



# Ecological Impact Assessment

Land North of Coach Road, Great Horkesley, Essex

On Behalf Of:

Bloor Homes Ltd.

August 2025

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# SES Quality Management

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Site assessments / surveys (where required) have been restricted to a level of detail required to achieve the stated objectives of the work.

Due to the temporal nature of ecology, the findings of this report should not be relied upon if a significant amount of time has passed, as defined by the Chartered Institute of Ecology and Environmental Management (CIEEM) guidelines.

## Executive summary

1. Southern Ecological Solutions Ltd (SES) were commissioned by Bloor Homes Ltd to carry out an Ecological Impact Assessment (EclA) for Land North of Coach Road, Great Horkesley, Essex (the site). This report presents the findings and recommendations of ecological surveys undertaken to support the promotion of Land North of Coach Road, Great Horkesley (the site) through Colchester City Council's Call for Sites Consultation (ending 5th January 2024).
2. The site consisted of two arable fields with associated hedgerow, dense scrub, and poor semi-improved grassland boundary habitats. The site was bordered by Coach Road to the west and south, arable land to the north, and residential development to the east.
3. There were three European designated sites of International importance within 22km of the site. The site also lies within the Zone of Influence for the Essex Coast RAMS. It is predicted that increased recreational disturbance on nearby European designated sites could occur as a result of the proposed development. This should be mitigated against through the provision of onsite semi-natural open space, links to adjacent Prows and a financial contribution, as per the Essex Coast RAMS.
4. There were four statutory designated sites of National importance within 5km of the site. The site also lies within the Impact Risk Zone for four statutory designated sites. It is predicted that increased recreational disturbance on nearby statutory designated sites could occur as a result of the proposed development. This should be mitigated against through the provision of onsite open space and links to adjacent PRowS. At the time of this report, discussion with Natural England are ongoing regarding provision of onsite open space and links to adjacent PRowS.
5. There were five non-statutory designated sites of county importance within 2km of the site. It is predicted that increased recreational disturbance on nearby non-statutory designated sites could occur as a result of the proposed development. This should be mitigated against through the provision of onsite open space and links to adjacent PRowS.
6. Hedgerows on site were considered to meet the criteria for Habitats of Principal Importance. Any losses of hedgerows should be replaced 'like-for-like' or better.
7. Biodiversity Net Gain result a total of 21.34 habitat and 17.09 hedgerow units were recorded. The site's retained, enhanced and created habitats were then calculated. Through application of current site plans, a total of 0.12 habitat units are predicted to be lost. There is a predicted loss of 2.53 hedgerow units. This represents a predicted loss of 0.55% for habitats and a loss of 14.79% for hedgerows. In addition, it is predicted that with the current landscaping proposals the site will not meet the trading rules which are a material requirement of BNG.
8. Eight trees with bat roost potential were identified on site. A single tree with low bat roost potential will be felled to facilitate the development. This tree should be soft felled in accordance with current guidance. All other trees with bat roost potential are not predicted to be impacted by the works. All other trees with suitability for roosting bats will be retained and protected.
9. Bat activity surveys identified 'moderate' numbers of common and widespread species utilising the boundary habitats on site. These habitats should be retained and protected by a sensitive lighting strategy to limit light disturbance on commuting and foraging bats.
10. Breeding and wintering bird surveys identified a species assemblage of local value utilising the site. No Schedule 1 protected birds were identified although red and amber-listed birds were considered to be breeding on site. Suitable bird nesting habitat should be cleared outside of bird nesting season (March-

August inclusive) or after an Ecological Clerk of Works has confirmed that no active nests are present within the area due to be cleared.

11. Precautionary measures are set out to mitigate potential adverse impacts on roosting/foraging bats, nesting birds and other notable species.
12. A range of enhancements have been recommended to be provided across the proposed development site. Such enhancements include the installation of bat boxes, swift bricks, generalist bird boxes and hedgehog highways throughout the development.

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## **1.0 Introduction and Aims**

**1.1** Southern Ecological Solutions Ltd. (SES) was commissioned by Bloor Homes Ltd. to undertake a suite of ecological surveys and produce an Ecological Impact Assessment (EclA) report for Land North of Coach Road, Great Horkesley, Essex (Ordnance Survey Grid Reference TL 97400 29200) (hereafter referred to as the site). A plan showing the approximate application site boundary is provided in Appendix 1.

**1.2** This report presents the findings and recommendations of ecological surveys undertaken to support the application for outline planning permission (all matters reserved, except for access) for up to 150 dwellings (including affordable housing), a car park, public open space, landscaping, children's play area, sustainable drainage infrastructure and all other associated infrastructure at Land North of Coach Road, Great Horkesley through Colchester City Council's Call for Sites Consultation (ending 5th January 2024). The masterplan (Appendix 1) was reviewed to assess potential impacts and mitigation options are outlined in relation to legal and planning policy obligations and residual effects assessed.

**1.3** The aims of the report are to:

- Map the main ecological features within the site and classify habitat types based on standard Phase 1 Habitat survey methodology by compiling a plant species list for each habitat type.
- Determine the presence or likely absence of protected/priority species or habitats.
- Identify any legal and planning policy constraints relevant to nature conservation which may affect the development (see Appendix 2).
- Identify likely significant effects on ecological features; and
- Make recommendations for minimising impacts on biodiversity and providing net gains in biodiversity where possible in accordance with Chapter 15: *Conserving and Enhancing the Natural Environment*, of the National Planning Policy Framework (MHCLG, 2024)) and relevant policies in the Colchester Borough Council Local Plan Publication Draft (CBC, 2017).

### **Site Description**

**1.4** The site consisted of two arable fields with associated hedgerow, dense scrub, and poor semi-improved grassland boundary habitats. This is consistent with historic surveys. The site was bordered by Coach Road to the west and south, arable land to the north, and residential development to the east. In a wider context the surrounding environment comprised of mixed farmland and urban development.

## **2.0 Methods**

**2.1** The approach taken follows guidance and methods as prescribed by the Chartered Institute for Ecology and Environmental Management (CIEEM), specifically the Guidelines for Preliminary Ecological Appraisal 2<sup>nd</sup> edition (2017) and the Guidelines for Ecological Impact Assessment (2018). Following these methods, a baseline of rare and/or noted ecological receptors (species and habitats) was established and valued. Predicted significant impacts upon these receptors have been identified and constraints and opportunities identified. This stepwise assessment process has informed likely mitigation and enhancement measures. Phase 2 ecological surveys have been implemented to fully inform the predicted impacts of the scheme in accordance with the National Planning Policy Framework (NPPF) ((MHCLG, 2024), local planning policy and relevant wildlife legislation.

**2.2** CIEEM guidelines for Ecological Assessment in the United Kingdom (2018) have been utilised to assess the impacts upon habitats within the zone of influence (Zoi) of the site. CIEEM suggests that it is best to use the geographical scale (i.e., international, national, regional etc.) at which a feature (i.e., a habitat, species, or other ecological resource) may or may not be important as the appropriate measure of value. As such, data from the data search, extended Phase 1 Habitat survey and subsequent species-specific surveys has been reviewed and the likely occurrence of protected and notable species/species groups assessed. This has allowed predictions of impacts to be made along with recommendations for mitigation, compensation, and enhancement. Further detail on the assessment methods utilised in this report is provided in Appendix 4.

**2.3** The following geographical scale categories are considered appropriate:

- International.
- National (*i.e.*, England).
- Regional (East Anglia).
- County (Essex).
- District (Colchester).
- Local or Parish (Great Horkesley); and
- Within Site only.

### **Desk Study**

**2.4** A web-based search for statutory designated sites was undertaken via the Multi Agency Geographic Information for the Countryside (MAGIC) spatial data resource [magic.defra.gov.uk](http://magic.defra.gov.uk) on 4<sup>th</sup> January 2022 for the following statutory designated sites: Special Protection Area (SPA), Special Area of Conservation (SAC) and Ramsar sites (up to 22km from the site boundary as per Essex Coast Recreational Disturbance Avoidance and Mitigation Strategy (RAMS)); Sites of Special Scientific Interest (SSSI), National Nature Reserves (NNR) and Local Nature Reserves (LNR) (5km from the site boundary). Non-statutory designated sites were searched for within a 2km zone from the application site using Essex Field Club (EFC).

**2.5** The Essex Coast RAMS Habitats Regulations Assessment Strategy document for 2018-2038 (Place Services, 2019) was referred to in order to determine the Zoi for coastal European Designated sites and hence the requirement for off-site mitigation (Table 1).

**Table 1: Zones of Influence of Essex Coast European Designated Sites (Place Services, 2019)**

European designated site	Underpinning SSSIs*	ZoIs (km)
Stour and Orwell Estuaries SPA and Ramsar	Orwell Estuary SSSI Stour Estuary SSSI Cattawade Marshes SSSI	13
Hamford Water SPA and Ramsar	Hamford Water SSSI	8
Colne Estuary SPA and Ramsar	Colne Estuary SSSI	9.7
Blackwater Estuary SPA and Ramsar	Blackwater Estuary SSSI	22
Dengie SPA and Ramsar	Dengie SSSI	20.8
Crouch and Roach Estuaries Ramsar and SPA	Crouch and Roach Estuaries SSSI	4.5
Foulness Estuary SPA and Ramsar	Foulness SSSI	13
Essex Estuaries SAC	Blackwater Estuary SSSI Colne Estuary SSSI Crouch and Roach Estuaries SSSI Dengie SSSI Foulness SSSI	..**
Benfleet and Southend Marshes SPA and Ramsar	Benfleet and Southend Marshes SSSI	4.3
Thames Estuary and Marshes SPA and Ramsar	Mucking Flats and Marshes SSSI	8.1
*Underpinning SSSIs are listed for Essex sites as these are what the Impact Risk Zones (IRZs) are aligned to. **The Essex Estuaries SAC comprises the Colne Estuary, Blackwater Estuary, Dengie, Crouch and Roach Estuaries and Foulness Estuary and so follow the respective ZoIs throughout.		

SPA = Special Protection Area; SSSI = Site of Special Scientific Interest; SAC = Special Conservation Area

**2.6** Maps of the area of assessment and wider area, were examined using the MAGIC online spatial data resource to determine the possible habitats present on and adjacent to the area of assessment and their context in the surrounding landscape, searching in particular for waterbodies, watercourses and other landscape features that may be of ecological significance to protected species, notably great crested newt *Triturus cristatus* and mobile species such as bats and birds.

**Phase 1 Habitat Survey**

**2.7** An extended Phase 1 Habitat Survey was carried out on 7<sup>th</sup> January 2022 by suitably qualified ecologist Edward Basham BSc (Hons) ACIEEM in appropriate weather conditions. An updated site walkover was undertaken in October 2024 which confirmed habitats on site remained consistent with the below.

**2.8** Phase 1 Habitat Survey is a standard technique for obtaining baseline ecological information for areas of land, including proposed development sites. Phase 1 Habitat Survey methods are set out in the Handbook for Phase 1 Habitat Survey (Joint Nature Conservation Committee [JNCC], 2010). Habitat mapping was undertaken using the standard classification to indicate habitat types. Features of ecological interest and value were highlighted using target notes.

**2.9** The dominant and readily identifiable higher plant species identified in each of the various habitat parcels were recorded and their abundances assessed on the DAFOR scale:

- D - Dominant
- A - Abundant
- F - Frequent
- O - Occasional
- R - Rare

**2.10** These scores represent the abundance within the defined area only and do not reflect national or

regional abundances. Plant species nomenclature follows Stace (2010).

## **Bats**

### Activity Surveys

- 2.11** The site was assessed as having moderate suitability for foraging and commuting bats, therefore further activity surveys including monthly (April to October inclusive) activity transects and accompanying five-night static bat detector deployments (two locations per transect) were carried out in 2022. These surveys took place in accordance with best practice guidelines (Collins, 2016). Detailed methods are provided in Appendix 3.

## **Birds**

### Breeding Bird Survey

- 2.12** A breeding bird survey was undertaken using a modified version of the standard Common Bird Census (CBC) methods, devised by the British Trust for Ornithology (BTO) (Marchant, 1983; Bibby *et al.*, 1992). This comprised three visits between May to June 2022. Detailed methods are provided in Appendix 3.

### Wintering Bird Survey

- 2.13** A wintering bird survey was undertaken using a modified version of the standard CBC methods, devised by the BTO (Marchant, 1983; Bibby *et al.*, 1992). This comprised four visits between January and December 2022. Detailed methods are provided in Appendix 3.

## **Hazel Dormouse**

### Nest Tube Survey

- 2.14** A hazel dormouse *Muscardinus avellanarius* nest tube survey was undertaken on site in accordance with published guidelines (Bright *et al.*, 2006) from May to November 2022. Detailed survey methods, including dates and information regarding weather, are provided in Appendix 3.

## **Reptiles**

### Presence / Likely Absence Survey

- 2.15** A seven-visit presence/likely absence survey was undertaken in accordance with published guidelines (Frog life, 1999; Gent & Gibson, 2003; HGBI, 1998) from April to May 2022. Detailed survey methods, including dates and information regarding weather, are provided in Appendix 3.

## **Other Notable Species**

- 2.16** Incidental sightings of other notable species such as hedgehog *Erinaceus europaeus*, brown hare *Lepus europaeus*, harvest mouse *Micromys minutus*, polecat *Mustela putorius* and common toad *Bufo bufo* were undertaken in conjunction with the above surveys.

## Limitations

- 2.17** The bat surveys were completed with the assistance of bat detectors. Surveys using bat detectors have an advantage over other methodologies (such as radio tracking or trapping) in that they are ‘non-intrusive’ and will therefore not have an adverse effect on the conservation status or welfare of bats. However, all survey techniques for bats are subject to bias and bat detector surveys may under-record species with weak echolocation calls, such as brown long-eared bats *Plecotus auritus*. Bats from the *Myotis* genus can be difficult to identify to species from call structure alone (Russ, 2012).
- 2.18** Since the previous suite of surveys were undertaken, updated guidelines have been released by the Bat Conservation Trust (BCT) (Collins et al., 2023).
- 2.19** The results of static detector surveys are based on bat activity recorded at the location immediate to each static detector, and therefore only describe localised activity at the site. However, detectors were moved around the site each month to sample different areas therefore this constraint is not considered to be significant.
- 2.20** Since the previous suite of surveys were undertaken, updated guidelines have been released by Bird Survey Guidelines (Bird Survey & Assessment Steering Group, 2024).

### 3.0 Baseline Ecological Condition

#### Designated Sites

- 3.1** There were three sites of **International** importance designated under the Conservation of Habitats and Species Regulations (CHSR, 2017, as amended) within 22km of the site. The closest of these was Abberton Reservoir Ramsar SPA c. 9.2km South, designated for its wetland habitat supporting internationally important waterbird populations. The site also falls within the ZOI of the Essex Coast RAMS, for the Blackwater Estuary Ramsar and SPA, Colne Estuary Ramsar and SPA, and Stour & Orwell Estuaries Ramsar and SPA.
- 3.2** There were four sites of **National** importance within the search area (5km), all were LNRs. The closest of these was Hilly Fields LNR c. 3.5km South, designated for its grassland, heathland, and woodland habitats.
- 3.3** The site falls within the Natural England Impact Risk Zones (IRZ) for Abberton Reservoir SSSI, Roman River SSSI, Upper Colne Marshes SSSI, and Bullock Wood SSSI. The development meets the criteria to trigger mitigation or consultation with Natural England (100 or more residential units).
- 3.4** There were five non-statutory designated sites of **County** importance within the search area (2km), all were LWSs. The closest of these was Aldercarr Wood LWS c.0.4km North-East, designated for its woodland habitats.

**Table 2. European Designated Sites within up to 22km, Nationally Designated Sites within 5km and Statutory and Non-Statutory Locally Designated sites within 2km of the site.**

Name and Site Designation	Approximate Distance and Direction from Site	Size (ha.)	Designated Features
<b>European Statutory Designated Sites</b>			
Abberton Reservoir Ramsar and SPA	9.2km South	718.3	<b>Habitats:</b> Reservoir <b>Species:</b> Nationally and internationally important numbers of waterbirds
Stour and Orwell Estuaries Ramsar and SPA	10.85km East	3672.6	<b>Habitats:</b> Mudflats, low cliffs, saltmarsh, vegetated shingle <b>Species:</b> Nationally and internationally important numbers of waterbirds; notable invertebrate and plant assemblages
Colne Estuary Ramsar and SPA	10.75km South-east	2714.0	<b>Habitats:</b> Mudflats, saltmarsh, grazing marsh, reedbeds, sand and shingle spits <b>Species:</b> internationally important numbers of brent geese and black-tailed godwit; nationally important numbers of little terns and five other species of waders; notable invertebrate and plant assemblages
<b>UK Statutory Designated Sites</b>			
Hilly Fields LNR	3.5km South	37.5	<b>Habitats:</b> Grassland meadow, heathland, and woodland
Spring Lane Meadows LNR	3.6km South	2.0	<b>Habitats:</b> Riverside wildflower meadows <b>Species:</b> Otter, kingfisher, bats
Lexden Park LNR	3.9km South	8.1	<b>Habitats:</b> Grassland meadow, lake, and woodland
Bull Meadows LNR	4.1km South	1.4	<b>Habitats:</b> Riverside wildflower meadows <b>Species:</b> Notable invertebrates
<b>Non-Statutory Designated Sites</b>			
Aldercarr Wood LWS	0.4km North-east	0.5	<b>Habitats:</b> Woodland

Pitchbury Wood LWS	0.5km West	18.2	<b>Habitats:</b> Ancient woodland
Harrow Wood LWS	1.6km North-east	1.7	<b>Habitats:</b> Woodland
West Bergholt Heath LWS	1.7km South-east	0.9	<b>Habitats:</b> Acid grassland, heathland <b>Species:</b> Significant population of harebell
West Bergholt Church LWS	1.7km South-east	0.4	<b>Habitats:</b> Acid grassland <b>Species:</b> Population of harebell

### Extended Phase 1 Habitat Survey

**3.5** The Phase 1 habitat map of the site is provided within Appendix 5. The plant species recorded per habitat type are tabled in Appendix 5. An updated site visit was undertaken in October 2024 which confirmed that habitats remained consistent with that of the 2022 Phase 1 Habitat survey as outlined below. The Phase 1 Habitat types (JNCC, 2010) within the site were:

- Arable.
- Broadleaved scattered trees.
- Dense scrub.
- Species poor semi-improved grassland; and
- Hedgerows and dry ditches

#### Arable

**3.6** The site was dominated by two large arable fields, both bare at the time of survey (Appendix 6; Plate 1).

#### Broadleaved scattered trees

**3.7** Mature English oaks *Quercus robur* and poplar *Populus x canadensis* trees were recorded along the boundary and centre of the site, incorporated into hedgerows. In addition, a single mature English oak was located to the south of the site (Appendix 6; Plate 2)

#### Dense scrub

**3.8** Areas of dense scrub were located along the northern boundary and boundary of the eastern field (Appendix 6; Plate 3). These areas were dominated by bramble *Rubus fruticosus* but also featured common nettle *Urtica dioica*, bracken *Pteridium aquilinum* and gorse *Ulex europaeus*.

#### Species poor semi-improved grassland

**3.9** Small areas of semi-improved grassland were located along the boundary of both arable fields as well as a larger area of semi-improved grassland along the eastern boundary (Appendix 6; Plate 4). Both areas had low species diversity with the sward being dominated by perennial ryegrass *Lolium perenne* and common species such as broad-leaved dock *Rumex obtusifolius*, creeping thistle *Cirsium arvense* and cow parsley *Anthriscus sylvestris*. Two attenuation basins were located in the area of semi-improved grassland to the east of the site, these were dry at the time of the survey and overgrown with common species including cow parsley, common nettle and creeping thistle.

#### Hedgerows and dry ditches

**3.10** Five native hedgerows were located along the boundaries of the two fields. A brief description of each

hedgerow is provided below with a summary of species:

**H1:** Species-rich Native Hedgerow with Trees H1 bisected the centre of the site through the arable fields and comprised predominantly hawthorn *Crataegus monogyna*, with frequent pedunculate oak *Quercus robur*, and rose *Rosa sp.* A line of semi-mature poplar trees ran the length of the hedgerow and were generally in poor condition. Overall the hedgerow was in good condition. It is understood these trees are to be removed to facilitate the development.

**H2:** Native Hedgerow with trees. H2 ran along the western boundary and comprised dominant goat willow *Salix caprea*, with rare pedunculate oak, and blackthorn *Prunus spinosa*.

**H3:** Native Species Rich Hedgerow with Trees- associated with bank or ditch. H3 ran the length of the northern boundary and was developing into a strip of woodland (LOT1). Species present abundant pedunculate oak, with occasional ash *Fraxinus excelsior*, field maple *Acer campestre*, poplar, and rose. Additional species present included holly *Ilex aquifolium* and blackthorn.

**H4:** Native Species Rich Hedgerow with Trees . H4 was located along the eastern boundary of the site and comprised a wide range of species including blackthorn, rose, hawthorn, pedunculate oak, field maple, and willow *Salix sp.*

## Protected Habitats

### Hedgerows

- 3.11** The hedgerows on site were considered to meet the definition for classification as a UK Natural Environment and Rural Communities [NERC] Act (2006) Habitat of Principal Importance (HoPI) (>80% native species) (JNCC, 2008). Hedgerows on site are considered to be of **Local** level importance.

### Summary

- 3.12** The hedgerows on site were considered to meet the requirements for a HoPI. The remaining arable field, grassland and scrub habitats were considered to offer low ecological value and were valued important at the **Site** level with confidence in this assessment high.

## Protected/Priority Species

### Rare and Notable Plants

#### *Initial Assessment*

- 3.13** A relatively limited diversity of common flora associated with common habitats present was observed on site. No *Schedule 8* protected or *Schedule 9* invasive plant species (as listed under the WCA 1981, as amended) were found on site during the initial assessment, although giant hogweed was previously identified on site (SES,2019a).

#### *Invasive Flora Walkover*

- 3.14** No giant hogweed (or any other species listed under Schedule 9 of the WCA 1981, as amended) were recorded on site. Invasive plant species are considered absent from the site.

### *Importance*

**3.15** The site is therefore considered to be of **Site** importance for its botanical assemblage and confidence in this assessment is high.

### **Badgers**

#### *Initial Assessment*

**3.16** The habitats on site were considered to provide suitable foraging and dispersal opportunities for badgers that may be present in the wider landscape. Additionally, ditches along the northern, western, and southern boundaries of the site offer suitable sett-building habitat. Several small mammal entrances were recorded along the northern boundary, although these were considered too small to be created by badgers and were most likely rabbit *Oryctolagus cuniculus* warrens. No badger setts or field signs were recorded during the survey. Badgers are not considered to be currently utilising the suitable sett-building habitat on Site, although it is considered possible that badgers in the wider landscape may use the site for foraging/commuting.

#### *Importance*

**3.17** Although no badger setts were present on site, due to the presence of suitable foraging and commuting habitat, the Site is considered of **Site** importance for badgers.

### **Bats**

#### Roosting Bats

#### *Ground Level Tree Assessment*

**3.18** Eight trees on the Site were assessed as having potential to support roosting bats (Table 3). Tree locations are shown in Appendix 6. Surveys were undertaken in accordance with Collins, 2016 guidance and are considered to be relevant in accordance with updated guidance (Collins, 2023).

**Table 3: Trees with potential to support roosting bats.**

<b>Tree</b>	<b>Species</b>	<b>Potential roosting features (PRFs)</b>	<b>Suitability (Collins, 2016)</b>	<b>Suitability (Collins, 2023)</b>
1	Oak	Eastern orientation: Woodpecker holes, 6m and 8m high	Moderate	PRF-M
2	Oak	Centre: Large rot hole in trunk, 4m high. 1m split along branch, 7m high	Moderate	PRF-M
3	Oak	All orientations: Dense ivy cover may be obscuring small features	Low	PRF-I
4	Oak	All orientations: Dense ivy cover may be obscuring small features	Low	PRF-I
5	Oak	All orientations: Dense ivy cover may be obscuring small features	Low	PRF-I
6	Unidentified species (Dead)	Eastern orientation: Woodpecker holes, 6m and 9m high	Moderate	PRF-M
7	Poplar	Southern orientation: Split, 3m high	Low	PRF-I
8	Poplar	Southern orientation: Woodpecker holes, 8m high	Low	PRF-I

#### Foraging and Commuting Bats

#### *Activity Transects*

**3.19** A total of five species were recorded during transect surveys: common pipistrelle *Pipistrellus pipistrellus*, soprano pipistrelle *P. pygmaeus*, noctule *Nyctalus noctula*, brown long-eared bat *Plecotus auritus* and *Myotis sp.* Activity was relatively low and consistent throughout the site with highest levels of activity being recorded along the site’s field boundary habitats (hedgerow and scrub). Detailed results are provided in Appendix 6.

**Table 4. Summary of transect survey results from April to October 2022 - passes per species per transect.**

Month	Common pipistrelle	Soprano pipistrelle	Noctule	Brown long-eared bat	Myotis sp.	Total
April	4	1	0	0	0	5
May (Dusk)	18	14	7	1	0	40
May (Dawn)	13	7	0	0	2	22
June	11	5	2	0	0	18
July	7	1	0	0	0	8
August	12	5	4	0	0	21
September	24	3	4	0	1	32
October	8	7	1	0	0	16
Mean	12.1	5.4	2.2	0.1	0.4	162

*Static Deployments*

**3.20** Analysis of data from static deployments recorded the same species as the transects. Activity was generally ‘moderate’ throughout the site with the great majority of activity from common and soprano pipistrelle, with only low numbers of individual passes from other species.

**Table 5. Summary of static survey results April to October 2022- passes per species per night of recording (*standardised for differences in night length over season*).**

Month	Common pipistrelle	Soprano pipistrelle	Noctule	Myotis sp.	Total
April	22	7	0	0	29
May (Dusk)	31	19	4	0	24
June	54	12	6	2	74
July	37	14	1	0	52
August	43	5	4	1	53
September	11	9	2	0	22
October	4	11	0	0	14
Mean	28.9	11	2.4	0.4	268

*Importance*

**3.21** Bat species found on site are considered to be ‘common’ (common pipistrelle; soprano pipistrelle), ‘frequent’ (brown long eared), and ‘scarce’ (noctule, and *Myotis sp.*) based on criteria for assessing rarity

within range by Wray *et al.* (2010). Information on the distribution of the bat species in Essex is provided in Table 6.

**Table 6. Distribution of bats in Essex (Dobson & Tansley, 2014; Essex Bat Group, 2018)**

Bat species	Status in Essex
Common pipistrelle	Widespread, occasionally common. One of the two species most likely to be encountered and regularly seen at dusk around gardens.
Soprano pipistrelle	Widespread, occasionally common. One of the two species most likely to be encountered and regularly seen at dusk around gardens.
Brown long eared	Widespread, relatively frequent, but not often encountered outside of roosts.
Noctule	Widespread, but relatively scarce.
<i>Myotis</i> sp.	Genus including six British species: Daubenton's <i>Myotis daubentonii</i> - Widespread, relatively frequent near still water. Natterer's <i>Myotis nattereri</i> - Widespread, relatively scarce. Whiskered <i>Myotis mystacinus</i> - One record, assumed to be very rare in Essex. Brandt's <i>Myotis brandtii</i> - Not recorded in Essex. Alcathoe <i>Myotis alcathoe</i> - Not recorded in Essex. Bechstein's <i>Myotis bechstenii</i> - Not recorded in Essex.

**3.22** Common and soprano pipistrelles were the most commonly recorded bats during surveys, with an average of 12.1 passes and 5.4 passes recorded respectively per transect, and 28.9 passes and 11 passes recorded respectively per static, per night. The majority of activity was associated with the hedgerows along the northern and southern boundaries (Appendix 6).

**3.23** Given the moderate levels of overall bat activity observed and the low numbers of passes recorded for 'scarcer' species, the site is considered to be of **Local** level importance for roosting, foraging and commuting bats.

## Birds

### Breeding Bird Survey

**3.24** The breeding bird surveys recorded a total of 27 species of which 15 were considered likely to be breeding or utilising the site during the breeding season. The remaining species were not considered to be breeding within the site and were either recorded foraging on the site or flying over.

**3.25** There were four red-listed Bird of Conservation Concern (BoCC) in accordance with the most recent conservation assessment (Eaton *et al.*, 2021) recorded on site; starling *Sturnus vulgaris*, skylark *Alauda arvensis*, linnet *Carduelis cannabina*, and house sparrow *Passer domesticus*. Of these, skylark is considered to be breeding on site, with the remaining species considered to be using the site for foraging only.

**3.26** There were eight amber-listed BoCC in accordance with the most recent conservation assessment (Eaton *et al.*, 2021) recorded on site; wren *Troglodytes troglodytes*, woodpigeon *Columba palumbus*, song thrush *Turdus philomelos*, dunnoek *Prunella modularis*, whitethroat *Sylvia communis*, black-headed gull *Chroicocephalus ridibundus*, greylag goose *Anser anser* and sparrowhawk *Accipiter nisus*. Of these, wren, woodpigeon, song thrush, dunnoek and whitethroat were considered to be breeding on site, with the remaining species considered to be using the site for foraging only.

**3.27** No Schedule 1 species were recorded on site, and it is considered unlikely that these species are breeding on site. Results are summarised in Table 7 below. Full results and a territory map are provided

in Appendix 7.

**Table 7. Summary data on conservation status.**

Conservation Status	BoCC	
	Breeding	Non-breeding
Red	1	3
Amber	5	3
Total	6	6

### *Wintering Bird Survey*

**3.28** The wintering bird surveys in 2022 recorded a total of 14 species utilising the site during the wintering season. There were two red-listed BoCC; skylark and starling, and three amber-listed BoCC; black headed gull, woodpigeon, and wren. Full results are provided in Appendix 7.

### *Importance*

**3.29** The bird community size is a function of the size of the site and diversity of habitats. The site supported a typical breeding and wintering community principally associated with arable land, hedgerows, and scrub. The surveys recorded notable birds breeding on site, namely skylark, wren, and woodpigeon. The bird community is hence considered as being of **Local** importance based on the criteria of Fuller (1980).

**Table 8. Site value based on bird community size (Fuller 1980).**

Number of breeding bird species	Site Value
<25	Local
25-49	District
50-69	County
70-84	Regional
>85	National

### **Great Crested Newts**

#### *Initial Assessment*

**3.30** There were two attenuation basins on the site and 12 ponds within 500m of the site, although only one (Pond 11) was within 250m of the site. The on-site attenuation basins were dry at the time of survey and are considered to be dry throughout the year/only hold water temporarily in heavy rainfall, therefore being unsuitable for GCN.

**3.31** Research undertaken by Cresswell (2004), indicates it is most common to encounter GCN within 50m of a breeding pond, with few moving further than 100m – unless significant linear features are involved, when GCN can be encountered at distances of between 150m – and 200m. At distances greater than 200m-250m, GCN are hardly ever encountered.

**3.32** Natural England’s Rapid Risk Assessment Calculator (see Table 9) suggests that the risk of an offence being committed would be highly unlikely.

**Table 9. Natural England's Rapid Risk Assessment**

Component	Likely effect (select one for each component; select the most harmful option if more than one is likely; lists are in order of harm, top to bottom)	Notational offence probability score
Great crested newt breeding pond(s)	No effect	0
Land within 100m of any breeding pond(s)	No effect	0
Land 100-250m from any breeding pond(s)	0.1 – 0.5 ha lost or damaged	0.1
Land >250m from any breeding pond(s)	No effect	0
Individual great crested newts	No effect	0
Maximum:		0.1
<b>Rapid risk assessment result:</b>	<b>GREEN: OFFENCE HIGHLY UNLIKELY</b>	

**3.33** As such, given the distances from the ponds within the wider landscape, it was considered highly unlikely that GCN are utilising the suitable terrestrial habitat present on the site.

*Importance*

**3.34** As GCN are considered absent from the site, the site is therefore considered to be of **Negligible** importance for GCN and this species is not considered further in this report.

**Hazel Dormouse**

*Nest Tube Survey*

**3.35** The hedgerow and scrub boundary habitats on site were considered to provide suitable habitat for hazel dormice. 50 dormouse nest tubes were deployed along the suitable habitat (hedgerow and scrub) along the field boundaries following current guidelines (Bright *et al.*, 2019). A dormouse nest tube location plan is provided in Appendix 8.

**3.36** No dormice were found during the 2022 surveys.

*Importance*

**3.37** As no hazel dormice were found during surveys, they are considered absent from the site. The site is therefore considered to be of **Negligible** importance for hazel dormice and this species is not considered further in this report.

**Reptiles**

*Presence/ Likely Absence Survey*

**3.38** The poor semi-improved grassland boundary habitats on site were considered to provide suitable habitat for common reptile species. 60 artificial reptile refugia were deployed in suitable habitat (arable margins) along the following current guidelines (Froglife, 1999). A reptile mate location plan is provided in Appendix 9.

**3.39** No reptile species were found during the surveys.

*Importance*

**3.40** As no reptiles were found during the surveys, they are considered likely absent from the site. The site is therefore considered to be of **Negligible** importance for common reptile species and these species are not considered further in this report.

### Other Notable Species

#### *Incidental Observations*

**3.41** The scrub and hedgerow habitat on site provide dispersal/foraging habitat for European hedgehog; the arable habitat on site provides dispersal/foraging habitat for brown hare.

**3.42** No notable species were observed on site during ecological surveys, it is therefore considered unlikely that significant numbers of hedgehog and brown hare are utilising the suitable habitat on site. It is considered unlikely that the site is being utilised by other notable species such as harvest mouse and common toad due to the lack of large areas of long sward grassland and aquatic habitat on or in proximity to the site, respectively.

#### *Importance*

**3.43** Although no evidence of the above-mentioned species was found, the site provides suitable habitat and low numbers of notable species could be present, therefore the site is considered to be of **Site** importance for other notable species.

### Summary

**3.44** A summary of the evaluation of important ecological features is provided in Table 10.

**Table 10. Summary of the evaluation of important ecological features.**

Feature	Summary Description	Importance
Ramsar / SAC / SPA	Three Ramsar/SPA/SAC sites within 13km of the site. Site lies within the ZoI for three Ramsar/SPA/SAC sites	International
SSSI / LNR	Four LNRs within 5km of the site Site lies within the IRZ for four SSSIs	National
LWS	Five LWSs within 2km of the site.	County
Habitats	Predominantly low value habitat (arable land and scrub), with some higher value boundary habitat (hedgerows)	Local
Badger	No badger setts on site, although site has suitable habitat for foraging/commuting badgers	Site
Bats	Eight trees with low (PRF-I) bat roost potential and three trees with moderate (PRF-M) bat roost potential on site. Moderate numbers of foraging and commuting bats along the boundaries of the site.	Local
Breeding Birds	Breeding assemblage of 15 species. One red-listed species and five amber-listed species breeding on site	Local
Wintering Birds	Wintering assemblage of 14 species. Two red-listed species and three amber-listed species on site.	Local
GCN	Two attenuation basins on site, 12 ponds within 500m of the site. Some suitable terrestrial habitats on site although unlikely GCN are utilising the site	Negligible

Feature	Summary Description	Importance
Hazel Dormouse	No hazel dormice found during surveys and as such, are considered likely absent from the site.	Negligible
Reptiles	No reptiles found during surveys and as such, are considered likely absent from the site.	Negligible
Other Notable Species	Habitat suitable for European hedgehog and brown hare.	Site

## 4.0 Impacts, Mitigation and Enhancement Measures

### Description of Development

- 4.1 Development proposals for the site are for residential development of 150 residential units with associated landscaping, public open space, vehicular access from Coach Road and connections to adjacent public rights of way (PRoWs). A high-level masterplan is provided in Appendix 1.

### Designated Sites

#### European Statutory Designated Sites

- 4.2 There were three sites of **International** importance designated under the Conservation of Habitats and Species Regulations (CHSR, 2019, as amended) within 22km of the site. The site also falls within the ZOI of the Essex Coast RAMS, for the Blackwater Estuary Ramsar and SPA, Colne Estuary Ramsar and SPA, and Stour & Orwell Estuaries Ramsar and SPA.

#### *Impacts*

- 4.3 As the site is c.9.2km from the closest European statutory designated site, it is considered that any direct adverse impacts such as increased air pollution and noise pollution as a result of construction are considered unlikely.
- 4.4 There are no PRoWs linking the site to nearby European statutory designated sites and they are separated by a Colchester City. It is therefore considered highly unlikely that people within the proposed development would walk/cycle to this site. This designated site has designated parking associated with it although it is not considered to be within a reasonable driving distance (<8km) from the application site. This reduces the likelihood that people within the proposed development would drive to this site, opting to use nearby footpaths more frequently. However, it is considered that the proposals could result in a minor increased recreational pressure on this site.

#### *Mitigation Measures*

- 4.5 A financial contribution of £127.30 per unit should be paid to the Essex Coast RAMS (this payment is index linked). This will fund strategic off-site measures such as wardening and signage at coastal European protected sites.
- 4.6 To mitigate against increased recreational pressure on nearby European designated sites, semi-natural open space should be delivered on site. The development should also provide links to existing public rights of way to the south and north of the site. Details are provided in the Habitat Regulations Assessment (HRA) for the site (SES, 2025a).

#### *Residual Effects*

- 4.7 It is considered that construction phase impacts will be neutral in the absence of mitigation. Residual operational phase effects upon European statutory designated sites will be reduced to **Neutral** through implementation of the above mitigation.

#### UK Statutory Designated Sites

- 4.8** There were four sites of **National** importance within the search area (5km). The site falls within the Natural England Impact Risk Zones (IRZ) for Abberton Reservoir SSSI, Roman River SSSI, Upper Colne Marshes SSSI, and Bullock Wood SSSI. The development meets the criteria to trigger mitigation or consultation with Natural England (100 or more residential units).

#### *Impacts*

- 4.9** As the site is c.3.5km from the closest UK statutory designated site, it is considered that any direct adverse impacts such as increased air pollution and noise pollution as a result of construction are considered unlikely.
- 4.10** Although Hilly Fields LNR lies 3.5km from the site, there are no PRoWs linking the site to this designated site and they are separated by the A12. It is therefore considered unlikely that people within the proposed development would walk/cycle to this site. This designated site is considered to be within a reasonable driving distance (<8km) from the application site, although it does not have designated parking associated with it. This reduces the likelihood that people within the proposed development would drive to this site, opting to use nearby footpaths more frequently. However, it is considered that the proposals could result in a minor increased recreational pressure on this site.

#### *Mitigation Measures*

- 4.11** To mitigate against increased recreational pressure on Hilly Fields LNR, alternative semi-natural habitats should be delivered on site. These should be present in the form of areas of public open space on site as well as links to existing public rights of way to the south and north of the site.

#### *Residual Effects*

- 4.12** It is considered that construction phase impacts will be neutral in the absence of mitigation. Residual operational phase effects upon UK statutory designated sites will be reduced to **Neutral** through implementation of the above mitigation.

#### Non-statutory Designated Sites

- 4.13** There were five sites of **Local** importance within the search area (2km).

#### *Impacts*

- 4.14** As the site is c.0.4km from the closest non-statutory designated site (Aldercar Wood LWS), it is considered that any direct adverse impacts such as increased air pollution and noise pollution as a result of construction are considered highly unlikely.
- 4.15** Although Aldercar Wood LWS lies 0.4km from the site, there are no PRoWs linking the development to this designated site and it is privately owned. It is therefore considered highly unlikely that people within the proposed development would walk to this site, opting to use nearby PRoWs and on-site open space instead. Impacts on non-statutory designated sites are therefore considered highly unlikely and as such, no mitigation measures are required.

## Habitats and biodiversity net gain

### Habitats

#### *Impacts*

- 4.16** The masterplan indicates that existing arable fields and dense scrub habitats will be lost in their entirety. The entirety of the central hedgerow will also be removed and replanted. All other hedgerows will remain intact. In addition to the direct loss of habitats, the construction phase of the development has the potential to impact the retained habitats on site through incidental pollution events as well as damage to retained hedgerows and their roots. Indirect impacts through increased lighting levels are also possible.
- 4.17** Impacts on habitats associated with the operational phase of the development include recreational damage to created and retained habitats as well as lighting disturbance on these habitats.

#### *Mitigation Measures*

- 4.18** Boundary habitats should be retained and enhanced where possible. In order to reduce the risk of pollution events and damage to retained hedgerows, a CEMP should be prepared prior to commencement. This should include protection for retained hedgerows using Heras fencing in accordance with *British Standard (BS) 5837, Trees in Relation to Design, Demolition and Construction*.
- 4.19** The retained hedgerows should be protected from potential indirect impacts of increased nocturnal lighting via the implementation of a wildlife-friendly sensitive lighting scheme throughout the development, which maintains 'dark zones' and avoids direct lighting of ecologically sensitive features such as tree canopies.

#### *Enhancements*

- 4.20** Significant measures to benefit biodiversity have been included within the design of the proposed scheme. Such measures should have a particular emphasis on the creation of a mosaic of interconnected multi-functional, semi-natural green open spaces that benefit both people and wildlife. This green infrastructure should mitigate recreational impacts on nearby designated sites and create additional opportunities for protected and notable flora and fauna, including the key features identified on site namely badgers, bats, birds, and hedgehogs. Strategic habitat creation and enhancement within the application site should ultimately improve connectivity to the wider landscape and across the site in a way that will benefit wildlife as a whole.
- 4.21** The overall enhancement strategy for the site should focus on the creation or restoration of the following habitats to create an ecologically permeable built landscape. Further details of provided habitats and their targeted condition criteria can be found within the BNG Gain Plan for the site (SES, 2025b).

#### *Attenuation basins*

- 4.22 One attenuation basin with associated seasonal wetland will be created in the south of the site. This area will be seeded with an EM8 Wetland Meadow Mix with naturally drier areas oversewn with an EM2 wildflower meadow mix (or similar mixes). The newly created habitats will benefit birds, bats, and invertebrates.

#### *Grassland*

- 4.23 Areas of both amenity grassland and other neutral grassland will be created throughout the development. The amenity areas will be seeded with an EL1F Wildflowers for Lawns Mix (or similar mixes). The other neutral grassland areas will be planted with Emorsgate EM3 Standard General Purpose Meadow Mixture (or similar). The newly created habitats will benefit birds, bats, and invertebrates.

#### *Hedgerows*

- 4.24 Retained hedgerows will be enhanced and expanded through infilling using a palette of native, fruit-bearing species. Enhancement of hedgerows will enhance green corridors that facilitate movement across the site as well as improving connectivity to the wider landscape and creating additional habitat and resources for badgers, birds, bats, invertebrates, and hedgehogs.

#### *Woodland*

- 4.25 A woodland will be created along the western boundary of the site. This area will be planted with a palette of native, fruit-bearing species. This newly created habitat will benefit birds, badgers, bats, hedgehogs, and invertebrates.

#### *Urban trees*

- 4.26 Urban trees will be planted throughout the development. Creation of urban trees will enhance green corridors that facilitate movement across the site as well as improving connectivity to the wider landscape and creating additional habitat and resources for birds, bats, and invertebrates.

#### *Biodiversity Net Gain*

- 4.27 Policy ENV01 of the Colchester Publications Draft Local Plan states that:

*“Development proposals where the principal objective is to conserve or enhance biodiversity and geodiversity interests will be supported in principle. For all proposals, development will only be supported where it incorporates beneficial biodiversity conservation features, **measurable biodiversity net gain of at least 10% in line with the principles outlined in the Natural England Biodiversity Metric**, and habitat creation, where appropriate.”*

- 4.28 Habitats on site were mapped and subject to habitat condition assessments to assign type and condition, forming the BNG baseline (SES, 2025b). The DEFRA Statutory Metric was then used to quantify habitat and linear units. A total of 21.34 habitat and 17.09 hedgerow units were recorded. The site’s retained, enhanced and created habitats were then calculated. Through application of current site plans, a total of 0.12 habitat units are predicted to be lost. There is a predicted loss of 2.53 hedgerow units. This represents a predicted loss of 0.55% for habitats and a loss of 14.79% for hedgerows. In addition, it is predicted that with the current landscaping proposals the site will not meet the trading rules which are

a material requirement of BNG.

- 4.29** However, given the high level of the current plans, it is likely that further gains will be feasible to achieve on site however, it is deemed unlikely that this will reach 10%. As such, it is recommended that habitat units are purchased from a local habitat bank to substitute the losses and enable the site to reach a 10% gain.

### **Protected Species**

#### *Badgers*

##### *Impacts*

- 4.30** The presence of hazards (trenches, chemicals etc.) during the construction phase of development may result in the death or injury of commuting/foraging badgers.
- 4.31** Increased traffic levels are predicted as a result of the operational phase of the development, which may result in the death or injury of commuting/foraging badgers.

##### *Mitigation Measures*

- 4.32** Precautionary measures should be put in place throughout construction, to ensure that in the event of a badger or other small mammals (e.g., hedgehog) coming on to the site, the risk of injuring and killing is minimised. This should entail:
- Covering any trenches/pipes at night or leaving a plank of wood leant against the side to ensure they can escape if they were to accidentally fall in, and.
  - Storing chemicals in a sealed compound (following COSHH guidance),
  - Night work should be avoided where possible, and any site lighting should avoid directly lighting the site boundary habitats; and
  - Regular clearance of litter from the site.
- 4.33** The landscape plan should include dense scrub thickets connecting to existing areas of suitable habitat to ensure the continued provision of sheltered foraging habitat. Traffic control measures should be included within the scheme in order to reduce the risk presented by increased traffic on the new road network, particularly where the roads are close to existing field boundaries.
- 4.34** Boundary habitats are to be largely retained and enhanced through additional planting and a long-term management plan. Together, these measures are considered to mitigate the loss of existing habitats.

##### *Enhancements*

- 4.35** Retaining and enhancing boundary habitats with native, fruit-bearing trees, as well as the creation of grassland habitats on site is considered to enhance the site for foraging/commuting badgers. A recommended planting list is provided in Appendix 10.

##### *Residual Effects*

- 4.36** Through the implementation of the above measures, it is predicted that the residual effects upon

badgers will be **Beneficial** at the **Site** level.

## **Bats**

### *Impacts*

- 4.37** The site is assessed as being of **Site** importance for roosting bats with eight trees with bat roost potential on the site. A single tree with *low* bat roost potential (tree 8) is due to be felled as a result of the development. Without mitigation, felling of this tree could result in the disturbance, death, or injury of roosting bats, which are offences under the Conservation of Habitats and Species Regulations (CHSR, 2019, as amended).
- 4.38** The site is currently assessed as being of **Local** importance for foraging and commuting bats with the majority of bat activity being along the boundary hedgerows. There is potential for the bat assemblage currently utilising the site for foraging and commuting to be adversely affected through habitat loss during the construction phase and increases in artificial lighting during the operational phase. Impacts could disrupt dark corridors present along the site boundary habitats by driving abandonment of foraging and commuting pathways, as well as roosts (if present).

### *Mitigation Measures – Roosting Bats*

- 4.39** Tree 8 should be ‘soft-felled’ in accordance with current guidance (Collins, 2023), this should include a pre-fell climbing inspection. This should involve lowering cut sections gently to the ground with ropes, then leaving these in situ on the ground overnight before they are chipped or moved off site. If a roosting bat is discovered during these operations, a Natural England EPSM licence may be needed to allow works to continue, and appropriate mitigation should be provided, likely in the form of the provision of bat boxes on retained trees. If the masterplan is subject to change and additional trees removed, further surveys will be required.
- 4.40** All other trees with bat roost potential should be protected using Heras fencing and light should not be directed upon these retained trees or associated connecting habitat during either the construction or operational phases in order to ensure that roosts (if present) are not disturbed/damaged.

### *Mitigation Measures – Foraging and Commuting Bats*

- 4.41** The majority of the suitable foraging and commuting habitat on site will be retained, however some suitable habitat will be lost as a result of the development.
- 4.42** Loss of these habitats should be mitigated through compensatory planting of retained hedgerows as well as the creation of hedgerows, attenuation basins and public open space on site. This mitigation is considered to be sufficient to address the potential for any negative impacts on local bat populations.
- 4.43** The indirect impact of artificial lighting requires mitigation to ensure the local bat population are protected from disturbance. A sensitive lighting scheme should be designed to avoid light spill onto woodland, trees and scrub habitats which may be utilised for commuting/foraging/roosting bats.
- 4.44** Site lighting around key features likely to be used by roosting, foraging or commuting bats should be avoided during both the construction and occupation phases. If lighting is necessary, then there are a number of ways to minimise the effect of lighting on bats (and other nocturnal species such as badgers

and owls). The following mitigation strategies have been taken from the Institution of Lighting Professionals and Bat Conservation Trust's Guidance Note 08/18 Bats and artificial lighting in the UK (2018) and other referenced sources:

- In general, light sources should not emit ultraviolet light to avoid attracting insects and thus potentially reducing numbers in adjacent areas, which bats may use for foraging. Metal halide and fluorescent sources should not be used.
- LED luminaires should be used where possible. A warm white spectrum (ideally <2700Kelvin) should reduce blue light component. Luminaires should feature peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats (Stone, 2012).
- The height of lighting columns should be limited to 8m and the spacing of lighting columns should be increased to reduce spill of light into unwanted areas such as hedgerows (Fure, 2006). Only luminaires with an upward light ratio of 0% and with good optical control should be used. Luminaires should always be mounted on the horizontal, *i.e.*, no upward tilt.
- Other ways to reduce light spill include the use of directional luminaires, shields, baffles and/or louvres. Flat, cut-off lanterns are best. Additionally, lights should be located away from reflective surfaces where the reflection of light should spill onto potential foraging/commuting corridors. Internal luminaires can be recessed when installed in proximity to windows to reduce glare and light spill. Where windows and glass facades etc. cannot be avoided, low transmission glazing treatments may be a suitable option in achieving reduced illuminance targets.
- Lighting that is required for security or access should use a lamp of no greater than 2000 lumens (150 Watts) and be PIR sensor activated on a short timer (1 minute), to ensure that the lights are only on when required and turned off when not in use (Jones, 2000; Hundt, 2012). A control management system can be used to dim (typically to 25% or less) or turn off groups of lights when not in use.

#### *Enhancements*

- 4.45** Retaining and enhancing boundary habitats as well as the creation of hedgerows, attenuation basins, and public open space on site is considered to mitigate for the loss of existing habitats and enhance the site for foraging/commuting bats. A recommended planting list is provided in Appendix 10.
- 4.46** In order to enhance the site for roosting bats, a bat box scheme should be incorporated into the development through the installation of the following boxes (or similar). Proposed bat box locations can be found in Appendix 11. The following features should be installed throughout the development:
- 20 x integrated bat boxes should be placed throughout the development, integrated into buildings.
  - 5 x external bat boxes should be placed on retained trees throughout the boundary habitat.

#### *Residual Effects*

- 4.47** Through the implementation of the above measures, it is predicted that the residual effects upon bats will be **Beneficial** at the **Site** level.

#### **Birds**

### *Impacts*

- 4.48** Impacts upon birds as a result of the development consist of potential nest destruction and disturbance, which constitutes an offence under *The Wildlife and Countryside Act 1981* (as amended). In addition, construction will lead to loss of nesting and foraging habitats, including hedgerows and attenuation basins. It is possible that breeding birds will be affected post-development through increased recreational disturbance (*e.g.*, disturbance from dogs and other domestic animals).

### *Mitigation Measures*

- 4.49** Whilst the majority of the arable and scrub habitat should be cleared to facilitate the development, the quantity of nesting and foraging habitat lost should be minimised through the retention of hedgerows where feasible. The retained hedgerows and trees should be protected from damage (*e.g.*, through root compaction) during development through the erection of suitable fencing such as Heras fencing.
- 4.50** Where existing scrub and hedgerow habitats will be lost, this should be mitigated through compensatory planting, to include a range of native, fruit-bearing species that should provide new foraging resources for berry-eating bird species as well as attract invertebrates for those species reliant on insects.
- 4.51** To comply with current legislation and avoid nest destruction, vegetation clearance works affecting nesting habitat (including hedgerows and scrub) should be scheduled so that these do not occur during the bird breeding season (*i.e.*, outside the period March-August inclusive). If this is not possible, a check should be carried out by a suitably qualified ecologist no more than 48 hours in advance of clearance works. If an active birds' nest is found within the proposed clearance zone, suitable avoidance measures should be installed, such as creating a buffer zone with barrier tape around the nest to ensure that the nest is not damaged or destroyed by the works. The nest should then be monitored until all chicks have fledged, and a suitably experienced ecologist confirms the nest is now inactive and works can safely proceed.
- 4.52** Recreational impacts post-development should be mitigated through measures outlined in the habitats section, *i.e.*, creation of dark corridors around sensitive habitats. In addition, retained and created habitats should be specifically managed to benefit wildlife (including nesting birds).

### *Enhancements*

- 4.53** Retaining and enhancing boundary habitats as well as the creation of attenuation basins, public open space and scrub on site is considered to mitigate for the loss of existing habitats and enhance the site for foraging/commuting bats. A recommended planting list is provided in Appendix 10.
- 4.54** In order to enhance the site for birds, a nest box scheme should be incorporated into the development through the installation of the following boxes (or similar boxes). Bird box locations can be found in Appendix 11. The following features should be installed throughout the development:
- 160 x integrated swift bricks should be built into suitable buildings throughout the development.
  - 10 x generalist nest boxes should be placed on retained trees throughout the boundary habitat.

### *Residual Effects*

- 4.55 Through the implementation of the above measures, it is predicted that the residual effects upon breeding birds will be **Beneficial** at the **Site** level.

### **Other Notable Species**

#### *Impacts*

- 4.56 Hedgehog and brown hare are listed as a Species of Principal Importance under the NERC Act 2006. Brown hare are unlikely to be utilising the suitable habitat on site in any significant numbers, although impacts to hedgehog during the construction phase may include death / injury, habitat loss and fragmentation.
- 4.57 Impacts during the occupation phase are also applicable to hedgehog which may utilise the areas of retained hedgerows as well as colonising new grassland and attenuation basin habitats created within the proposed open space. Increased disturbance and predation by domestic animals, as well as increases in recreational disturbance are possible during the occupation phase. Although gardens will provide suitable foraging habitat for hedgehog, if access is restricted this species (and other small mammals/amphibians) are likely to become isolated through fragmentation.

#### *Mitigation Measures*

- 4.58 The risk of construction impacts to hedgehogs should be minimised through the retention and protection of suitable habitat where possible (hedgerows). Where clearance of suitable habitat is necessary, precautionary measures should be followed.
- 4.59 Recreational impacts during the operational phase should be mitigated through measures outlined in the habitats section, *i.e.*, retention and enhancement of retained habitats, creation of dark corridors around sensitive habitats. In addition, retained and created habitats should be specifically managed to benefit wildlife.

#### *Enhancements*

- 4.60 The green space, garden habitats and hedgerow enhancement should provide preferred habitats for foraging hedgehog. Given the findings of recent studies (Johnson, 2015) highlighting the decline of hedgehogs throughout the UK in recent years, the provision of access points into residential gardens is an important measure providing access to foraging resources. To facilitate the movement of hedgehogs through the site, one 13cm x 13cm hole should be provided within all new lengths of garden (and where feasible boundary) fencing to permit movement of hedgehogs through back gardens. This size gap is too small for most pets and can be undertaken by raising a fence panel per garden; installing hedgehog friendly fencing; removing a brick at the bottom of a wall or cutting a hole in fencing / walls.

### *Residual Effects*

- 4.61 Through the implementation of the above measures, it is predicted that the residual effects upon other notable species will be **Beneficial** at the **Site** level.

## **5.0 Summary and Conclusions**

- 5.1** The proposed development at Land North of Coach Road, Great Horkesley, Essex has been assessed for its biodiversity value, as well as its potential to support ecological features.
- 5.2** Habitats of biodiversity value on site are considered to be hedgerows. Ecological features of interest include foraging and commuting habitats for badgers, foraging and commuting bats, trees with potential to support roosting bats, and an assemblage of breeding birds. Through application of the mitigation hierarchy, a coherent ecological network of habitats should be enhanced and created which is predicted to result in a net gain in biodiversity.
- 5.3** Table 11 provides a summary of the impacts, mitigation and enhancement measures for each ecological feature and the residual effects.
- 5.4** Through implementing the recommended mitigation, compensation, and enhancement measures, it is considered that all significant negative impacts from the proposed development upon protected and notable habitats and species would be mitigated in line with relevant wildlife legislation, national planning policy (MHCLG, 2024) and local planning policy related to biodiversity.

**Table 11. Summary of impacts, mitigation, and residual effects.**

Feature	Impacts	Mitigation and enhancement measures	Residual effect
Ramsar/SAC/S PA	Recreational pressures	Provision of areas of open space throughout the development as well as links to existing public rights of way	Neutral
LNR	Recreational pressures	Provision of areas of open space throughout the development as well as links to existing public rights of way	Neutral
Habitats	Loss of arable field, scrub, and hedgerow Pollution events Light disturbance	Protection of retained hedgerow. Enhancement of retained hedgerow. Creation of attenuation basins and grassland to provide a net gain in biodiversity. Sensitive lighting strategy	Beneficial
Badgers	Accidental death and injury of foraging/commuting animals. Loss of foraging / commuting habitat.	Standard precautionary measures; covering trenches overnight or installing a plank/mammal ladder, sensible storage of chemicals/equipment, avoidance of littering Scrub planting and creation of attenuation basin and grassland Traffic control measures such as a reduced speed limit to reduce the risk presented by increased traffic on the new road network	Beneficial
Bats	Killing / injury of individual bats, disturbance / destruction of roosts (if present) Loss of foraging / commuting habitat. Construction and operational lighting impacts	Hedgerow enhancement and creation of attenuation basin and grassland Retention and protection of trees with high suitability for roosting bats Soft fell/prune low suitability trees follow pre-fell climbing inspection. Installation of integrated and external bat boxes throughout the development Sensitive lighting scheme	Beneficial
Birds	Loss of nesting habitat Destruction of nests Death/injury of nesting birds	Appropriate pre-clearance checks if clearance required within breeding season (March to August inclusive) Scrub enhancement and creation of attenuation basins and grassland Installation of nest boxes and swift bricks throughout the development	Beneficial

Feature	Impacts	Mitigation and enhancement measures	Residual effect
Other notable species	Death/injury to hedgehog and brown hare during vegetation clearance  Loss/fragmentation of suitable habitat.	Scrub enhancement and creation of grassland and attenuation basin  Sensitive vegetation clearance under a method statement  Installation of hedgehog highways throughout the development	Beneficial

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# Appendix 1: Site Location & Illustrative Framework Plan

## Site Location Plan



*Illustrative Framework Plan*



## **Appendix 2: Legislation & Policy Context**

This document has not been prepared by a legal or planning professional and should be read as an interpretation of relevant statutes and planning policy guidance only. The information presented within this document has been reported in good faith and are the genuine opinion of SES on such matters. SES does not accept any liability resulting from outcomes relating to the use of this information or its interpretation within this document.

### **National Planning Policy**

The *NPPF* (MHCLG, 2024) outlines what the planning system should do to contribute to and enhance the natural and local environment through the following policy statements:

#### Paragraph 8

Achieving sustainable development means that the planning system has three overarching objectives, which are interdependent and need to be pursued in mutually supportive ways (so that opportunities can be taken to secure net gains across each of the different objectives):

- c) an environmental objective – to contribute to protecting and enhancing our natural, built, and historic environment; including making effective use of land, helping to improve biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy.

#### Paragraph 20

Strategic policies should set out an overall strategy for the pattern, scale, and quality of development, and make sufficient provision for:

- d) conservation and enhancement of the natural, built, and historic environment, including landscapes and green infrastructure, and planning measures to address climate change mitigation and adaptation.

#### Paragraph 28

Non-strategic policies should be used by local planning authorities and communities to set out more detailed policies for specific areas, neighbourhoods, or types of development. This can include allocating sites, the provision of infrastructure and community facilities at a local level, establishing design principles, conserving, and enhancing the natural and historic environment and setting out other development management policies.

#### Paragraph 102

Transport issues should be considered from the earliest stages of plan-making and development proposals, so that:

- d) the environmental impacts of traffic and transport infrastructure can be identified, assessed, and taken into account – including appropriate opportunities for avoiding and mitigating any adverse effects, and for net environmental gains; and

#### Paragraph 118

Planning policies and decisions should:

- a) encourage multiple benefits from both urban and rural land, including through mixed use schemes and taking opportunities to achieve net environmental gains – such as developments that would enable new habitat creation or improve public access to the countryside.
- b) recognise that some undeveloped land can perform many functions, such as for wildlife, recreation, flood risk mitigation, cooling/shading, carbon storage or food production.

#### Paragraph 141

Once Green Belts have been defined, local planning authorities should plan positively to enhance their beneficial use, such as looking for opportunities to provide access; to provide opportunities for outdoor sport and recreation; to retain and enhance landscapes, visual amenity, and biodiversity; or to improve damaged and derelict land.

#### Paragraph 170

Planning policies and decisions should contribute to and enhance the natural and local environment by:

- a) protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan).
- b) recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland.
- c) maintaining the character of the undeveloped coast, while improving public access to it where appropriate.
- d) d) minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures.

#### Paragraph 174

To protect and enhance biodiversity and geodiversity, plans should:

- a) Identify, map and safeguard components of local wildlife-rich habitats and wider ecological networks, including the hierarchy of international, national, and locally designated sites of importance for biodiversity; wildlife corridors and steppingstones that connect them; and areas identified by national and local partnerships for habitat management, enhancement, restoration, or creation; and
- b) promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity.

#### Paragraph 175

When determining planning applications, local planning authorities should apply the following principles:

- a) if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused.
- b) development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest.

- c) development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons, and a suitable compensation strategy exists; and
- d) development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to incorporate biodiversity improvements in and around developments should be encouraged, especially where this can secure measurable net gains for biodiversity.

#### Paragraph 176

The following should be given the same protection as habitats sites:

- a) potential Special Protection Areas and possible Special Areas of Conservation.
- b) listed or proposed Ramsar sites.
- c) sites identified, or required, as compensatory measures for adverse effects on habitats sites, potential Special Protection Areas, possible Special Areas of Conservation, and listed or proposed Ramsar sites.

#### Paragraph 177

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.

#### Paragraph 180

Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development. In doing so they should:

- d) limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes, and nature conservation.

### **Local Planning Policy**

The policies related to nature conservation in Colchester District Councils Publication Draft Local Plan (As amended) (CDC, 2017) are set out below.

#### Policy ENV 1 Environment

The Local Planning Authority will conserve and enhance Colchester's natural and historic environment, countryside, and coastline. The Local Planning Authority will safeguard the Borough's biodiversity, geology, history, and archaeology, which help define the landscape character of the Borough, through the protection and enhancement of sites of international, national, regional, and local importance. The Local Planning Authority will require development to be in compliance with, and contribute positively towards, delivering the aims and objectives of the Anglian River Basin Management Plan.

##### *A. Designated sites*

Development proposals that have adverse effects—on the integrity of habitats sites, Sites of Special Scientific Interest, or significant adverse impacts on the special qualities of the Dedham Vale Area of Outstanding Natural Beauty (including its setting) (either alone or in-combination) will not be supported.

## B. Essex Coast RAMS

A Recreational disturbance Avoidance and Mitigation Strategy has been completed in compliance with the Habitats Directive and Habitats Regulations. Further to Section 1 Policy SP2, contributions will be secured from qualifying residential development, within the Zones of Influence as defined in the adopted RAMS, towards mitigation measures identified in the Essex Coast Recreational Disturbance Avoidance and Mitigation Strategy (RAMS).

## C. Biodiversity and geodiversity

Development proposals where the principal objective is to conserve or enhance biodiversity and geodiversity interests will be supported in principle. For all proposals, development will only be supported where it:

- (i) Is supported with appropriate ecological surveys where necessary; and
- (ii) Where there is reason to suspect the presence of a protected species (and impact to), or Species/Habitats of Principal Importance, applications should be accompanied by an ecological survey assessing their presence and, if present, the proposal must be sensitive to, and make provision for their needs and demonstrate the mitigation hierarchy has been followed; and
- (iii) Will conserve or enhance the biodiversity value of greenfield and brownfield sites and minimise fragmentation of habitats; and
- (iv) Maximizes opportunities for the preservation, restoration, enhancement, and connection of natural habitats in accordance with the UK and Essex Biodiversity Action Plans or future replacements; and
- (v) Incorporates beneficial biodiversity conservation features, **measurable biodiversity net gain of at least 10% in line with the principles outlined in the Natural England Biodiversity Metric**, and habitat creation, where appropriate.

Proposals for development that would cause significant direct or indirect adverse harm to nationally designated sites or other designated areas, protected species, Habitats and Species of Principle Importance will not be permitted unless:

- (i) They cannot be located on alternative sites that would cause less harm; and
- (ii) The benefits of the development clearly outweigh the impacts on the features of the site and the wider network of natural habitats; and
- (iii) Satisfactory biodiversity net gain, mitigation, or as a last resort, ~~and~~ compensation measures, are provided.

The Local Planning Authority will take a precautionary approach where insufficient information is provided about avoidance, mitigation and compensation measures and secure mitigation and compensation through planning conditions/obligations where necessary.

## D. Irreplaceable habitats

Proposals that would result in the loss of irreplaceable habitats, such as ancient woodland, Important Hedgerows and veteran trees will not be permitted unless there are wholly exceptional reasons and a suitable compensation strategy, to the satisfaction of the local planning authority, exists.

## E. Countryside

The local planning authority will carefully balance the requirement for new development within the countryside to meet identified development needs in accordance with Colchester's spatial strategy, and to support the vitality of rural communities, whilst ensuring that development does not have an adverse impact on the different roles, the relationship between and separate identities of settlements, valued landscapes, the intrinsic character and beauty of the countryside and visual amenity.

The intrinsic character and beauty of the countryside will be recognised and assessed, and development will only be permitted where it would not adversely affect the intrinsic character and beauty of the countryside and complies with other relevant policies. Within valued landscapes, development will only be permitted where it would not impact upon and would protect and enhance the factors that contribute to valued landscapes.

### **England Priority Species and Priority Habitats**

The UK Post-2010 Biodiversity Framework, published in July 2012, has now succeeded the UK Biodiversity Action Plan. Much of the work previously carried out under the UK BAP is now focussed on a country level. England Priority Species and Priority Habitats are those that have been identified as being the most threatened and requiring conservation action under the England Biodiversity Strategy.

### **Badgers**

Badgers have historically been given legal protection since 1973 however the Protection of Badgers Act 1992 consolidated and strengthened previous legislation. It is a criminal offence to:

- Wilfully kill, injure, or take any Badger.
- Possess or cruelly ill-treat a badger.
- Possess any dead badger or part of one.
- Possess or control a living, healthy Badger.
- Intentionally or recklessly damage, destroy or obstruct access to a sett, or disturb a Badger whilst it is occupying a sett.

The maximum fine per offence is £5000; the Countryside and Rights of Way Act 2000 (CRoW) amendment contains a provision for a custodial sentence of up to 6 months instead of, or in addition to, a fine. Along with a lengthy development delay until an appropriate mitigation programme has been agreed and completed.

Local authority planning departments should also meet the requirements of the National Planning Policy Framework (NPPF, 2024), which requires planners not only to protect biodiversity, but where possible to enhance it. Planning authorities are required to take into account protected species so an ecological survey is normally required.

### **Bats**

All UK bat species are protected under European and UK law (Conservation of Species and Habitats Regulations (CHSR) 2019, Wildlife and Countryside Act (WCA) 1981). Some are also Natural Environment and Rural Communities (NERC) Act 2006 /UK Biodiversity Action Plan (UK BAP) priority species and local BAP species. Protected and NERC/UK BAP/local BAP species are a material consideration under the NPPF (MHCLG, 2024).

## Birds

All UK wild birds are afforded statutory protection under the WCA (1981) (below). In addition to this statutory protection British birds are also classified according to their conservation status, including their position on the Red and Amber lists of *Birds of Conservation Concern in the UK 3* (Eaton *et al*, 2009) and whether they have been identified as Priority Species under the England Biodiversity Strategy. All British birds are also covered by the EU Birds Directive.

### EU Birds Directive

Under the EU Birds Directive all bird species naturally occurring on the European territory of the EU are protected. This means they must not be deliberately killed, caught, or disturbed, and their mating, breeding, feeding and roosting habitats must not be destroyed. The taking and destruction of eggs is prohibited as well as keeping of wild-caught birds.

A major provision of the Directive includes the identification and classification of Special Protection Areas (SPA's) for rare or vulnerable species which are listed in Annex I of the Directive. The Directive also regulates the hunting of certain species of birds listed in Annex II, while Annex III regulates the sale, transport, keeping and offering for sale of certain live or dead game birds. In the UK, the provisions of the 'Birds Directive' are implemented through the WCA (1981)

### Wildlife and Countryside Act 1981.

Wild birds in the UK are protected under the WCA (1981). Under this legislation all birds, their nests and eggs are protected by law, and it is an offence, with certain exceptions, to intentionally kill, injure, or take any wild bird or their eggs or nests (exceptions to this are listed in Schedule 2). In addition, a select group of species are further listed under Schedule 1 of the Act, and these have additional protection that makes it an offence to disturb these birds at the nest, or to disturb their dependent young.

### Birds of Conservation Concern:

**Red** list species are those that are Globally Threatened according to IUCN criteria, those with populations or ranges that have declined rapidly in recent years and those that have declined historically and not shown a substantial recent recovery.

**Amber** list species are those with an unfavourable conservation status in Europe, those whose population or range has declined moderately in recent years; those whose population has declined historically but made a substantial recent recovery; rare breeders; and those with internationally important or localised populations.

**Green** list species are all regularly occurring species that do not qualify under any of the Red or Amber criteria. The Green list also includes those species listed as recovering from Historical Decline in the last review that have continued to recover and do not qualify under any of the other criteria.

### The Natural Environment and Rural Communities (NERC) Act 2006; Section 41

The Natural Environment and Rural Communities (NERC) Act came into force on 1 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.

**England Priority Species** on the list (see below) are those species found in England which have been identified as requiring action under the England Biodiversity Strategy. The list is used to guide decision-makers such as public bodies, including local and regional authorities, to have regard to the conservation of biodiversity in England.

## Reptiles

Habitats found on/off site are suitable for common lizards, slow-worms, grass snakes and adders which are protected under the WCA (1981). These species are listed on schedule 5 and offences are outlined under S9 (1) and S9 (5) and are follows:

- Intentionally, or recklessly, kill or injure any of the above species, and/or.
- Sell, or attempt to sell, any part of the species, alive or dead.

The maximum fine per offence is £5000 and if more than one animal is involved, the fine is £5000 per animal (WCA 1981, S21). The CRoW amendment contains a provision for a custodial sentence of up to six months instead of, or in addition to, a fine, along with a lengthy development delay until appropriate mitigation has been agreed and completed.

The NERC (2006) also lists the above reptiles as a species of 'principal importance' under S41 and s40 requires every public body in the exercising of its functions (in relation S41 species) '*have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity*'.

## Small and medium-sized mammals

Species highlighted for further consideration within this report are European hedgehog, harvest mice, brown hare and polecat which are all listed as UK Biodiversity Action Plan (UK BAP) priority species, Essex priority (local BAP) species, and as species of principal importance (section 41) of the NERC Act 2006. Although such species do not receive protection under criminal law their presence is a material planning consideration. Consequently:

- Regional Planning Bodies and Local Planning Authorities will use the Section 41 list to identify the species and habitats that should be afforded priority when applying the requirements of the National Planning Policy Framework (NPPF) (MHCLG, 2024) to promote the "*protection and recovery of priority species populations*".

Local Planning Authorities will use it to identify the species and habitats that require specific consideration in dealing with planning and development control, recognising that under NPPF the aim of planning decisions should be to minimise impacts to biodiversity.

### Appendix 3: Detailed Survey Methods

#### Bats

##### Ground Level Tree Assessment

Habitats on and adjacent site were assessed for their suitability to support roosting bats using guidelines issued by the Bat Conservation Trust (Collins, 2016). All potential roosting habitats (existing trees) with potential to be impacted from the proposals were assigned a level of suitability according to the descriptions outlined in Table A3.1. The trees were initially assessed from ground level, using binoculars where necessary to identify potential roost features and bat access points.

**Table A3.1. Assessment of the potential suitability of a proposed development site for roosting, foraging and commuting bats (Collins, 2016)**

Suitability	Roosting habitats
Negligible	Negligible habitat features on site likely to be used by roosting bats
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically but not enough space, shelter, protection, and appropriate conditions to be used on a regular basis or by larger numbers of bats.  A tree of sufficient size and age to contain potential roosting features but with none seen from the ground or features seen with only very limited roosting potential
Moderate	A structure or 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
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

##### Activity Surveys

The following surveys were recommended in line with published guidelines (Collins, 2016), see Table A3.2.

**Table A3.2. Guidelines on the number of bat activity surveys recommended to achieve a reasonable survey effort in relation to a site with moderate habitat suitability, adapted from Collins 2016.**

Survey type	Low suitability habitat for bats
Transect surveys	One survey per month (from April to October) in appropriate weather conditions for bats.
Automated surveys	Two locations per transect, data to be collected on five consecutive nights per month (from April to October) in appropriate weather conditions for bats

Transect surveys provide qualitative descriptive data which describes how bats use the site. A transect route (Appendix 6) was designed to cover all the best habitats for bats on and adjacent to the site. Given the extent and range of habitats present, one transects route was considered sufficient to sample the site.

The transect route was walked at a steady pace (so the sampling area is approximately the same per unit time). The transect start point and direction of travel was randomised for each survey to overcome the potential for results to be biased by systematic differences in the timing with which each habitat feature was sampled across the series of surveys.

Surveyors recorded observations of bats such as likely species, numbers, flight direction, flight height, behaviour (e.g., foraging or commuting), appearance and relative speed. Surveyors used Echometer Touch 2 detectors to record echolocation calls.

Surveys were undertaken from April to October 2022 to provide coverage across the bat active season. In accordance with guidance, all surveys were undertaken either two hours after dusk or two hours before dawn, when bat activity tends to be the highest, and in appropriate weather conditions for bats (no heavy rain, cold temperatures, or high winds). Results are reported in Appendix 6.

**Table A3.3. Bat activity transect survey dates and timings.**

Survey month	Survey date	Survey type	Timings
April	22/04/2022	Dusk	Survey start / sunset: 20:06 Survey end: 22:05
May	25/05/2022	Dusk	Survey start / sunset: 20:57 Survey end: 22:57
May	26/05/2022	Dawn	Survey start / sunset: 02:49 Survey end: 04:49
June	14/06/2022	Dusk	Survey start / sunset: 21:16 Survey end: 23:17
July	05/07/2022	Dusk	Survey start / sunset: 21:17 Survey end: 23:17
August	08/08/2022	Dusk	Survey start / sunset: 20:33 Survey end: 22:34
September	21/09/2022	Dusk	Survey start / sunset: 18:37 Survey end: 20:37
October	17/10/2022	Dusk	Survey start / sunset: 17:52 Survey end: 19:52

### Automated Surveys

Automated static detectors provide quantitative data over longer periods of time useful for assessing the species assemblage in an area and the temporal changes in bat activity.

Two static detectors per transect were set up at different monitoring points and used to record bat activity within the habitats on site for at least five consecutive nights per season, in accordance with current guidance. Sampling was undertaken from April to October 2022 to provide coverage across the bat active season. Where possible, survey dates were selected when the predicted weather forecast indicated suitable weather conditions for foraging and commuting bats (*i.e.*, air temperature above 10°C, no strong winds and no rain).

Anabat Express bat detectors were used to record bat echolocation calls. The units were set up to continuously record from 30 minutes before sunset until 30 minutes after sunrise. All recordings were stored on memory cards and analysed using computer software programs Analook and Kaleidoscope.

Echolocation calls were identified down to species or genus level depending on the type of bat encountered (often it is not possible to reliably identify species belonging to the genus *Myotis*, *Plecotus* and *Nyctalus*) and the quality of the recording.

The analysed data was then standardised to account for differences in night length and the number of nights over which activity was sampled per season. This was achieved by following procedure:

- dividing the total number of passes recorded per session (defined as a maximum 15 second bat recording) by the number of recording nights, to provide the number of passes per night.
- then, dividing the number of passes per night by the night length, to provide the number of passes per night hour.
- finally, multiplying the number of passes per night hour by the mean night length over the sampling period, to provide the standardised number of passes per night.

## **Birds**

### Breeding Bird Surveys

SES conducted three breeding bird survey visits during the 2022 bird breeding season in April, May, and June. The survey area included the whole of the study area and adjacent areas that could be surveyed from within the site, generally covering a buffer perimeter of 10-20m. Thus, adjacent field boundaries and other potential bird nesting habitats where birds using the site during the breeding season may nest, and vice versa were generally also included. A transect was walked slowly pausing to record birds heard and observed, covering all areas of the study area, and route directions were varied between survey visits. Birds flying over and not using the site or surrounding area were recorded separately. All bird locations and behaviour were mapped onto photocopied OS maps (1:5000 scale) using the standard CBC notation.

All survey visits were undertaken during the morning after the dawn period when bird singing intensity tends to be high but stable (Bibby *et al.* 2000).

Field maps were analysed to determine probable breeding bird registrations relating to different territories and to judge which birds are using the area for breeding or for other activities such as foraging. A probable or definite territory is defined as a cluster of registrations of singing or displaying individuals from more than one visit, or one or more registrations of the following breeding behaviour: disturbance displaying, interspecific aggressive interaction, repetitively alarming, carrying food, nest material or faecal sacs, or if active nests or young were found.

If a singing bird is recorded on just one visit or sight observations of birds are recorded in the same area on more than one visit and are not likely to be associated with any other recorded territories, these are assigned as possible territories. For birds that do not sing, such as many waterfowl, birds present at a location in suitable breeding territory on at least two visits are assigned to probable territories. Presence of such species in suitable breeding habitat on a single visit is assigned to possible territories unless the possibility of nesting is considered negligible by the observer.

This process is open to subjectivity in interpretation except where active nests are located. Therefore, these territories are classed as putative, and their mapped locations indicate the 'centre' of a territory and not

necessarily the nesting location. The maps were analysed to determine the number of probable and possible territories or pairs of each species present.

## Hazel Dormouse

Dormouse nest tubes were placed in areas of scrub and woodland where accessible to do so. The following were taken into account when determining where to place the nest tubes:

- Presence of preferred food resources e.g., hazel.
- Management of hedgerow – avoiding frequently cut / flailed hedgerows which are less suitable for dormice.
- Accessibility to nest tubes; and,
- Suitable locations to attach nest tubes.

Where suitable habitats existed, a total of 50 nest tubes were placed at approximately 20 m intervals (Appendix 9 for locations). These were installed on 24<sup>th</sup> May 2022 and were monitored by suitably qualified ecologist Victoria Wallace. Monitoring of these tubes was undertaken from July to November 2022. Suitable dormouse habitats were identified, and dormouse presence / likely absence surveys were undertaken.

In order to assess the likely presence or absence of dormice, an index of probability of finding dormice present in test tubes in any one month was developed by Bright et al (2006) and is recommended for use by Natural England (2011). This index can be used as an indicator of the thoroughness of a survey. Table A3.4 details the index of probability, which is based on the deployment of 50 nest tubes. All of the monthly scores for the period over which the tubes are in place are added together and a minimum score of 20 must be reached to determine likely absence.

**Table A3.4: Index of Probability (from Bright et al, 2006)**

Month	General index of probability of dormouse detection (based on 50 nest tubes)	Total index of probability of dormouse detection for surveys at Coach Road
January	-	
February	-	
March	-	
April	1	
May	4	4
June	2	2
July	2	2
August	5	5
September	7	7
October	2	2
November	2	2
<b>Total</b>		<b>24</b>

## Reptiles

Artificial refuges (0.5m x 0.5m felt squares) were laid in suitable habitat, using the surveyor's professional judgement. Artificial refuges were used to observe reptiles basking or taking refuge, these were laid in transects and left for fourteen days to settle before the survey commenced. Guidance recommends laying mats at a density of 10p/ha of suitable habitat (Froglife, 1999), however in this case a larger number of mats (60 mats) were laid to provide adequate coverage of all suitable areas.

A total of seven visits for the presence/likely absence survey were undertaken during 'suitable' days for reptile activity; a 'suitable' survey day is determined by the weather, with temperature being the pre-eminent factor. Reptile surveys conducted between 9 and 18°C have the most chance of success and therefore all surveys were undertaken in these temperatures.

## Appendix 4: CIEEM EclA Methods

Ecological features are evaluated and assessed with due consideration for the Chartered Institute of Ecology and Environmental Management (CIEEM) Guidelines for Ecological Impact Assessment (EclA) (CIEEM, 2016; updated 2018). For clarity, the evaluation and assessment process adopted within this report is set out below.

### Establishing potentially important ecological features

Potentially important ecological features of relevance to the development are determined in accordance with current CIEEM guidelines. Table below sets out a non-exhaustive list of ecological features that are typically considered, along with key examples:

**Table A4.1. Examples of potentially important ecological features.**

Potentially important ecological feature	Typical examples
Statutory designated sites	SSSIs, SACs, SPAs, Ramsar sites, LNRs, NNRs
Non-statutory designated sites	LWSs, CWSs
Protected species	European protected species ( <i>e.g.</i> , GCN, bats)
International, National, or local priority habitats	S41 priority habitats and species; Annex I Habitats
Notable species or subspecies	Individual, red-listed species
Notable or large population or assemblage of species	Diverse bird assemblage; exceptional numbers of common amphibians
Novel or locally distinct assemblage of species	Diverse non-native floral community on a brownfield site; populations of individual species showing distinct physical variation
Habitats which form diverse mosaics, create important connection and/or have synergistic attributes;	Brownfield habitat mosaics; riparian habitat corridors; hedgerow network utilised by an important bat population
Habitats of potential importance (with regard to restoring or creating habitats to S41 priority or SSSI quality)	Previous Ancient Woodland (PAWs) sites
Habitats of secondary or supportive importance (which safeguard important habitats, or which support important populations of species)	Scrub habitats buffering calcareous grassland from agricultural improvement; pasture regularly utilised by bird populations for which an SPA is designated

### Establishing likely Zol

For the purposes of this assessment, the site is considered to be inside the ‘zone of influence’ of:

- Internationally important designations within 22km of the site boundary.
- Nationally important designations within 5km of the site boundary.
- Locally important designations within 5km of the site boundary.
- Non-statutory designations within 2km of the site boundary.

The arbitrary distances identified set out above are considered sufficient for identifying the majority of designations which may be affected by the proposals. However, it is acknowledged that in certain circumstances effects beyond these distances are possible and should be considered as far as is reasonably practicable to do so.

It should also be noted that certain ecological features have smaller 'zones of influence' than those mentioned above. For such features the appropriate zone of influence is described and justified as appropriate within the report, depending on their respective sensitivity to an environmental change.

The results of professionally accredited or published scientific studies have been used and referenced, where available, to establish the spatial and temporal limits of the biophysical changes likely to be caused by specific activities and to justify decisions about the zone of influence.

### **Determining importance of ecological features**

In determining the importance of ecological features, a range of guidelines and reference materials have been utilised, including:

- Criteria against which statutory and non-statutory nature conservation designations are selected (*e.g.*, SSSI designation criteria; LWS selection criteria).
- Definitions for national and priority habitats.
- Publications and guidelines against which to establish the importance of particular populations or assemblages of species groups (*e.g.*, Wray *et al* for evaluating bat populations and roosts; ISIS for assessing conservation interest of invertebrate assemblages).
- Publications describing the conservation status of individual species (*e.g.*, Red-data books).
- The Hedgerows Regulations to assess the importance of hedgerows.
- National, regional, and local species Atlases.
- Species/group population trends.

It should be noted that the legal protection which some species and their habitats receive are considered separately from 'importance' within this assessment as not all legally protected species are necessarily rare (*e.g.*, common pipistrelle bat). Legal issues and the appropriate mechanism for dealing with any such constraint are addressed in the report.

It should also be noted that the social, community, economic or multifunctional importance attributed to ecological features are not assessed as they fall outside the scope of this assessment.

### **Geographic frame of reference**

In assigning importance to an ecological resource, the following geographic frames of reference are used:

- International.
- National (*i.e.*, England).
- Regional (East Anglia).
- County (Essex).
- District (Colchester).
- Local or Parish (Great Horkesley); and
- Within Site or zone of influence only

The size, conservation status and the quality of features or species are all relevant in determining value. Furthermore, the value of a species and / or habitat may vary depending on its geographical location.

Characterising effects and any significant effects of the proposed project or occupation are characterised using the following terminology:

- Direct or indirect
- Beneficial or adverse
- Magnitude and/or extent
- Duration
- Reversibility
- Timing and frequency

Impacts have been assessed using the Mitigation Hierarchy, which forms the key principles of Ecological Impact Assessment (EclA):

- Avoidance – seeking options to avoid harm to ecological features.
- Mitigation – seeking options to avoid or minimise adverse effects.
- Compensation – offsetting adverse effects through appropriate compensatory measures.
- Enhancements – seeking to provide net benefits for biodiversity.

### **Determining ecologically significant effects**

An ecologically significant effect is defined as an effect (adverse or beneficial) on the integrity of a defined designated site or ecosystem and/or the conservation status of habitats or species within a given geographical area.

The importance of any feature that will be significantly affected is then used to identify the geographical scale at which the impact is significant. This value relates directly to the consequences, in terms of legislation, policy and/or development control at the appropriate level. So, a significant adverse effect on a feature's importance at one level would be likely to trigger related planning policies and, if permissible at all, generate the need for development control mechanisms, such as planning conditions or legal obligations, as described in those policies.

If an effect is found not to be significant at the level at which the resource or feature has been valued, it may be significant at a more local level. Significant effects on features of ecological importance will be mitigated (or compensated for) in accordance with guidance derived from policies applied at the scale relevant to the value of the feature or resource. The scale is derived from the interaction of the feature sensitivity and magnitude of impact.

# Appendix 5: Phase 1 Habitat Survey Results

*Superseded Phase 1 Survey Plan (2022)*



Updated UKHabs Plan (2024)



Species Lists

**Table A5.1. Flora observed on site during habitats conditions assessment (2022)**

Common Name	Scientific Name	Dense scrub	Poor semi-improved grassland	Hedgerows with trees				
				1	2	3	4	5
Ash	<i>Fraxinus excelsior</i>			F				
Bramble	<i>Rubus fruticosus</i>	D			D	A	D	D
Broadlaved dock	<i>Anthriscus sylvestris</i>		A					
Bracken	<i>Pteridium aquilinum</i>	A			A		A	A
Cleavers	<i>Galium aparine</i>			F				O
Cow parsley	<i>Cerastium fontanum</i>		F		F			F
Common nettle	<i>Urtica dioica</i>	F	F	O	F	O	F	A
Common holly	<i>Ilex aquifor</i>				A			
Common ivy	<i>Hedera helix</i>			O	A	O	R	A
Creeping thistle	<i>Cirsium arvense</i>	F	F					
Dog rose	<i>Rosa canina</i>				O			
Doves foot cranesbill	<i>Geranium pusillum.</i>		O	O				O
Gorse	<i>Ulex europaeus.</i>	F				O	O	F
Hawthorn	<i>Crataegus monogyna</i>			F		F		
Honeysuckle	<i>Lonicera periclymenum</i>			F				
Pedunculate oak	<i>Quercus robur</i>				D	D	D	D
Poplar	<i>Populus x canadensis</i>			D	O			
Perennial ryegrass	<i>Lolium perenne</i>		D					
Ragwort	<i>Jacobaea vulgaris</i>		O					
Rough meadow grass	<i>Poa trivialis</i>		F					
Wild carrot	<i>Daucus carota</i>			F				

## Appendix 6: Bat Survey Results

### Appendix 6a— Trees with bat roost potential



Appendix 6b –Bat Activity Survey Transect Route



Appendix 6c – Static Detector Locations



Appendix 6d– Activity Transect Survey Results

April 2022

**Table A6.1: Summary of April 2022 bat transect results.**

Date	Survey type	Survey timings	Weather	Route Direction	
22/04/2022	April dusk transect	Start/Sunset: 20:06 Finish: 22:05	13°C 90% Cloud 1 Beaufort	Clockwise	
Time	Comments				
20:05 – 20:10					
20:10 – 20:20					
20:20 – 20:30					Common pipistrelle x 1, Soprano pipistrelle x 1
20:30 – 20:40					
20:40 – 20:50					
20:50 – 21:00					
21:00 – 21:10					
21:10 – 21:20					
21:20 – 21:30					
21:30 – 21:40					
21:40 – 21:50					Common pipistrelle x 1
21:50 – 22:00					
22:00 – 22:05					

May 2022

**Table A6.2: Summary of May 2022 (dusk) bat transect results.**

Date	Survey type	Survey timings	Weather	Route Direction
25/05/2022	May dusk transect	Start/Sunset: 21:00 Finish: 23:00	14°C 10% Cloud 1 Beaufort	Anti-clockwise
Time	Comments			
21:00 – 21:10				
21:10 – 21:20				

21:20 – 21:30	Noctule x 3, Common pipistrelle x4
21:30 – 21:40	Noctule x 2, Common pipistrelle x 2
21:40 – 21:50	Common pipistrelle x 3
21:50 – 22:00	Noctule x 1, Common pipistrelle x1
22:00 – 22:10	Common pipistrelle x1
22:10 – 22:20	Common pipistrelle x1
22:20 – 22:30	Noctule x 1, Common pipistrelle x2
22:30 – 22:40	Common pipistrelle x2, Soprano pipistrelle x 2
22:40 – 22:50	Common pipistrelle x1, Soprano pipistrelle x 6, Brown long-eared x 1
22:50 – 23:00	Common pipistrelle x1, Soprano pipistrelle x 3

**Table A6.3: Summary of May 2022 (dawn) bat transect results.**

Date	Survey type	Survey timings	Weather	Route Direction
26/05/2022	May dawn transect	Start/Sunset: 02:50 Finish: 04:50	12°C 50% Cloud 1 Beaufort	Clockwise
Time	Comments			
02:50 – 03:00	Common pipistrelle x1, Myotis species x 1			
03:00 – 03:10	Common pipistrelle x1			
03:10 – 03:20	Myotis species x 1			
03:20 – 03:30	Common pipistrelle x8, Soprano pipistrelle x 5			
03:30 – 03:40	Common pipistrelle x1			
03:40 – 03:50				
03:50 – 04:00	Common pipistrelle x1			
04:00 – 04:10	Soprano pipistrelle x2			
04:10 – 04:20	Common pipistrelle x1			
04:20 – 04:30				
04:30 – 04:40				
04:40 – 04:50				

June 2022

**Table A6.4: Summary of June 2022 bat transect results.**

Date	Survey type	Survey timings	Weather	Route Direction
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14/06/2022	June dusk transect	Start/Sunset: 21:16 Finish: 23:16	17°C 15% Cloud 2 Beaufort	Anti-clockwise
<b>Time</b>	<b>Comments</b>			
21:16 – 21:30				
21:30 – 21:40				
21:40 – 21:50				
21:50 – 22:00				
22:00 – 22:10				
22:10 – 22:20				
22:20 – 22:30				
22:30 – 22:40				
22:40 – 22:50				
22:50 – 23:00				
23:00 – 23:10				
23:10 – 23:16				

July 2022

**Table A6.5: Summary of July 2022 bat transect results.**

Date	Survey type	Survey timings	Weather	Route Direction
05/07/2022	July dusk transect	Start/Sunset: 21:17 Finish: 23:17	17°C 15% Cloud 2 Beaufort	Clockwise
<b>Time</b>	<b>Comments</b>			
21:17 – 21:30				
21:30 – 21:40				
21:40 – 21:50				
21:50 – 22:00				
22:00 – 22:10				
22:10 – 22:20				
22:20 – 22:30				
22:30 – 22:40				
22:40 – 22:50				
22:50 – 23:00				

23:00 – 23:10	Common pipistrelle x 1
23:10 – 23:17	Common pipistrelle x 1

August 2022

**Table A6.6: Summary of August 2022 bat transect results.**

Date	Survey type	Survey timings	Weather	Route Direction
08/08/2022	August dusk transect	Start/Sunset: 20:33 Finish: 22:33	19°C 90% Cloud 3 Beaufort	Anti-clockwise
Time	Comments			
20:33 – 20:40				
20:40 – 20:50				
20:50 – 21:00	Soprano pipistrelle x 2			
21:00 – 21:10	Common pipistrelle x 1			
21:10 – 21:20	Common pipistrelle x 1			
21:20 – 21:30	Soprano pipistrelle x 2, Common pipistrelle x 1			
21:30 – 21:40	Common pipistrelle x 3			
21:40 – 21:50	Common pipistrelle x 3			
21:50 – 22:00	Common pipistrelle x 1			
22:00 – 22:10	Common pipistrelle x 1			
22:10 – 22:20				
22:20 – 22:33	Soprano pipistrelle x 1			

September 2022

**Table A6.7: Summary of September 2022 bat transect results.**

Date	Survey type	Survey timings	Weather	Route Direction
21/09/2022	September dusk transect	Start/Sunset: 18:37 Finish: 20:37	18°C 25% Cloud 3 Beaufort	Clockwise
Time	Comments			
18:37 – 18:50				
18:50 – 19:00				

19:00 – 19:10	Common pipistrelle x 1, Soprano pipistrelle x 1
19:10 – 19:20	Common pipistrelle x 3
19:20 – 19:30	Common pipistrelle x 3, Soprano pipistrelle x 1
19:30 – 19:40	Common pipistrelle x 2, Noctule x 2
19:40 – 19:50	Common pipistrelle x 4, Soprano pipistrelle x 1
19:50 – 20:00	Common pipistrelle x 3, Myotis species x 1
20:00 – 20:10	Common pipistrelle x 1, Noctule x 1
20:10 – 20:20	Common pipistrelle x 3, Noctule x 1
20:20 – 20:30	Common pipistrelle x 4
20:30 – 20:40	

October 2022

**Table A6.8: Summary of October 2022 bat transect results.**

Date	Survey type	Survey timings	Weather	Route Direction
17/10/2022	September dusk transect	Start/Sunset: 17:52 Finish: 19:52	14°C 50% Cloud 2 Beaufort	Anti-clockwise
Time	Comments			
17:52 – 18:00				
18:00 – 18:10				
18:10 – 18:20				
18:20 – 18:30	Soprano pipistrelle x 2, Common pipistrelle x 1			
18:30 – 18:40				
18:40 – 18:50				
18:50 – 19:00	Common pipistrelle x 2			
19:00 – 19:10	Common pipistrelle x 2			
19:10 – 19:20				
19:20 – 19:30				
19:30 – 19:40	Soprano pipistrelle x 3, Common pipistrelle x 2			
19:40 – 19:52	Noctule x 1, Soprano pipistrelle x 1			

## Appendix 7: Bird Survey Results

### Appendix 7a – Breeding Bird Survey Results and Weather Conditions

**Table A7.1: Status of breeding birds within the site.**

Species	BoCC	V1	V2	V3	Status
House sparrow <i>Passer domesticus</i>	Red	0	1	1	Foraging on site
Linnet <i>Linaria cannabina</i>	Red	2	0	3	Foraging on site
Skylark <i>Alauda arvensis</i>	Red	1	0	0	Possible breeding- 1 territory
Starling <i>Sturnus vulgaris</i>	Red	1	0	8	Foraging on site
Black-headed gull <i>Chroicocephalus ridibundus</i>	Amber	0	8	0	Flyover
Dunnock <i>Troglodytes troglodytes</i>	Amber	0	1	1	Probable breeding- 1 territory
Greylag goose <i>Anser anser</i>	Amber	0	2	0	Foraging on site
Song thrush <i>Turdus philomelos</i>	Amber	1	0	1	Probable breeding- 1 territory
Sparrowhawk <i>Accipiter nisus</i>	Amber	0	0	1	Flyover
Whitethroat <i>Sylvia communis</i>	Amber	0	3	1	Probable breeding- 1 territory
Woodpigeon <i>Columba palumbus</i>	Amber	4	5	4	Probable breeding- 2 territories
Wren <i>Troglodytes troglodytes</i>	Amber	6	5	3	Probable breeding- 5 territories
Blackbird <i>Turdus merula</i>	Green	3	2	4	Probable breeding- 2 territories
Blackcap <i>Sylvia atricapilla</i>	Green	0	4	1	Probable breeding- 1 territory
Blue tit <i>Cyanistes caeruleus</i>	Green	9	4	6	Probable breeding- 5 territories
Carrion crow <i>Corvus carrone</i>	Green	0	1	0	Foraging on site
Chaffinch <i>Frangilla coelebs</i>	Green	3	0	1	Probable breeding- 1 territory
Chiffchaff <i>Phylloscopus collybita</i>	Green	2	1	2	Probable breeding- 1 territory
Collared dove <i>Streptopelia decaocto</i>	Green	0	1	1	Probable breeding- 1 territory
Cormorant <i>Phalacrocorax carbo</i>	Green	1	0	0	Flyover
Goldfinch <i>Carduelis carduelis</i>	Green	0	2	0	Foraging on site
Great tit <i>Parus major</i>	Green	2	0	3	Foraging on site
Great spotted woodpecker <i>Dendrocopus major</i>	Green	0	1	0	Foraging on site
Jackdaw <i>Corvus monedula</i>	Green	0	15	0	Foraging on site
Pied wagtail <i>Motacilla alba</i>	Green	0	2	0	Foraging on site
Robin <i>Erithacus rubecula</i>	Green	2	0	2	Probable breeding- 2 territories
Swallow <i>Hirundo rustica</i>	Green	0	1	0	Foraging on site

I Introduced

N/A Not assessed.

Red rows are BOCC red-list, Amber rows are BoCC amber-list, green rows are BoCC green-list, NA rows are non-native species.

BoCC: Birds of Conservation Concern as defined and listed in Eaton *et al.*, (2022)

**Table A7.2: Summary of breeding bird survey visit dates and weather conditions.**

Visit	Date	Survey Conditions
1	08/04/2022	Good: 11°C (average), no precipitation, 2 wind, cloud 8/8, good visibility.
2	09/05/2022	Good: 13°C (average), no precipitation, 2 wind, cloud 5/8, good visibility.
3	10/06/2022	Good: 19°C (average), no precipitation, 1 wind, cloud 2/8, good visibility.

Appendix 7b – Wintering Bird Survey Results and Weather Conditions

**Table A7.3: Status of wintering birds within the site.**

Species	BoCC	V1	V2	V3	V4
Skylark <i>Alauda arvensis</i>	Red	1	3	2	2
Starling <i>Sturnus vulgaris</i>	Red	26	27	30	19
Black-headed gull <i>Chroicocephalus ridibundus</i>	Amber	6	4	0	0
Woodpigeon <i>Columba palumbus</i>	Amber	30	26	18	25
Wren <i>Troglodytes troglodytes</i>	Amber	2	1	0	1
Blackbird <i>Turdus merula</i>	Green	2	6	6	4
Blue tit <i>Cyanistes caeruleus</i>	Green	13	9	2	2
Carrion crow <i>Corvus carrone</i>	Green	4	3	2	3
Goldfinch <i>Carduelis carduelis</i>	Green	13	7	4	7
Great tit <i>Parus major</i>	Green	6	8	6	5
Long-tailed tit <i>Aegithalos caudatus</i>	Green	5	10	4	9
Magpie <i>Pica pica</i>	Green	1	1	6	4
Robin <i>Erithacus rubecula</i>	Green	5	4	2	3
Pheasant <i>Phasianus colchicus</i>	Introduced	1	5	2	3

Introduced

N/A Not assessed.

Red rows are BOCC red-list, Amber rows are BoCC amber-list, green rows are BoCC green-list, NA rows are non-native species.

BoCC: Birds of Conservation Concern as defined and listed in Eaton *et al.*, (2022)

**Table A7.4: Summary of wintering bird survey visit dates and weather conditions.**

Visit	Date	Survey Conditions
1	11/02/2022	Good: 2°C (average), no precipitation, 2 wind, cloud 8/8, good visibility.
2	28/02/2022	Good: 5°C (average), no precipitation, 2 wind, cloud 5/8, good visibility.
3	01/11.2022	Good: 1°C (average), no precipitation, 1 wind, cloud 2/8, good visibility.
4	16/11/2023	Good: 4°C (average), no precipitation, 1 wind, cloud 2/8, good visibility.

Appendix 7c – Breeding Bird Survey Territory Map



## Appendix 8: Hazel Dormouse Survey Results

### Appendix 8a – Dormouse Nest Tube Plan



## Appendix 9: Reptile Survey Results

### Appendix 9a – Reptile Refugia Plan



*Appendix 9b – Reptile Survey Results*

**Table A9.1: Detailed reptile survey results.**

Visit No.	Date	Temperature (°C)	Cloud (%)	Wind (Beaufort)	Precipitation	Species
1	05/05/2022	16	20	2	0	None found
2	09/05/2022	17	70	1	0	None found
3	12/05/2022	17	25	1	0	None found
4	16/05/2022	16	50	1	0	None found
5	20/05/2022	18	10	2	0	None found
6	25/05/2022	16	0	1	0	None found
7	31/05/2022	17	100	2	0	None found

## Appendix 10: Recommended planting lists

**Table 10.1 Plant species of known benefit to wildlife**

Common Name	Scientific Name	Benefits
<b>Shrubs</b>		
Barberry *	<i>Berberis spp.</i>	Nectar, fruit, nesting cover
Blackthorn	<i>Prunus spinosa</i>	Nectar, fruit, larval foodplant, nesting cover
Broom	<i>Cystisus scoparius</i>	Nectar, larval foodplant
Buckthorn #	<i>Rhamnus cathartica</i>	Nectar, berries, larval foodplant, nesting cover
Butterfly bush*	<i>Buddleja davidii</i>	Nectar, nesting cover
Californian lilac*	<i>Ceanothus spp.</i>	Nectar, nesting cover
Cherry laurel*#	<i>Prunus laurocerasus</i>	Nectar (including extra-floral nectaries)
Dog Rose	<i>Rosa canina agg.</i>	Nectar, fruit, larval foodplant, nesting cover
Dogwood	<i>Cornus sanguinea</i>	Nectar, fruit, larval foodplant
Elder	<i>Sambucus nigra</i>	Nectar, fruit, larval foodplant, nesting cover
Field rose	<i>Rosa arvensis</i>	Nectar, larval foodplant, fruit
Firethorn*	<i>Pyracantha spp.</i>	Nectar, fruit, nesting cover
Flowering currant *	<i>Ribes sanguineum</i>	Nectar, larval foodplant
Garden lavender*	<i>Lavandula x intermedia</i>	Nectar
Gorse	<i>Ulex europaeus</i>	Nectar, larval foodplant, nesting cover
Guelder rose	<i>Viburnum opulus</i>	Nectar, fruit, larval foodplant
Hawthorn	<i>Crataegus monogyna</i>	Nectar, fruit, larval foodplant, nesting cover
Hazel	<i>Corylus avellana</i>	Nuts, larval foodplant
Hebe *	<i>Hebe spp.</i>	Nectar
Holly	<i>Ilex aquifolium</i>	Nectar, fruit, larval foodplant, nesting cover
Laurustinus*	<i>Viburnum tinus</i>	Nectar, nesting cover
Mexican orange *	<i>Choisya ternata</i>	Nectar
Portuguese laurel *	<i>Prunus lusitanica</i>	Nectar, fruit, nesting cover
Rosemary *	<i>Rosmarinus officinalis</i>	Nectar
Spindle #	<i>Euonymus europaeus</i>	Nectar, fruits
Tutsan	<i>Hypericum androsaemum</i>	Nectar, fruit, larval foodplant
Wayfaring tree	<i>Viburnum lantana</i>	Nectar, fruit, larval foodplant
Yew#	<i>Taxus baccata</i>	Berries, nesting cover
<b>Climbers</b>		
Clematis*	<i>Clematis tangutica</i>	Nectar, seeds
Honeysuckle	<i>Lonicera periclymenum</i>	Nectar, fruit, larval foodplant, nesting cover
Ivy	<i>Hedera helix</i>	Nectar, fruit, larval foodplant, nesting cover
Traveller's joy	<i>Clematis vitalba</i>	Nectar, seeds, larval foodplant

**Table A10.2 Plant species of known benefit to hazel dormice**

Common Name	Scientific Name	Flower Nourishment*	Insect Plant Food	Seeds and Fruits**	Three-dimensional Structure	Further Information
<b>Time of year</b>		<b>Apr - May</b>	<b>Jun - Aug</b>	<b>Sep - Nov</b>	<b>n/a</b>	
<b>Trees and Shrubs</b>						
Ash	<i>Fraxinus excelsior</i>			Y	Y	
Birch sp.	<i>Betula sp.</i>			Y		No competition with Squirrels for seeds
Blackthorn	<i>Prunus spinosa</i>		Y		Y	
Cherry	<i>Prunus sp.</i>	Y				
Crab Apple	<i>Malus sylvestris</i>	Y				
Dog Rose	<i>Rosa canina agg.</i>	Y	Y	Y	Y	
Dogwood	<i>Cornus sanguinea</i>	Y	Y	Y		
Elder	<i>Sambucus nigra</i>	Y				
Field Rose	<i>Rosa arvensis</i>	Y	Y	Y		
Gorse	<i>Ulex europaeus</i>	Y	Y		Y	

Guelder Rose	<i>Viburnum opulus</i>	Y	Y	Y		
<b>Hawthorn</b>	<b><i>Crataegus monogyna</i></b>	<b>Y (whole)</b>		<b>Y</b>	<b>Y</b>	<b>Key species: Flowers early</b>
<b>Hazel</b>	<b><i>Corylus avellana</i></b>	<b>Y</b>	<b>Y (2)</b>	<b>Y**</b>	<b>Y</b>	<b>Key species: Provides nuts with high fat content</b>
Holly	<i>Ilex aquifolium</i>	Y	Y	Y	Y	
Hornbeam	<i>Carpinus betulus</i>			Y	Y	No competition with Squirrels for seeds
<b>Oak</b>	<b><i>Quercus sp.</i></b>	<b>Y</b>	<b>Y (1)</b>		<b>Y</b>	<b>Key species: Highest insect biomass</b>
Rowan	<i>Sorbus aucuparia</i>			Y		
Sweet Chestnut	<i>Castanea sativa</i>	Y		Y**	Y	
Wayfaring	<i>Viburnum lantana</i>	Y				
Willow sp.	<i>Salix sp.</i>			Y	Y	
Yew	<i>Taxus baccata</i>			Y**	Y	
<b>Climbers</b>						
<b>Bramble</b>	<b><i>Rubus fruticosus</i></b>	<b>Y</b>		<b>Y</b>	<b>Y</b>	<b>Key species: Provides flowers &amp; fruits at times when others are sparse</b>
<b>Honeysuckle</b>	<b><i>Lonicera periclymenum</i></b>	<b>Y</b>	<b>Y</b>	<b>Y</b>	<b>Y</b>	<b>Key Species: Provides nesting material</b>
Ivy	<i>Herdera helix</i>	Y	Y		Y	

**Table A10.3 Plant species of known benefit to bats**

Plant species	Common name	Extensive green roofs	Living walls	Rain gardens	Hedge/ trees	Beds/ borders
<i>Acer campestre</i>	Field maple				Y	
<i>Achillea millefolium</i>	Yarrow				Y	
<i>Ajuga reptans</i>	Bugle	Y		Y		
<i>Anthyllis vulneraria</i>	Kidney vetch	Y				
<i>Betula pendula</i>	Sliver birch				Y	
<i>Cardamine pratensis</i>	Cuckoo- flower			Y		Y
<i>Carpinus betulus</i>	Hornbeam				Y	
<i>Centaurea nigra</i>	Common knapweed	Y				Y
<i>Clematis vitalba</i>	Old man's Beard				Y	
<i>Corylus avellana</i>	Hazel		Y		Y	
<i>Crataegus monogyna</i>	Hawthorn				Y	
<i>Daucus carota</i>	Wild carrot	Y				Y
<i>Dianthus spp.</i>	Pinks	Y	Y			Y
<i>Digitalis purpurea</i>	Foxglove				Y	Y
<i>Erica cinera</i>	Bell heather					Y
<i>Eupatorium</i>	Hemp agrimony			Y		Y
<i>Fagus sylvatica</i>	Beech				Y	
<i>Fraxinus excelsior</i>	Common Ash				Y	
<i>Hedera Helix</i>	Ivy		Y	Y	Y	Y
<i>Hyacinthoides non -scripta</i>	Bluebell		Y		Y	Y
<i>Ilex aquifolium</i>	Holly				Y	
<i>Linaria vulgaris</i>	Toadflax	Y				Y
<i>Lonicera periclymenum</i>	Honeysuckle		Y		Y	
<i>Lotus corniculatus</i>	Bird's foot trefoil	Y				Y
<i>Myosotis spp.</i>	Forget me not species	Y	Y			Y
<i>Origanum vulgare</i>	Marjoram				Y	
<i>Populus alba</i>	White poplar				Y	
<i>Primula veris</i>	Cowslip	Y				Y
<i>Primula vulgaris</i>	Primrose	Y	Y		Y	Y

<i>Prunus avium</i>	Wild cherry				Y	Y
<i>Prunus spinosa</i>	Blackthorn				Y	
<i>Quercus petraea</i>	Sessile oak				Y	
<i>Quercus robur</i>	Common oak				Y	
<i>Rosa canina</i>	Dog rose			Y	Y	Y
<i>Salix spp.</i>	Willow species			Y	Y	
<i>Sambucus nigra</i>	Elder				Y	
<i>Saponaria officinalis</i>	Soapwort					Y
<i>Saxifraga oppositifolia</i>	saxifage	Y	Y			Y
<i>Scabiosa columbaria</i>	small scabious	Y				Y
<i>Silene dioecia</i>	Red campion		Y	Y	Y	Y
<i>Sorbus aucuparia</i>	Rowan				Y	
<i>Thymus serpyllum</i>	Creeping thyme	Y	Y			Y
<i>Trifolium spp.</i>	Clover species	Y				Y
<i>Valerina spp.</i>	Valerian species			Y		Y
<i>Verbascum spp.</i>	Mulliens					Y
<i>Viburnum lantana</i>	Wayfaring tree				Y	Y
<i>Viburnum opulus</i>	Guelder rose			Y	Y	
<i>Viola tricolor</i>	Pansy	Y	Y			Y