree locations and levels of bat suitability are provided in **Map 3.**

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Table 11: Ground level tree assessment results

Tree Number	Species and Description	Description of Features	Suitability for Bats	Further Survey
T1	Willow (*Salix* species)	Tear out	PRF - A tree with at least one PRF	Emergence Surveys
T2	Willow	None	None - No PRFs	No
T3	Hawthorn	Cankers	PRF - A tree with at least one PRF	N/A – Tree being retained
T4	Willow	Wound	PRF - A tree with at least one PRF	N/A – Tree being retained
T5	Beech *Fagus sylvatica*	Knot hole	PRF - A tree with at least one PRF	N/A – Tree being retained
T6	Pedunculate oak *Quercus robur*	Tear out	PRF - A tree with at least one PRF	N/A – Tree being retained
T7	Unknown dead tree	Wound, No damage features	PRF - A tree with at least one PRF	N/A – Tree being retained
T8	Willow	Knot hole, Lifting bark	PRF - A tree with at least one PRF	Emergence Surveys
T9	Field Maple *Acer campestre*	Subsidence crack	PRF - A tree with at least one PRF	N/A – Tree being retained

Bat Emergence Survey Results

No bats were recorded emerging during the emergence surveys. Therefore roosting bats are considered likely absent from Trees 1 and 7.

Bat Transect Survey Results

A total of three bat transect surveys were undertaken between April and October 2025 during which time a minimum of four species of bat were recorded within the site including common pipistrelle, soprano pipistrelle, noctule and *Myotis* bat species.

Activity levels across the site were low, with the majority of activity recorded along the western treelines around the pond. The locations of the bat activity recorded are provided on **Map 4** with a summary of the findings of each survey provided in **Table 12**.

Table 12: Bat activity recorded during transect surveys

Survey Date	General Bat Activity at the Site
9th April 2024	Small numbers of bats were recorded foraging and commuting to the west of the site. Species recorded include common pipistrelle, soprano pipistrelle and noctule.

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Survey Date	General Bat Activity at the Site
20th August 2025	Low levels of bat activity were recorded during the bat survey. Individual bats were recorded occasionally passing over the site; however the majority of activity was recorded along the edges of the pond on site.
13th October 2025	Very low levels of bat activity were recorded on site, with the majority of activity recorded to along the treeline to the south of the site.

Bat Automated Detector Survey Results

The automated bat detector survey results recorded a total of 29,241 bat registrations of at least 10 species: barbastelle, common pipistrelle, *Nyctalus* species bat, long-eared bat *Plecotus* species, *Myotis* species bat, Nathusius' pipistrelle, noctule, serotine, soprano pipistrelle and *Pipistrellus* species bat.

Activity by Species

Table 13 shows the number of registrations and proportion of recorded bat activity at the site by species. The majority of the activity recorded on site was dominated by common pipistrelle (46.23% of all registrations) and soprano pipistrelle (36.07% of all registrations) comprising a total of 82.3% of all registrations. Relatively high numbers of noctule were also recorded on site, making up 11.94% of the registrations.

Table 13: Number of registrations and proportion of bat activity from each species

Species	Count of Species
Barbastelle	251
Common pipistrelle	13521
Nyctalus species	13
Long-eared bat species	164
Myotis species	719
Nathusius' pipistrelle	363
Noctule	3492
Serotine	170
Soprano pipistrelle	10546
Unidentified pipistrelle species	2
Grand Total	**29241**

Species Activity by Month

Table 14 provides the number of registration of each species recorded within each month. The highest level of activity was recorded in April, with approximately 44.82% of all registrations recorded in this month, with May being the second highest month for activity levels (15.4%). Activity levels across the rest of the season were relatively consistent, with the exception of September which only recorded 652 registrations (2.23%).

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Table 14: Number of registrations of each month split by species

Period	Species	No. Registrations	Activity Index
April 2025	Common pipistrelle	8609	573.9
	Noctule	1404	93.6
	Soprano pipistrelle	2624	174.9
	Serotine	2	0.1
	Nathusius' pipistrelle	303	20.2
	Barbastelle	4	0.3
	Long-eared bat species	71	4.7
	Myotis species	86	5.7
	Unidentified pipistrelle species	2	0.1
April 2025 Total		**13105**	**873.7**
May 2025	Common pipistrelle	1716	114.4
	Noctule	1181	78.7
	Soprano pipistrelle	1520	101.3
	Barbastelle	32	2.1
	Long-eared bat species	8	0.5
	Myotis bat species	47	3.1
May 2025 Total		**4504**	**300.3**
June 2025	Common pipistrelle	815	54.3
	Noctule	290	19.3
	Soprano pipistrelle	1501	100.1
	Serotine	75	5.0
	Barbastelle	21	1.4
	Long-eared bat species	12	0.8
	Myotis bat species	99	6.6
	Leisler's bat	1	0.1
June 2025 Total		**2814**	**187.6**
July 2025	Common pipistrelle	697	46.5
	Noctule	364	24.3
	Soprano pipistrelle	1537	102.5
	Serotine	73	4.9
	Barbastelle	15	1.0
	Long-eared bat species	33	2.2
	Myotis bat species	58	3.9
July 2025 Total		**2777**	**185.1**
August 2025	Common pipistrelle	795	53.0
	Noctule	169	11.3
	Soprano pipistrelle	2140	142.7
	Serotine	13	0.9
	Barbastelle	79	5.3
	Long-eared bat species	24	1.6

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	Myotis bat species	147	9.8
	Leisler's bat	12	0.8
August 2025 Total		**3379**	**225.3**
Sep-25	Common pipistrelle	50	3.3
	Noctule	52	3.5
	Soprano pipistrelle	401	26.7
	Serotine	5	0.3
	Nathusius' pipistrelle	9	0.6
	Barbastelle	25	1.7
	Myotis bat species	110	7.3
September 2025 Total		**652**	**43.5**
Oct-25	Common pipistrelle	839	55.9
	Noctule	32	2.1
	Soprano pipistrelle	823	54.9
	Serotine	2	0.1
	Nathusius' pipistrelle	51	3.4
	Barbastelle	75	5.0
	Long-eared bat species	16	1.1
	Myotis bat species	172	11.5
Oct-25 Total		**2010**	**134.0**
Grand Total		**29241**	**1949.4**

Activity Levels at Locations

Table 15 shows the number of registrations recorded at each individual location throughout the survey period. The highest level of activity was recorded at Location 1, with Locations 2 and 3 showing similar levels of activity to each other.

Table 15: Activity Recorded at Each Location

Location	Species	Count of Species	Activity Index
Location 1	Common pipistrelle	5887	392.47
	Noctule	1348	89.87
	Soprano pipistrelle	6128	408.53
	Serotine	48	3.20
	Nathusius' pipistrelle	48	3.20
	Nyctalus species	1	0.07
	Barbastelle	157	10.47
	Unidentified pipistrelle species	1	0.07
	Long-eared bat species	45	3.00
	Myotis species	300	20.00
Location 1 Total		**13963**	**930.87**
Location 2	Common pipistrelle	4357	290.47
	Noctule	1064	70.93
	Soprano pipistrelle	2008	133.87

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	Serotine	73	4.87
	Nathusius' pipistrelle	267	17.80
	Nyctalus species	6	0.40
	Barbastelle	6	0.40
	Unidentified pipistrelle species	1	0.07
	Long-eared bat species	40	2.67
	Myotis species	180	12.00
Location 2 Total		**8002**	**533.47**
Location 3	Common pipistrelle	3277	218.47
	Noctule	1080	72.00
	Soprano pipistrelle	2410	160.67
	Serotine	49	3.27
	Nathusius' pipistrelle	48	3.20
	Nyctalus species	6	0.40
	Barbastelle	88	5.87
	Long-eared bat species	79	5.27
	Myotis species	239	15.93
Location 3 Total		**7276**	**485.07**
Grand Total		**29241**	**1949.40**

4.4.2 Evaluation

Roosting Bats

The building on site is unlikely to support large numbers of bats and represents a small portion of the available roosting habitats for bats in the wider area. Therefore the site is assessed as being of site value only for roosting bats.

Foraging and Commuting Bats

Bat surveys recorded at least 10 species of bat foraging and commuting at the site. Common pipistrelle and soprano pipistrelle are considered common and widespread throughout Sussex, while noctule and serotine are considered uncommon and Nathusius' pipistrelle is considered scarce (Sussex Bat Group, 2023). It is possible that some of the registrations of *Myotis* species bat could be attributed to Bechstein's bat *Myotis bechsteinii*, a very rare species in Sussex (Sussex Bat Group, 2023), as there are ancient woodland habitats present in the wider area, however the habitats on site are more likely to be used by Daubenton's bat. Barbastelle is considered very rare in Sussex (Sussex Bat Group, 2023) but was not recorded in significantly high numbers. Given the location of the site, it is possible that some of the registrations of long-eared bat could be attributed to grey long-eared bat *Plecotus austriacus*, a rare species located on the south coast (Sussex Bat Group, 2023), however long-eared bats were not recorded in high numbers. Overall, as the site does not meet the criteria to be designated as a Local Wildlife Site for bats, the site is assessed as being of local value for foraging and commuting bats.

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4.5 Otter

4.5.1 Baseline Ecological Conditions

Desktop Study Results

SxBRC does not provide records of otter *Lutra lutra*, due to the historic persecution of this species.

Consultation with MAGIC produced no records of otter within the desktop study area, however, this does not confirm the absence of the species in the local area.

Field Survey Results

The habitats on site provide opportunities for foraging otter, while the tree lines and reed beds provide some opportunities for sheltering and resting otter. The site is well connected to off-site habitats via The Black Ditch running along the northern boundary of the site.

Otter Survey Results

No evidence of otter was recorded on site during the survey, therefore otter are considered likely absent from the site, however the site is considered to have suitability to be colonised by otter.



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4.7 Hazel Dormouse

4.7.1 Baseline Ecological Conditions

Desktop Study Results

Consultation with SxBRC produced no records of hazel dormouse *Muscardinus avellanarius* within the desktop study area, however, this does not confirm the absence of the species in the local area.

Consultation with the MAGIC database produced no records of granted EPSM licences with regard to hazel dormouse within the desktop study area.

Field Survey Results

The treelines and scrub habitats on site provide some foraging and sheltering opportunities for hazel dormouse and the site has some connectivity to off-site habitats via adjacent treelines and woodland. Therefore the site is assessed as having suitability to support hazel dormouse.

Hazel Dormouse Survey Results

The hazel dormouse survey confirmed the likely absence of dormouse within the site. Therefore this species is not considered any further in this report

4.8 Water Vole

4.8.1 Baseline Ecological Conditions

Desktop Study Results

Consultation with SxBRC produced 34 records of water vole *Arvicola amphibius* within the desktop study area, with the most recent record from 2022.

Water vole was previously recorded within ditches on site during the previous surveys carried out by WYG (WYG, 2014).

Field Survey Results

The ditches on site provide opportunities for water vole to forage and create burrows and are well connected to The Black Ditch that runs along the northern boundary of the site. Therefore the site is assessed as having suitability to support water vole.

Water Vole Survey Results

No evidence of water vole was recorded during the survey works. Evidence of American mink *Neogale vision*, a Schedule 9 invasive species, was recorded on site in the form of scat which may explain the lack of records of water vole, despite the historic records of water vole on site.

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4.8.2 Evaluation

The site is currently unsuitable for water vole due to the confirmed presence of American mink.

4.9 Birds

4.9.1 Baseline Ecological Conditions

Desktop Study Results

Consultation with SxBRC returned numerous records of notable birds within the desktop study area. Those returned that are considered likely to be using the site, given the habitats present on site, include Bewick's Swan *Cygnus columbianus bewickii* and Cetti's warbler *Cettia cetti*.

Field Survey Results

The habitats on site provide opportunities for breeding and ground nesting birds, while the reedbeds provide opportunities for more specialist species such as Cetti's warbler. The grassland, sedge bed and reedbed habitats provide foraging opportunities for wintering birds and the fields may become inundated overwinter making it suitable for a range of waterfowl.

During the initial field survey, evidence of roosting barn owl *Tyto alba*, was recorded within the outbuilding on site in the form of pellets and feeding remains. Based on the age of the pellets, the roosting site was likely active at the time of the survey and has been active for a number of years.

Breeding Bird Survey Results

A number of bird species were recorded as possibly breeding on site including the Schedule 1 species Cetti's warbler. Red listed species recorded as possibly breeding on site include greenfinch *Chloris chloris*, linnet *Linaria cannabina*, yellowhammer *Emberiza citrinella*. Amber listed species recorded possibly breeding on site include dunnock *Prunella modularis*, mallard *Anas platyrhynchos*, reed bunting *Emberiza schoeniclus*, sedge warbler *Acrocephalus schoenobaenus*, song thrush *Turdus philomelos*, teal *Anas crecca*, whitethroat *Curruca communis*, willow warbler *Phylloscopus trochilus*, woodpigeon *Columba palumbus* and wren *Troglodytes troglodytes*.

A number of red and amber listed bird species were recorded during the survey works which were not considered to be breeding on the site. Species recorded include great black-backed gull *Larus marinus*, black-tailed godwit *Limosa limosa*, black-headed gull *Chroicocephalus ridibundus*, gadwall *Mareca strepera*, herring gull *Larus argentatus*, house martin *Delichon urbicum*, kestrel *Falco tinnunculus*, marsh harrier *Circus*

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aeruginosus, meadow pipit *Anthus pratensis*, mistle thrush *Turdus viscivorus*, redstart *Phoenicurus phoenicurus*, shoveler *Spatula clypeata*, skylark *Alauda arvensis*, snipe *Gallinago gallinago*, sparrowhawk *Accipiter nisus*, starling *Sturnus vulgaris*, stock dove *Columba oenas*, swift *Apus apus*. A number of Schedule 1 species were also recorded including barn owl, kingfisher *Alcedo atthis* and firecrest *Regulus ignicapilla*.

A number of common and widespread species were also recorded within the site including blackbird *Turdus merula*, blackcap *Sylvia atricapilla*, blue tit *Cyanistes caeruleus*, Canada goose *Branta canadensis*, carrion crow *Corvus corone*, chiffchaff *Phylloscopus collybita*, collared dove *Streptopelia decaocto*, coot *Fulica atra*, cormorant *Phalacrocorax carbo*, goldfinch *Carduelis carduelis*, goosander *Mergus merganser*, great tit *Parus major*, grey heron *Ardea cinerea*, lesser whitethroat *Curruca curruca*, little egret *Egretta garzetta*, little grebe *Tachybaptus ruficollis*, long-tailed tit *Aegithalos caudatus*, magpie *Pica pica*, moorhen *Gallinula chloropus*, mute swan *Cygnus olor*, reed warbler *Acrocephalus scirpaceus*, robin *Erithacus rubecula*, swallow *Hirundo rustica* and tufted duck *Aythya fuligula*.

The species recorded were largely typical of the wet grassland habitats. The species of most conservation importance was Cetti's warbler, which is listed on Schedule 1 of the Wildlife and Countryside Act 1981 and is a wetland specialist species.

Wintering Bird Survey Results

A total of 34 notable species were recorded on the site during the surveys undertaken between November 2024 and March 2025. Species included notable shore birds such as black-headed gull herring gull Mediterranean gull *Larus melanocephalus* and lapwing *Vanellus vanellus*. Other notable species included Cetti's warbler, Dartford warbler *Sylvia undata*, redwing *Turdus iliacus*, and yellowhammer. A summary of the notable species recorded within the site is provided in **Table 16**. The full results are presented in Map 8.

Table 16: Summary of notable bird species recorded within the site*

Species	Peak Count	Schedule 1[13]	Red List[14]	Amber List[15]	UKBAP
Wren	6			X	

[13] Schedule 1
Birds listed on Schedule 1 of the Wildlife and Countryside Act (1981 as amended) are afforded additional protection receive further protection making it an offence to: Intentionally or recklessly disturb any bird while it is nest building, or is at a nest containing eggs or young; or; Intentionally or recklessly disturb the dependent young of any such bird.
[14] Birds of Conservation Concern Red List
The UK's birds are split into three categories of conservation importance - red, amber and green. Red is the highest conservation priority, with species needing urgent action. Amber is the next most critical group, followed by green. Red List criteria include species which are: globally threatened; have been subject to historical population decline in UK during 1800–1995; are in severe (at least 50%) decline in UK breeding population over last 25 years, or longer-term period, or; subject to severe (at least 50%) contraction of UK breeding range over last 25 years, or longer-term period.
[15] Birds of Conservation Concern Amber List

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Species	Peak Count	Schedule 1[13]	Red List[14]	Amber List[15]	UKBAP
Cetti's warbler	4	X			
Song thrush	3			X	X
Reed bunting	1			X	X
Linnet	2		X		X
Redwing	(1)	X		X	
Greenfinch	7		X		
Black-headed gull	58			X	
Common gull	(2)			X	
Herring gull	26		X		X
Woodpigeon	120			X	
Starling	75		X		X
Stock dove	5			X	
Bullfinch	1			X	X
Dunnock	2			X	
Dartford warbler	2	X		X	
Firecrest	1	X			
Yellowhammer	1		X		X
Rook	45			X	
Skylark	4		X		X
Meadow pipit	4			X	
Kestrel	1			X	
Mallard	1			X	
Lapwing	4		X		X
Snipe	(1)			X	
House sparrow	4		X		
Sparrowhawk	1			X	
Fieldfare	50	X	X		
Lesser black-backed gull	1			X	
Grey wagtail	1			X	
Green sandpiper	1	X		X	
Barn owl	1	X			
Black redstart	1	X		X	
Mediterranean gull	1	X		X	

* Numbers marked in brackets () were recorded flying over the site.

In addition, a number of common and widespread species were recorded as part of the survey work including water rail *Rallus aquaticus*, mute swan, little egret, moorhen and coot.

Amber list criteria include species which are: in unfavourable conservation status in Europe; subject to historical population decline during 1800–1995, but recovering; subject to moderate (25-49%) decline in UK breeding population or contraction of UK breeding range over last 25 years, or the longer-term period; subject to moderate (25-49%) decline in UK non-breeding population over last 25 years, or the longer-term period; rare breeders (1–300 breeding pairs in UK); rare non-breeders (less than 900 individuals), or; internationally important species with at least 20% of European breeding or non-breeding population in UK .

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4.9.2 Evaluation

Breeding Birds

The site contained a number of notable breeding birds, many of which are associated with wetland habitats. The habitats in the wider area are dominated by agricultural landscapes and urban development, although pockets of wetland habitats are present, especially along the Black Ditch. Therefore the habitats on site are considered to be of local value for breeding birds.

Wintering Birds

The site contained a range of notable wintering birds, many of which are associated with farmland habitats. The site is located within an urban setting, but the wider landscape comprises extensive agricultural landscapes, particularly to the north and east. Overall, given the wintering bird species recorded within the site and the extent of similar habitats for the species group in the surrounded, the site is assessed to be of value for wintering birds at the site level only.

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Table 17: Wintering bird survey results

Species	Survey Date						
	18th November 2024	13th December 2024	14th January 2025	30th January 2025	11th February 2025	24th February 2025	11th March 2025
Black-headed gull	58	21	50	12	25	100	160
Common gull	2	0	0	0	0	1	2
Coot	0	0	0	0	2	1	2
Green sandpiper	0	0	1	0	0	0	0
Grey heron	0	0	0	1	0	0	0
Herring gull	11	8	10	17	26	11	200
Lapwing	4	0	3	0	0	0	0
Lesser black-backed gull	0	0	0	0	0	1	2
Little egret	1	0	0	1	0	0	0
Mallard	1	20	12	11	11	10	6
Mediterranean gull	0	0	0	0	0	0	1
Moorhen	0	1	2	3	1	3	3

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Species	Survey Date						
	18th November 2024	13th December 2024	14th January 2025	30th January 2025	11th February 2025	24th February 2025	11th March 2025
Mute swan	0	1	0	4	0	0	0
Snipe	1	0	1	0	1	0	0
Water rail	1	0	0	0	0	0	0

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4.10 Reptiles

4.10.1 Baseline Ecological Conditions

Desktop Study Results

Consultation with SxBRC produced records of four species of reptiles within the desktop study area, including slow-worm *Anguis fragilis*, grass snake *Natrix helvetica*, common lizard *Zootoca vivipara* and sand lizard *Lacerta agilis*.

Consultation with the MAGIC database returned no records of granted EPSM licences with regards to sand lizard in the desktop study area.

Field Survey Results

The grassland and sparsely vegetated habitats on site provide a tussocky structure that provides sheltering and foraging opportunities for reptiles and the site has some connectivity to offsite habitats via adjacent grassland habitats and the railway line adjacent to the south of the site.

Reptile Survey Results

A summary of the reptile surveys at the site is provided in **Table 18** and on **Map 9**.

Table 18: Summary of reptile survey results

Survey Date	Number of Individuals Recorded			
	Slow-worm		Common Lizard	
	Adult	Juvenile	Adult	Juvenile
28th April 2025	4	0	0	0
1st May 2025	1	3	1	0
9th May 2025	5	0	1	1
12th May 2025	7	0	6	3
20th May 2025	15	1	3	5
30th May 2025	30	25	9	2
10th June 2025	28	17	2	1
Peak Count	**30**	**25**	**9**	**5**

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4.10.2 Evaluation

Population Class Size Assessment

Table 19 shows the current guidance (Froglife, 1999) for assessing the population size of reptiles based on a refugia density of 10 per hectare. A density of 7 refugia per hectare was used at the site and therefore the population size assessment has been adjusted accordingly.

Table 19: Criteria for population size assessment based upon a refugia density of 10 per hectare

Species	Low Population	Good Population	Exceptional Population
Slow-worm	<4	4-14	>14
Common lizard	<4	4-14	>14
Grass snake	<4	4-7	>7
Adder	<4	4-7	>7

Given the peak count of 30 adults, the site can be said to support an exceptional population of slow-worm and given the peak count of nine adults, the site is considered to support a good population of common lizard.

Froglife have devised a method for assessing 'key reptile sites' based on the scoring system presented in **Table 19**. This method states that a site should be considered a 'key reptile site' if:

- It supports three or more reptile species; or
- Two species of snake; or
- Supports an exceptional population of a single species.

The site fulfils one of these criteria and as a result should be considered a 'key reptile site'.

Evaluation

As the site could be considered a 'key reptile site' and supports an exceptional population of slow-worm, it is likely that the site could satisfy the criteria to be designated as a LWS for reptiles. Therefore, the site is assessed as being of county value for reptiles.

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4.11 Great Crested Newt

4.11.1 Baseline Ecological Conditions

Desktop Study Results

Consultation with SxBRC produced two records of great crested newt *Triturus cristatus* within the desktop study area, with the most recent record being from 2019.

Consultation with the MAGIC database returned one record of a granted EPSM licence with regards to great crested newt from within the desktop study area. The licence was granted in 2014 and located approximately 1.6 kilometres to the north-east of the site.

Previous surveys carried out by WYG in 2014 recorded no records of great crested newt on site or within ponds within 500 metres of the site (WYG, 2014).

A review of OS mapping and aerial photography returned the presence of eight ponds within 500 metres of the site.

Field Survey Results

There are two large ponds on site and a number of ditches that could provide breeding opportunities for great crested newt on site. The scrub and grassland habitats on site provide foraging and sheltering opportunities for great crested newt, however the site has been subject to previous clearance works and is part of an active construction compound. Overall the site is assessed as having suitability to support great crested newt.

Great Crested Newt HSI Assessment Results

Ponds 2, 3 and 9 were subject to an HSI assessment and returned results of 0.81, 0.73 and 0.51 respectively and are therefore considered to have ‘Excellent’, ‘Good’ and ‘Below Average’ suitability to support great crested newt.

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Table 20: Ponds within 500m of Site Boundary - Details

Pond No.	NGR	Location in Relation to Site Boundary	HSI Score	HSI Suitability	Waterbody Description	Access Possible	Further Survey
1	TQ 0402 0364	60 metres south	-	-	Large pond to east of industrial estate	No	-
2	TQ 0412 0402	Within site boundary	0.81	Excellent	Large artificial reservoir with steep sides	Yes	eDNA
3	TQ 0409 0388	Within site boundary	0.73	Good	Large pond surrounded by treelines. Common carp were recorded as being present within the pond	Yes	eDNA
4	TQ 0357 0385	180 metres west of site	-	-	Small ornamental pond	No	-
5	TQ 0438 0413	30 metres north of site	-	-	Small pond within marshy area Small collection of ponds within marshy area	No	-
6	TQ 0467 0417	50 metres north of site	-	-	Small collection of ponds within marshy area	No	-
7	TQ 0501 0438	495 metres north-east of site	-	-	Small pond	No	-
8	TQ 0459 0367	120 metres south of site	-	-	Small pond that was dry at the time of the survey	Yes	eDNA
9	TQ 0452 0361	180 metres south of site	0.51	Below average	Large ornamental pond within public open space	Yes	eDNA
10	TQ 0499 0378	400 metres east of site	-	-	Large pond within golf course	No	-

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Great Crested Newt eDNA Survey Results

The results of the eDNA survey returned negative results for the presence of great crested newt within ponds 2, 3 and 9. Pond 8 was dry at the time of the survey, as were the ditches on site. While the other ponds could not be accessed during the survey, ponds 5, 6, 7 and 8 are considered functionally separated from the site due to flowing water within the Black Ditch. As the results came back negative for the onsite ponds, breeding great crested newt are considered to be likely absent from the site.

4.11.2 Evaluation

While breeding great crested newt have been confirmed as being likely absent from the site, the status of great crested newt in the wider area could not be confirmed due to a lack of access to some off-site ponds. However, as the site is separated from off-site ponds by flowing water and previously cleared land, making it unlikely great crested newt would cross onto the site, it is considered unlikely that great crested newt will occur on site or that the site represents a significant resource for great crested newt, if present in the local area. Therefore the site is assessed as being only of site value for great crested newt.

4.12 Invertebrates

4.12.1 Baseline Ecological Conditions

Desktop Study Results

Consultation with SxBRC produced records of 126 notable invertebrate species within the desktop study area, including stag beetle *Lucanus cervus* and common darter *Sympetrum striolatum*.

Field Survey Results

The ditches, ponds and grassland habitats on site provide opportunities for notable assemblages of invertebrates. Therefore the site is assessed as having suitability for invertebrates.

Invertebrates Survey Results

The invertebrate surveys recorded species that are considered common or local to the area. While the full details of the invertebrate surveys are not available at the time of preparing this report, it has been confirmed that no notable species were recorded during the survey. The available results of the invertebrate survey are provided in Error! Reference source not found..

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4.12.2 Evaluation

The site supports common and widespread invertebrates that are likely to be present throughout the wider area. Therefore the site is assessed as being of site value only for invertebrates.

4.13 Other Relevant Species

4.13.1 Baseline Ecological Conditions

Desktop Study Results

Consultation with SxBRC produced records of other notable species within the desktop study area, including European hedgehog *Erinaceus europaeus* and brown hare *Lepus europaeus*.

Field Survey Results

Brown hare was recorded on site during other field survey works and the site has suitability for European hedgehog in the form of grassland for foraging and treelines and hedgerows for sheltering.

4.13.2 Evaluation

The site represents a small portion of habitats available for these species in the wider area, therefore the site is assessed as being of site value only for brown hare and European hedgehog.

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

5.1 Introduction

This section assesses the ecological effects of the proposed development scheme on the identified ecological features as identified in Section 4.0. Methods for addressing potential impacts on ecological features have been approached in accordance with the mitigation hierarchy[16] with avoidance of impacts prioritised where possible. Where significant adverse effects cannot be avoided other forms of mitigation are prioritised overcompensation. Enhancement measures have been detailed, where relevant, in order to not only minimise the impacts on biodiversity but also to provide enhancement in accordance with Paragraph 174 of the NPPF (Paragraph 2.2). It is anticipated that mitigation, compensation and enhancement measures will be secured through the planning process.

5.2 Scheme Design

The proposed development new sports pitches, a car parking area and community facilities building, the provision of allotments and public access (creations of footpaths) to open space to the east. Access to the sports pitch will be created from Phase 6A to the site and new footpaths will be created around the edges of the site and will connect to Phase 6A to the north-west of the site. Full details of the potential ecological impacts and effects of these proposals, in the absence of mitigation, are described for each ecological feature below. For each ecological feature, measures to mitigate and/or compensate for significant effects are described.

5.3 Designated Sites

5.3.1 Potential Impacts and Effects

Given the distance of the site from the nearby designated sites and the lack of ecological pathways between the site and designated sites, there are no anticipated impacts on designated sites.

5.3.2 Mitigation Measures

No mitigation measures are proposed with regard to designated sites.

5.3.3 Significance of Residual Effects

As there are no anticipated impacts, there will be no residual effects.

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

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5.3.4 Compensation

No compensation measures are proposed with regard to designated sites.

5.3.5 Enhancement

No compensation measures are proposed with regard to designated sites.

5.4 Habitats

5.4.1 Potential Impacts and Effects

The proposals will result in the loss of some of the coastal and floodplain grazing marsh, hedgerows and ditches. There will also be some temporary loss of coastal and floodplain grazing marsh to allow for the lowering of the level of the ground for flooding compensation.

Retained habitats may be damaged through root compaction and accidental contact with machinery. Contamination of aquatic habitats through dust and increased run-off may also be encountered.

5.4.2 Mitigation Measures

All trees to be retained within the site will be protected with Root Protection Zones (RPZs) established in accordance with BS 5837:2012 (British Standards, 2012). Heras-type fencing should be installed around retained trees and habitats during construction to protect RPZs and areas of retained habitat.

A Construction Environmental Management Plan (CEMP) will be produced prior to construction, with input from an ecologist, detailing storage of fuel and chemicals on site, provision of spill kits and measures to reduce dust and noise pollution on site. Fuel and chemicals will be stored on site in secure containment at least 100 metres away from any watercourses on site.

5.4.3 Significance of Residual Effects

To accommodate the proposals, the loss of habitats cannot be mitigated for.

5.4.4 Compensation

New planting will comprise native grassland, tree and shrub species as opposed to cultivars and/or non-natives. Retained habitats will be subject to suitable management procedures to maintain their structure and continued ecological functionality.

5.4.5 Enhancement

No enhancement measures are proposed with regards to habitats.

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5.5 Bats

5.5.1 Potential Impacts and Effects

The outbuilding will be retained on site as part of the proposals.

The proposals will result in the loss of foraging and commuting habitats for bats. New external lighting may cause disturbance to foraging and commuting bats.

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

5.5.2 Mitigation Measures

New external lighting to be installed on the development will comprise hooded luminaires directed away from vegetation and the adjacent boundary hedgerow and woodland habitats. Ideally the bulbs will be LED and at the warmer end of the spectrum (i.e. avoiding blue or white light). LED lights emit much lower levels of UV and therefore have a lower impact on wildlife. The new lighting will be task-related, associated with specific entrance/exit points of the development. The lux level will be as low as possible to allow the task to be carried out safely and effectively. Guidance on task-related lighting levels and mitigation options as described within the Bats and Artificial Lighting in the UK report will be followed (Institution of Lighting Professionals, Bat Conservation Trust, 2023).

5.5.3 Significance of Residual Effects

The loss of suitable bat foraging and commuting habitats cannot be mitigated for within the scheme.

5.5.4 Compensation

New scrub planting will provide foraging resources on site.

5.5.5 Enhancement

No specific enhancement measures for bats are proposed with regards to this site, but enhancement measures have been proposed for the wider site that will benefit bats on site.

5.6 Otter

5.6.1 Potential Impacts and Effects

No direct impacts to otter are anticipated as a result of the proposals. Chemical spillage and silt run-off, causing a release of nitrogen, phosphorus and potassium (NPK), during construction works may enter nearby watercourses causing harm to otter.

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Otter are fully protected under the Wildlife and Countryside Act 1981 (as amended). Refer to **Appendix 3** for details.

5.6.2 Mitigation Measures

The CEMP recommended in Paragraph 5.4.2 will include measures to avoid pollution incidents to on-site and adjacent watercourses.

5.6.3 Significance of Residual Effects

Following mitigation, there are no anticipated residual effects.

5.6.4 Compensation

No compensation measures are proposed with regard to otter.

5.6.5 Enhancement

No enhancement measures are proposed with regard to otter.

5.7 Badger

5.7.1 Potential Impacts and Effects

While no badger setts were identified during the initial field survey, if badgers colonise habitats to be removed, construction works may lead to the disturbance or destruction of setts.

Badger are protected from killing and injury, and their setts protected from damage and interference, under the Protection of Badgers Act 1992. Refer to **Appendix 3** for details.

5.7.2 Mitigation Measures

An updating badger walkover should be carried out 3 months prior to works commencing on site. Any badger setts identified during the works should be retained within the development proposals wherever possible and buffered by a minimum of 30 metres from any built form or construction activities. Where this is not possible setts will need to be closed under licence. Artificial replacement setts would be required to offset the loss of any main setts.

5.7.3 Significance of Residual Effects

Following mitigation, there are no anticipated residual effects on badger.

5.7.4 Compensation

No compensation measures are proposed with regard to badger.

5.7.5 Enhancement

No enhancement measures are proposed with regard to badger.

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5.8 Birds

5.8.1 Potential Impacts and Effects

The building with the roosting barn owl will be retained as part of the proposals.

The proposals will result in the loss of suitable bird nesting habitats in the form of grassland habitats. Nesting birds may be harmed during vegetation clearance works.

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

5.8.2 Mitigation Measures

Any vegetation clearance will need to be undertaken outside of the nesting bird season (March to August inclusive). Should this not be possible then a suitably qualified ecologist will need to be present immediately prior to vegetation removal in order to check for active nests.

5.8.3 Significance of Residual Effects

To accommodate the scheme, the loss of suitable nesting bird habitats cannot be mitigated for.

5.8.4 Compensation

In order to offset any losses to nesting bird habitat new native species planting, including replacement reed beds, will be undertaken within the site.

5.8.5 Enhancement

As a measure of enhancement, a barn owl nest box will be installed in a suitable tree either on site or within the wider site.

5.9 Reptiles

5.9.1 Potential Impacts and Effects

The proposals will lead to the loss of reptile habitats. Vegetation clearance works could result in harm to reptiles.

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

5.9.2 Mitigation Measures

Given the presence of an exceptional population of slow-worm and a good population of common lizard within the site it will be necessary to ensure that these animals are not harmed during the necessary ground clearance works prior to development and

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that animals are not present within the development area during construction works. It is proposed that a translocation exercise will be undertaken in order to safeguard the population during the construction works.

Prior to the commencement of the works semi-permanent exclusion fencing will be erected around the perimeter of the construction area in order to ensure that reptiles do not enter the construction area during works. The retained area of grassland to the east of the wider site, would serve as the receptor site for any reptiles captured as part of the translocation exercise.

Following the installation of the exclusion fencing, reptile capture and removal will be undertaken by a suitably qualified ecologist between April and October (weather dependent) when reptiles are not in hibernation. A high density of refugia will be distributed throughout areas of suitable habitat and inspected on a daily basis in suitable weather conditions until five 'clear' visits have been achieved. It is envisaged that the translocation exercise will take a minimum of 90 days. All captured animals will be placed in a secure container and transported to the receptor site at the end of each visit capture.

Following the completion of the capture exercise, a destructive search will be undertaken of the on-site habitat under supervision of a suitably qualified ecologist. This will entail the methodical removal of any suitable habitat within the site. Any additional reptiles encountered as part of the destructive search will be captured by the ecologist and relocated to the receptor area. Once the destructive search has been completed, and all suitable reptile habitat has been removed from the site, the development work will be able to proceed.

Following the completion of the development, the reptile fencing will be removed under the supervision of a suitably qualified ecologist. This will be undertaken either upon completion of the entire development or on a phased work basis as the development is completed.

5.9.3 Significance of Residual Effects

The proposed translocation will avoid harm to reptiles, however, the loss of suitable reptile habitat cannot be mitigated.

5.9.4 Compensation

Once the construction phase has been completed the reptile exclusion fencing will be removed to allow the translocated population to recolonise the site.

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5.9.5 Enhancement

Five hibernacula will be created within the proposed receptor area to provide additional habitats for reptiles and improve the carrying capacity of the site.

5.10 Great Crested Newt

5.10.1 Potential Impacts and Effects

While great crested newt are considered unlikely to occur on site, individuals may be harmed on site during vegetation clearance works.

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

5.10.2 Mitigation Measures

A precautionary measure of works will be carried out during vegetation clearance, in line with the measures proposed in Paragraph 5.9.2. If great crested newt are encountered during clearance works, then the works will be halted and Natural England will be contacted.

5.10.3 Significance of Residual Effects

Following mitigation, no residual effects are anticipated with regards to great crested newt.

5.10.4 Compensation

No compensation measures are proposed with regards to great crested newt.

5.10.5 Enhancement

The proposed hibernacula in Paragraph 5.9.5 will provide opportunities for great crested newt as well.

5.11 Invertebrates

5.11.1 Potential Impacts and Effects

The proposals will result in the loss of habitats for common and widespread assemblages of invertebrates, however this loss is not considered to be significant.

5.11.2 Mitigation Measures

No mitigation measures are proposed with regard to invertebrates.

5.11.3 Significance of Residual Effects

There are no anticipated residual effects with regards to invertebrates.

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5.11.4 Compensation

No compensation measures are proposed with regards to invertebrates.

5.11.5 Enhancement

As a measure of enhancement, two invertebrate towers will be installed within the retained open space.

5.12 Other Relevant Species

5.12.1 Potential Impacts and Effects

The proposals will result in the loss of habitats for European hedgehog and brown hare and may cause harm to individuals. The continued presence of American mink may impact on protected species and other native species on site.

5.12.2 Mitigation Measures

The precautionary measures of work detailed in Paragraph 5.9.2 will take into account the presence of European hedgehog and brown hare on site. If any individuals are encountered, they will be allowed to escape of their own volition.

A specialist will be contracted to eliminate American mink from the site.

5.12.3 Significance of Residual Effects

Following mitigation, the loss of habitats cannot be accommodated for within the scheme.

5.12.4 Compensation

No compensation measures are proposed with regard to European hedgehog and brown hare.

5.12.5 Enhancement

No enhancement measures are proposed with regards to European hedgehog and brown hare. The removal of American mink from the site will be a net positive for a number of species, including water vole.

5.12.6 Monitoring

Monitoring surveys will be carried out every year for the first five years following the eradication of American mink on site, to confirm the species has not recolonised the site.

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5.13 Cumulative Effects

Assuming that the mitigation and compensation measures outlined in the paragraphs above are implemented, no significant residual effects are anticipated. As such it is considered unlikely that the proposals will contribute to cumulative adverse effects in association with other proposals in the local area.

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6.0 CONCLUSIONS

6.1 Conclusion

The site supports coastal and floodplain grazing marsh, a Habitat of Principal Importance, hedgerows, sedge beds and ditch habitats. The site also supports foraging and commuting bats, a number of breeding and wintering bird species, an excellent population of slow-worm and a good population of common lizard. Adverse impacts on these ecological features have been identified and appropriate mitigation measures proposed. Post-development, no residual or cumulative impacts are anticipated. Monitoring will be undertaken to assess the success of measures undertaken to eradicate American mink from the site. The site will be enhanced for bats, birds, reptiles and invertebrates through the installation of additional bat roosting, bird nesting, hibernacula and invertebrate tower features, As such it is considered that the proposals will accord with all relevant national and local planning policy in relation to ecology including Policies SP1, CM1, CM2, CM3 and CM5 of the Local Plan and the NPPF (see Section 2.0).

6.2 Updating Site Survey

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

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Map 1 Site Location Plan

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NORTH LITTLEHAMPTON, TODDINGTON LANE, LITTLEHAMPTON, WEST SUSSEX

ECOLOGICAL IMPACT ASSESSMENT

Map 1 - Site Location Plan

Client:	Persimmon Homes Thames Valley
Date:	November 2025
Status:	Draft

KEY

Site Boundary

Wider Ownership Boundary



Scale at A3 1:10,000

0 100 200 300 400 m

N

Prepared by: JP	Date: 010225
Last amended by: BL	Date: 241125

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Map 2 Baseline Habitat Map

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NORTH LITTLEHAMPTON, TODDINGTON LANE, LITTLEHAMPTON, WEST SUSSEX

ECOLOGICAL IMPACT ASSESSMENT

Map 2 - Baseline Habitats

Client:	Persimmon Homes Thames Valley
Date:	November 2025
Status:	Draft

KEY

Site Boundary

Wider Ownership Boundary

Hedgerows

Line of trees

Native hedgerow - associated with bank or ditc

Native hedgerow with trees

Watercourses

Other rivers and streams

Individual Trees

M Rural Tree

Habitats

g3c8 - Holcus-Juncus neutral grassland

u1b5 - Buildings

f2 408 - Small-sedge fen

Scale at A3 1:2,000

0 15 30 45 60 m

N

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Map 3 Ground Level Tree Assessment

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ECOLOGICAL IMPACT ASSESSMENT

Map 3 - Ground Level Tree Assessment

Client:	Persimmon Homes Thames Valley
Date:	November 2025
Status:	Draft

KEY

Site Boundary

Wider Ownership Boundary

GLTA Results

PRF - A tree with at least one PRF

Scale at A3 1:2,000

0 15 30 45 60 m

N

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Map 4 Bat Transect Survey

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ECOLOGICAL IMPACT ASSESSMENT

Map 4a - Bat Transect Survey (Spring)

Client:	Persimmon Homes Thames Valley
Date:	November 2025
Status:	Final

KEY

- Site Boundary
- Wider Ownership Boundary
- Bat Transect Route

Survey results

- Barbastelle
- Noctule
- Nyctalus bat species
- Nathusius's pipistrelle
- Soprano pipistrelle
- Common pipistrelle

Scale at A3 1:2,500

0 15 30 45 60 m

N

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ECOLOGICAL IMPACT ASSESSMENT

Map 4b - Bat Transect Survey (Summer)

Client:	Persimmon Homes Thames Valley
Date:	November 2025
Status:	Final

KEY

- Site Boundary
- Wider Ownership Boundary
- Bat Transect Route

Survey results

- Myotis bat species
- Noctule
- Nyctalus bat species
- Nathusius's pipistrelle
- Soprano pipistrelle
- Common pipistrelle

Scale at A3 1:2,500

0 15 30 45 60 m

N

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NORTH LITTLEHAMPTON, TODDINGTON LANE, LITTLEHAMPTON, WEST SUSSEX

ECOLOGICAL IMPACT ASSESSMENT

Map 4c - Bat Transect Survey (Autumn)

Client:	Persimmon Homes Thames Valley
Date:	November 2025
Status:	Final

KEY

- Site Boundary
- Wider Ownership Boundary
- Bat Transect Route

Survey results

- Myotis bat species
- Soprano pipistrelle
- Common pipistrelle

Scale at A3 1:2,500

0 15 30 45 60 m

N

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Map 5 Bat Automated Detector Survey

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ECOLOGICAL IMPACT ASSESSMENT

Map 5 - Bat Automated Detector Survey Results

Client:	Persimmon Homes Thames Valley
Date:	November 2025
Status:	Final

KEY

- Site Boundary
- Automated Detector Locations

The location reference is denoted by the number visible within each point. The proportion of bat calls recorded at each location are split according to the species listed below:

- Long-eared bat species
- Barbastelle
- Myotis bat species
- Serotine
- Noctule
- Nyctalus bat species
- Nathusius pipistrelle
- Soprano pipistrelle
- Common pipistrelle
- Unidentified pipistrelle species

Scale at A3 1:1,500

0 15 30 45 60 m

N

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Map 6 Hazel Dormouse Survey

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ECOLOGICAL IMPACT ASSESSMENT

Map 6 - Dormouse Tube Locations

Client:	Persimmon Homes Thames Valley
Date:	November 2025
Status:	Final

KEY

- Site Boundary
- Wider Ownership Boundary
- Dormouse - Tube / Box Locations

Scale at A3 1:2,000

0 15 30 45 60 m

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Map 7 Breeding Bird Survey

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ECOLOGICAL IMPACT ASSESSMENT

Map 7a - Breeding Bird Survey Red Listed and Schedule 1 Species

Client:	Persimmon Homes Thames Valley
Date:	November 2025
Status:	Final

KEY

Site Boundary

Wider Ownership Boundary

Red-Listed Species

- GB Great Black-backed Gull
- GR Greenfinch
- HG Herring Gull
- LI Linnet
- M. Mistle Thrush
- S. Skylark
- SI Swift
- Y. Yellowhammer

Schedule 1 Species

- BO Barn Owl
- CW Cetti's Warbler
- KF Kingfisher

Scale at A3 1:2,000

0 15 30 45 60 m

N

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ECOLOGICAL IMPACT ASSESSMENT

Map 7b - Breeding Bird Survey Amber Listed Species

Client:	Persimmon Homes Thames Valley
Date:	November 2025
Status:	Final

KEY

Site Boundary

Wider Ownership Boundary

Amber-Listed Species

- BH Black-headed Gull
- D. Dunnock
- GA Gadwall
- K. Kestrel
- MA Mallard
- MP Meadow Pipit
- RB Reed Bunting
- RT Redstart
- SD Stock Dove
- SH Sparrowhawk
- SN Snipe
- ST Song Thrush
- SW Sedge Warbler
- T. Teal
- WH Whitethroat
- WP Woodpigeon
- WR Wren
- WW Willow Warbler

Scale at A3 1:2,000

0 15 30 45 60 m

N

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Map 8 Wintering Bird Survey

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WINTERING BIRD SURVEY REPORT

Map 8a - Wintering Bird Survey (18.11.24)

Client:	Persimmon Homes Thames Valley
Date:	March 2025
Status:	Final

KEY

- Site Boundary
- Transect Route

BH	Black-headed Gull	MP	Meadow Pipit
BF	Bullfinch	MS	Mute Swan
CW	Cetti's Warbler	RE	Redwing
CM	Common Gull	RB	Reed Bunting
DW	Dartford Warbler	RO	Rook
D.	Dunnock	S.	Skylark
FC	Firecrest	SN	Snipe
GR	Greenfinch	ST	Song Thrush
HG	Herring Gull	SG	Starling
K.	Kestrel	SD	Stock Dove
L.	Lapwing	WA	Water Rail
LI	Linnet	WP	Woodpigeon
ET	Little Egret	WR	Wren
MA	Mallard	Y.	Yellowhammer

Bird Flight Markers

- Taking off
- In-flight
- Landing
- Circling

Scale at A4 1:7,000

0 60 120 180 240 m

N

Prepared by: KM	Date: 100325
Last amended by: KM	Date: 250325

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NORTH LITTLEHAMPTON, TODDINGTON LANE, LITTLEHAMPTON, WEST SUSSEX

WINTERING BIRD SURVEY REPORT

Map 8b - Wintering Bird Survey (13.12.24)

Client:	Persimmon Homes Thames Valley
Date:	March 2025
Status:	Final

KEY

Site Boundary

Transect Route

- BH Black-headed Gull
- CW Cetti's Warbler
- D. Dunnock
- GR Greenfinch
- GL Grey Wagtail
- HG Herring Gull
- HS House Sparrow
- K. Kestrel
- LI Linnet
- MA Mallard
- MP Meadow Pipit
- MH Moorhen
- RE Redwing
- RO Rook
- S. Skylark
- ST Song Thrush
- SG Starling
- SD Stock Dove
- TC Treecreeper
- WP Woodpigeon
- WR Wren

Bird Flight Markers

- Taking off
- In-flight
- Landing
- Circling

Scale at A4 1:7,500

0 60 120 180 240 m

N

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WINTERING BIRD SURVEY REPORT

Map 8c - Wintering Bird Survey (14.01.25)

Client:	Persimmon Homes Thames Valley
Date:	March 2025
Status:	Final

KEY

Site Boundary

Transect Route

BH	Black-headed Gull	MH	Moorhen
CW	Cetti's Warbler	RE	Redwing
DW	Dartford Warbler	RB	Reed Bunting
D.	Dunnock	RO	Rook
GE	Green Sandpiper	S.	Skylark
GL	Grey Wagtail	SN	Snipe
HG	Herring Gull	ST	Song Thrush
HS	House Sparrow	SH	Sparrowhawk
K.	Kestrel	SG	Starling
L.	Lapwing	SD	Stock Dove
LI	Linnet	WP	Woodpigeon
MA	Mallard	WR	Wren
MP	Meadow Pipit	Y.	Yellowhammer

Bird Flight Markers

Taking off

In-flight

Landing

Circling

Scale at A4 1:7,500

0 60 120 180 240 m

N

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WINTERING BIRD SURVEY REPORT

Map 8d - Wintering Bird Survey (30.01.25)

Client:	Persimmon Homes Thames Valley
Date:	March 2025
Status:	Final

KEY

Site Boundary

Transect Route

BO	Barn Owl	LI	Linnet
BH	Black-headed Gull	ET	Little Egret
CC	Chiffchaff	MA	Mallard
D.	Dunnock	MP	Meadow Pipit
FP	Feral Pigeon	MH	Moorhen
FC	Firecrest	MS	Mute Swan
GC	Goldcrest	KT	Red Kite
G.	Green Woodpecker	RO	Rook
GR	Greenfinch	S.	Skylark
H.	Grey Heron	ST	Song Thrush
HG	Herring Gull	SG	Starling
HS	House Sparrow	WP	Woodpigeon
K.	Kestrel	WR	Wren

Bird Flight Markers

Taking off

In-flight

Landing

Circling

Scale at A4 1:7,100

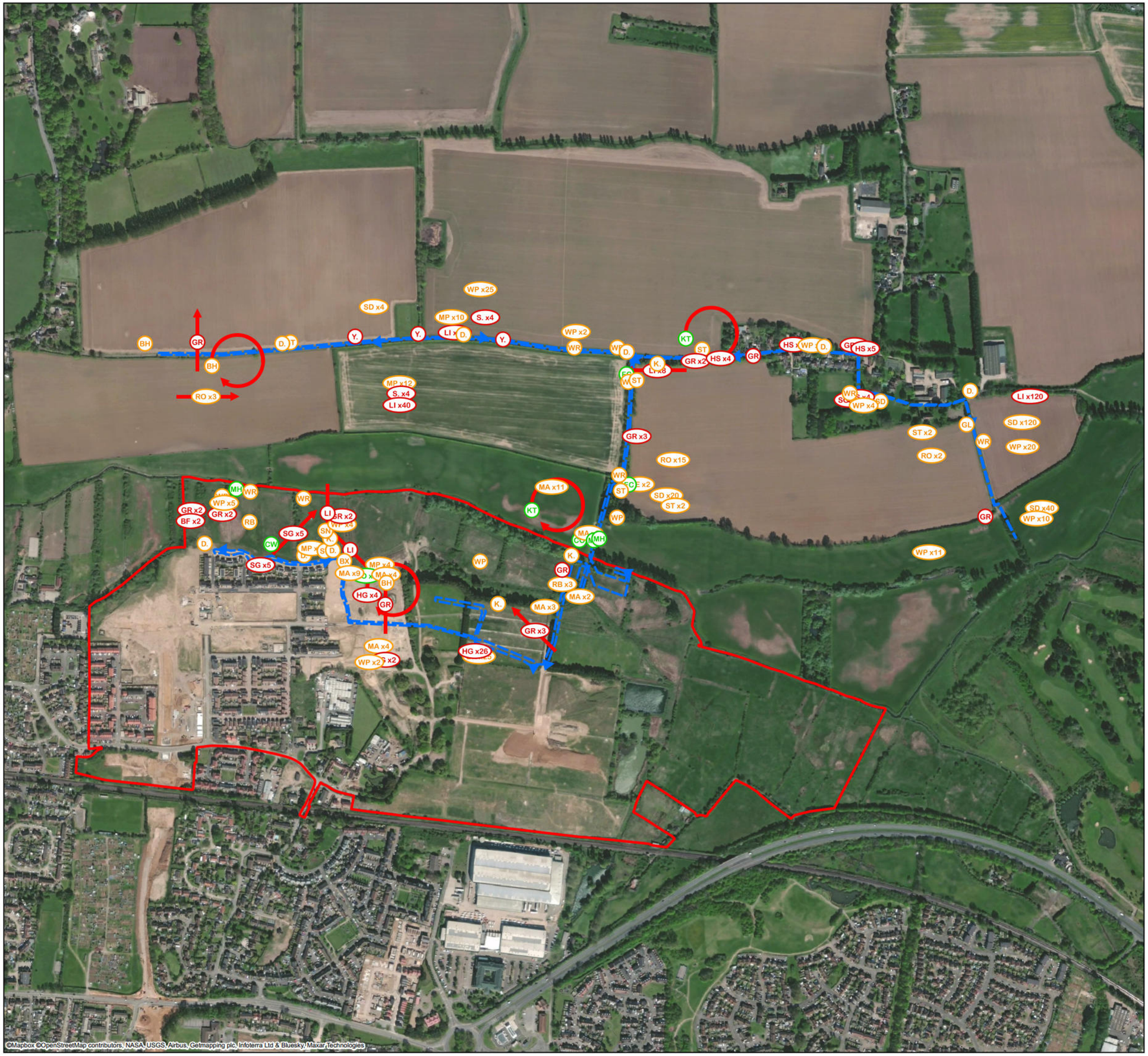
0 60 120 180 240 m

N

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WINTERING BIRD SURVEY REPORT

Map 8e - Wintering Bird Survey (11.02.25)

Client:	Persimmon Homes Thames Valley
Date:	March 2025
Status:	Final

KEY

Site Boundary

Transect Route

BX	Black Redstart	MP	Meadow Pipit
BH	Black-headed Gull	MH	Moorhen
BF	Bullfinch	KT	Red Kite
CW	Cetti's Warbler	RE	Redwing
CO	Coot	RB	Reed Bunting
D.	Dunnock	RO	Rook
FC	Firecrest	S.	Skylark
GR	Greenfinch	SN	Snipe
GL	Grey Wagtail	ST	Song Thrush
HG	Herring Gull	SG	Starling
HS	House Sparrow	SD	Stock Dove
K.	Kestrel	WP	Woodpigeon
LI	Linnet	WR	Wren
MA	Mallard	Y.	Yellowhammer

Bird Flight Markers

Taking off

In-flight

Landing

Circling

Scale at A4 1:7,500

0 60 120 180 240 m

N

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WINTERING BIRD SURVEY REPORT

Map 8f - Wintering Bird Survey (24.02.25)

Client:	Persimmon Homes Thames Valley
Date:	March 2025
Status:	Final

KEY

Site Boundary

Transect Route

BH	Black-headed Gull	RE	Redwing
CW	Cetti's Warbler	RB	Reed Bunting
CO	Coot	RO	Rook
D.	Dunnock	S.	Skylark
FF	Fieldfare	SN	Snipe
GR	Greenfinch	ST	Song Thrush
HG	Herring Gull	SH	Sparrowhawk
HS	House Sparrow	SG	Starling
K.	Kestrel	SD	Stock Dove
LI	Linnet	WP	Woodpigeon
MA	Mallard	WR	Wren
MP	Meadow Pipit	Y.	Yellowhammer
MH	Moorhen		

Scale at A4 1:6,000

0 60 120 180 240 m

N

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NORTH LITTLEHAMPTON, TODDINGTON LANE, LITTLEHAMPTON, WEST SUSSEX

WINTERING BIRD SURVEY REPORT

Map 8g - Wintering Bird Survey (11.03.25)

Client:	Persimmon Homes Thames Valley
Date:	March 2025
Status:	Final

KEY

- Site Boundary
- Transect Route

BO	Barn Owl	MP	Meadow Pipit
BH	Black-headed Gull	MU	Mediterranean Gull
CW	Cetti's Warbler	MH	Moorhen
CM	Common Gull	KT	Red Kite
CO	Coot	RE	Redwing
D.	Dunnock	RB	Reed Bunting
FF	Fieldfare	RO	Rook
GR	Greenfinch	S.	Skylark
HG	Herring Gull	ST	Song Thrush
HS	House Sparrow	SG	Starling
K.	Kestrel	SD	Stock Dove
LB	Lesser Black-backed Gull	WP	Woodpigeon
LI	Linnet	WR	Wren
MA	Mallard	Y.	Yellowhammer

Bird Flight Markers

- Taking off
- In-flight
- Landing
- Circling

Scale at A4 1:7,500

0 60 120 180 240 m

N

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Map 9 Reptile Survey

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ECOLOGICAL IMPACT ASSESSMENT

Map 9 - Reptile Survey Results

Client:	Persimmon Homes Thames Valley
Date:	November 2025
Status:	Final

KEY

- Site Boundary
- Wider Ownership Boundary
- Refugia Locations

Reptile Survey Results

- Common lizard - Adult
- Common lizard - Juvenile
- Slow worm - Adult
- Slow worm - Juvenile

Scale at A3 1:2,000

0 15 30 45 60 m

N

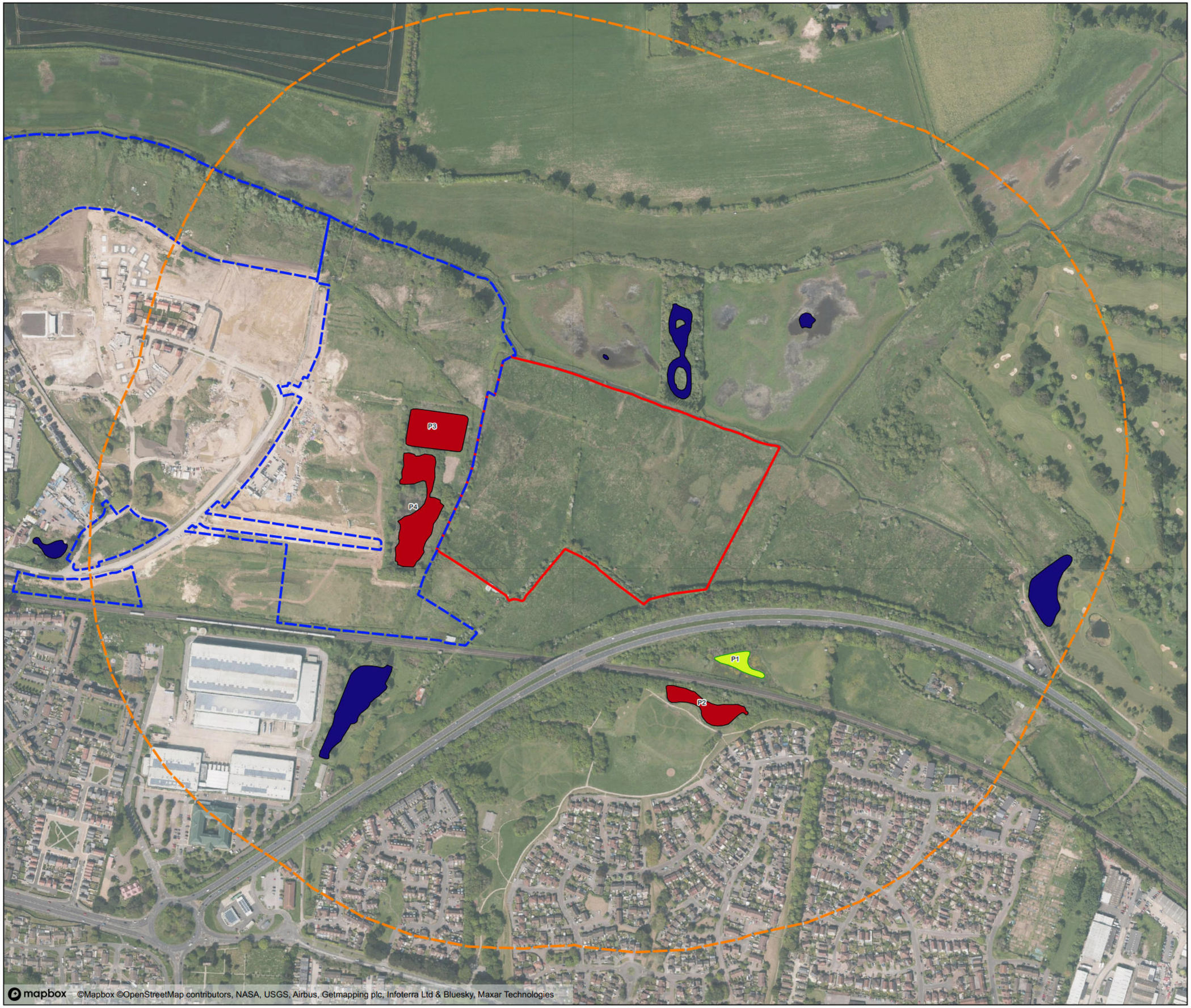
Prepared by: JP	Date: 010225
Last amended by: BL	Date: 241125

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Map 10 Great Crested Newt Survey

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ECOLOGICAL IMPACT ASSESSMENT

Map 10 - Great Crested Newt Survey

Client:	Persimmon Homes Thames Valley
Date:	November 2025
Status:	Final

KEY

- Site Boundary
- Wider Ownership Boundary
- 500m buffer
- Negative
- Pond not subject to eDNA
- Pond not accessible during survey

Scale at A3 1:5,000

0 25 50 75 100 m

N

Prepared by: JP	Date: 010225
Last amended by: BL	Date: 281125

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Map 11 Water Vole Survey

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NORTH LITTLEHAMPTON, TODDINGTON LANE, LITTLEHAMPTON, WEST SUSSEX

ECOLOGICAL IMPACT ASSESSMENT

Map 11 - Water vole survey

Client:	Persimmon Homes Thames Valley
Date:	November 2025
Status:	Final

KEY

- Site Boundary
- Wider Ownership Boundary
- Statutory rivers within 10m of the site boundary
- American mink

Scale at A3 1:2,000

0 15 30 45 60 m

N

Prepared by: JP	Date: 010225
Last amended by: BL	Date: 271125

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Appendix 1 Proposed Site Layout

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Co Const, ED & Ward Bdy

Pond

Open Space

Community Football Pitch

64m

100m

Sports Pitches / Changing Facility and Allotments

Allotments (0.41Ha)
25 pitches

Open Space

Drain

Norway Ditch

POND

Nursery

LAP

ETL

Norway Ditch

N

0 10 20 30 40 50m
Scale 1:500

Rev.	Description.	Date.
A	Sports pitches and allotments amended to address LA & TC comments	02.10.2025

Drawing Revisions

Layout Approval

MD approval Signature: ..... Date: .....

NOTE: RC signature required where house types are chosen from the RC exception list or are not Group Core product (R21/R25). Introducing Persimmon types onto Charles Church sites or vice versa is prohibited.

RC approval Signature: ..... Date: .....

Persimmon

Persimmon House
Knoll Road
Camberley
GU15 3TQ

Development Title
Open Space - Sports Pitches & Allotments
Littlehampton

Site address
Hampton Park
Toddington Lane
Littlehampton

Drawing Title
Site Layout - Sports Pitches / Allotments

Date	Scale	Sheet
Aug. 2025	1:500 @ A0P	A1

Drawing Status	Dwg No.	Rev.
PLANNING	547_PL_100d	A

\\psn.persimmonhomes.net\shared\thames valley\technical\site files\547 littlehampton phase 6 (d2)\b planning\b6 drawings (.dwg)\b6b reserved matters application\547_pl_layout_revised_26.11.2025.dwg

Appendix 2 Sites Designated for Nature Conservation

Statutory Sites

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

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

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

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

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

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

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

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

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Locally Designated Sites – Local Nature Reserves

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

Non-Statutory Sites

Locally Designated Sites

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

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Appendix 3 Relevant Legislation

Bats

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

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

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

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

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

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Otter and Great Crested Newt

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

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

[redacted]

Water vole

The water vole is listed in Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and is afforded limited protection under Section 9 of this Act. This makes it an offence to:

- Intentionally kill, injure, or take (handle) a water vole;
- Intentionally or recklessly damage or destroy or obstruct access to any structure or place which water voles use for shelter or protection; or
- Intentionally or recklessly disturb water voles while they are using such a place.

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Breeding Birds

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

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

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

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

Reptiles

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

- Intentionally kill or injure any of these species.

The remaining native species of British reptile (sand lizard *Lacerta agilis* and smooth snake *Coronella austriaca*) receive a higher level of protection via inclusion under Schedule 2 of the Conservation of Habitats and Species Regulations 2017. They are afforded full protection under Section 9(4) of the Act and Regulation 43 of the Regulations (in England and Wales only) and the Wildlife and Countryside Act 1981 (as amended). The distribution of these species are restricted to only a few sites in England.

Species and Habitats of Principal Importance in England

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

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Appendix 4 Protected and Notable Species Appraisal Methods

Bats

The survey conformed to current Bat Conservation Trust guidelines (Collins, 2023). An assessment was made of the suitability of buildings and trees on the site and immediately on the site boundary to support roosting bats based on the presence of features such as loose or missing roof tiles or lifted lead flashing for buildings and holes, cracks, splits, loose bark and ivy cladding for trees. A detailed external and internal inspection of accessible structures was undertaken to compile information on potential and actual bat entry/exit points; potential and actual bat roosting locations; any evidence of bats found.

An assessment was made of the suitability of the site and the surrounding landscape to support foraging and/or commuting bat species. The assessment of the potential for the site to support roosting, foraging and commuting bat is based on a four-point scale as detailed in **Appendix 5**.

Otter

The otter appraisal was based on an assessment of the suitability of the habitat present within the site to support otter by reference to habitat type (such as rivers, streams, ditches, wetlands, reed beds, lakes, ponds and reservoirs), proximity of the site to freshwater and potential important feeding resources (such as fisheries), presence of habitat features which could provide opportunities for resting places and/or holts (such as tunnels, hollows at the base of trees and presence of dense, undisturbed habitat). During the survey attention was paid to the presence of evidence such as spraints, feeding remains, footprints and slides.

[redacted]

Hazel Dormouse

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

Water Vole

The water vole appraisal was based on an assessment of the suitability of the habitat present within the site to support water vole by reference to habitat type (such as rivers, streams, ditches, wetlands, reed beds, lakes, ponds and reservoirs), bank structure and the bank side

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vegetation. Water voles generally require sloping banks in which to burrow and well-developed bank side vegetation to provide shelter and food. During the survey attention was paid to the presence of burrows, latrines, feeding remains, trails and footprints.

Birds

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

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

Reptiles

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

Great Crested Newt

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

Invertebrates

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

Other Relevant Species

An assessment was made of site suitability for other notable species such as more rarely encountered protected species, Species of Principal Importance for the Conservation of diversity in England notified under Section 41 of the NERC Act 2006 and as listed in the England

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Biodiversity List, and Local Biodiversity Action Plan (LBAP) species[17], specific to the study region.

Invasive Species

During the field survey any incidental records of invasive species listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) were recorded. However, it should be considered that the survey was not specifically aimed at assessing the presence of these species and further specialist advice may need to be sought.

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

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Appendix 5 Appraisal Criteria for Bats

The criteria used to assess the suitability of roosting and foraging/commuting habitat for bats is based on industry guidelines and outlined in **Table 21**[18].

Table 21: Criteria used to Assess Suitability of Roosting and Foraging/Commuting Habitat for Bats

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

[18] Table adapted from (Collins, 2023).

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Appendix 6 Automated Detector Settings

Automated Detector Settings

Automated detectors can be calibrated in a number of different settings which can result in the potential variations in the way that bat calls are recorded. **Table 22** details the standard settings used by ECOSA during automated detector surveys undertaken.

Table 22: Standard automated detector settings

Option	Basic Setup
Settings - Audio	
Sample rate	192000Khz
Channels	Mono L (left)
Compression	WAV
Gain Left	+0.00
Gain Right	+0.00
Settings - Audio Advanced	
Dig High Pass Filter (HPF) Left	Fs/12
Dig High Pass Filter (HPF) Right	Off
Digital Low Pass Filter (LPF) Left	Off
Digital Low Pass Filter (LPF) Right	Off
Trig Lvl Left	12SNR
Trig Lvl Right	Off
Trg Win Left	2.0s
Trg Win Right	2.0s
Trg Max Length	2s
Bits (Div Ratio)	16
Nap Trg Lvl	Off

Data Conversion Settings

In order to analyse the data efficiently the raw .wav files recorded on the automated detector are subsequently converted to zero crossing (.zc) files which and subject to automated classification by Wildlife Acoustics Kaleidoscope Pro. During the conversion process the data is filtered to remove noise files in line with Wildlife Acoustics recommended setting as provided in **Table 23**.

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Table 23: Noise file filtering settings

Option	Basic Setup
Signal of Interest – Frequency	8 – 120 kHz
Signal of Interest – Call Length	2 - 500ms
Signal of Interest – Minimum Number of Calls	2
Advanced Signal Enhancement	On

All filtered noise files are kept and subsequently assessed for bat calls in order to ensure that no bat calls have been incorrectly classified as noise. The “Advanced Signal Enhancement” setting discards files which Kaleidoscope assessed as being insufficient quality. Any discarded files are subsequently not stored by Kaleidoscope and therefore, not subject to analysis by an ecologist.

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Appendix 7 Invertebrate Survey Results

Table 24: Invertebrate survey results

Species Recorded		Survey Date			Status
		20th May 2025	3rd July 2025		
Agapanthia villosoviridescens	Golden-bloomed longhorn beetle	x			
Cantharis figurata	A soldier-beetle	x			
Cantharis flavilabris	A soldier-beetle				
Cantharis lateralis	A soldier-beetle		x		
Coccinella septempunctata	7-spot ladybird		x		
Cordylepherus viridis	Common malachite beetle	x			Common
Harmonia axyridis	Harlequin ladybird		x		
Oedemera nobilis	Thick-legged flower beetle	x	x		
Poecilus cupreus	Copper greenclock beetle	x			
Rhagonycha fulva	Red soldier-beetle		x		
Cheilosia soror	Truffle blacklet	x			Local
Dasyrphus albostriatus	Stripe-backed brusheye	x			
Epistrophe elegans	Spring epistrophe	x			
Episyrphus balteatus	Marmalade hoverfly		x		
Eristalis pertinax	Tapered drone fly	x			
Eristalis tenax	Common drone fly	x			
Helophilus hybridus	Woolly-tailed marsh fly		x		
Helophilus pendulus	Footballer hoverfly	x			
Melanstoma mellinum	Variable duskyface fly		x		
Sphaerophoria scripta	Long hoverfly	x			
Syrphus ribesii	Common flower fly	x	x		
Syrphus torvus	Hairy-eyed flower fly		x		
Tropidia scita	Tooth-thighed hoverfly	x			Local
Xanthogramma pediesquum	Superb ant-hill hoverfly	x			

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Species Recorded		Survey Date			Status
		20th May 2025	3rd July 2025		
Beris vallata	Common orange legionnaire		x		
Chloromyia formosa	Broad centurion	x	x		
Rhagio scolopaceus	Downlooker snipe-fly		x		
Tephritis divisa	Bristly ox-tongue fly		x		
Urophora quadrifasciata	Four-barred knapweed gall fly		x		
Urophora stylata	Spear thistle gall-fly	x			
Ectophasia crassipennis	A tachinid fly	x			
Empis tessalata	Tesselatted dance-fly	x			
Eriothrix rufomaculata	Red-sided parasite-fly		x		
Tetanocera plebeja	A marsh fly	x			
Lygus pratensis	Tarnished plant bug		x		
Nabis flavomarginatus	Broad damsel bug		x		
Orthops basalis	A plant bug		x		
Andrena flavipes	Yellow-legged mining bee	x	x		
Apis apifera	Honey-bee		x		
Bombus lapidarius	Red-tailed bumblebee		x		
Bombus lucorum	White-tailed bumblebee	x	x		
Bombus pascorum	Common carder bee	x	x		
Bombus pascuorum	Common carder bee		x		
Dolichovespula media	Median wasp		x		
Extemnius cephalotes	Square-headed digger wasp		x		
Vespula vulgaris	Common wasp		x		
Aglais io	Peacock	x	x		
Maniola jurtina	Meadow brown		x		
Melanargia galathea	Marbled white		x		

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Species Recorded		Survey Date			Status
		20th May 2025	3rd July 2025		
Pararge aegeria	Speckled wood	x			
Pieris brassicae	Large white		x		
Pieris napi	Green-veined white	x	x		
Polygonia c-album	Comma		x		
Pyronia tithonus	Gatekeeper		x		
Thymelicus lineola	Essex skipper		x		
Thymelicus sylvestris	Small skipper		X		
Vanessa cardui	Painted lady		x		
Callistege mi	Mother shipton	x			
Phragmatobia fuliginosa	Ruby tiger		x		
Tyria jacobaeae	Cinnabar		x		
Cepaea nemoralis	Brown-banded snail		x		
Monacha cantiana	Kentish snail		x		
Anax imperator	Emperor dragonfly	x			
Calopteryx splendens	Banded demoiselle	x			
Calopteryx virgo	Beautiful demoiselle	x			
Coenagrion puella	Azure damselfly	x			
Ischnura elegans	Blue-tailed damselfly	x			
Libellula fulva	Scarce chaser		x		
Orthetrum cancellatum	Black-tailed skimmer		x		
Chorthippus brunneus	Field grasshopper		x		
Conocephalus discolor	Long-winged conehead	x			
Metrioptera roeselii	Roesel's bush-cricket		x		
Pholidoptera griseoaptera	Dark bush-cricket	x			
Pseudochorthippus parallelus	Meadow grasshopper		x		

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