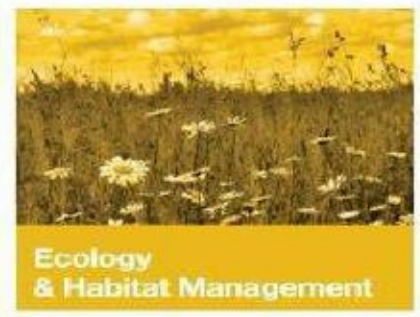

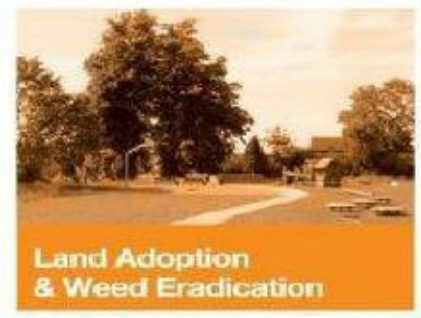

James Blake Associates Ltd

Preliminary Ecological Appraisal

of

Haverhill

Phases 2-6, Suffolk

on behalf of

Persimmon Homes (Suffolk)

January 2019

JAMES BLAKE
ASSOCIATES

Revision	Purpose	Originated	Checked	Authorised	Date
		RH	DH	JBA	January 2019
Job Number: JBA 18/351		**Title:** Preliminary Ecological Appraisal Report of Phases 2-6, Haverhill, Suffolk			

Disclaimer

James Blake Associates Ltd have made every effort to meet the client's brief. However, no survey ensures complete and absolute assessment of the changeable natural environment. The findings in this report were based on evidence from thorough survey: It is important to remember that evidence can be limited, hard to detect or concealed by site use and disturbance. When it is stated that no evidence was found or was evident at that point in time, it does not mean that species are not present or could not be present at a later date: The survey was required because habitats are suitable for a given protected species, and such species could colonise areas following completion of the survey.

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CONTENTS

Non-technical Summary

Site:	Haverhill Phases 2-6
Ordnance Survey National Grid Reference:	TL 670 468
Report Commissioned by:	Persimmon Homes (Suffolk) Land
Date of Walkover Survey:	12/12/2018

Considerations	Description	Potential impacts and timing
Statutory designated wildlife areas within 7km of the site:	Three Sites of Special Scientific Interest (SSSI)	The site is within several Impact Risk Zones (IRZ); however the development does not meet any of the qualifying criteria for consultation between the Local Planning Authority LPA and Natural England.
Non-statutory designated wildlife sites within 2km of the site:	Nine Local Wildlife Sites (LWS) A single Local Nature Reserve (LNR)	Potential impacts from increased number of public e.g. dog walkers to these sites. This could be mitigated using appropriate management regimes and/or financial contributions. An Environmental Impact Assessment may be required.
Results of walkover survey:	The site is considered suitable to support badgers, hedgehogs, bats, dormice, breeding birds, reptiles, great crested newts and sulphur clover.	-
Phase 2 surveys:	[redacted]	
	Breeding bird survey.	Surveys are undertaken between March to June consisting of four site visits.

Considerations	Description	Potential impacts and timing
	Wintering bird survey.	Surveys are undertaken between November to February and consists of four site visits.
	Reptile survey.	Reptile surveys can be undertaken from mid-March to mid-October in 'suitable weather conditions'.
	Great crested newt eDNA survey.	eDNA testing can be undertaken from 15th April to 30th June for presence / absence.
	Hedgerow survey.	Undertaken between the months of April to October, with the optimal period being June and July.
	Botany survey for sulphur clover.	Surveys are undertaken between June and July.
Phase 2 surveys dependent on development layout:	Bat activity survey.	April/May to September/October if boundary hedgerows and trees with bat roost potential are to be removed.
	Dormouse survey.	If hedgerows are to be removed then surveys are recommended from April to November.
Precautionary measures:	Removal of scrub and hedgerow	Outside of the nesting bird season or following a clear nesting bird check. Nesting season is mid-March to mid-August

1 Introduction

Background

1.1 James Blake Associates Ltd. was commissioned by Persimmon Homes (Suffolk) Land to undertake a Preliminary Ecological Appraisal (PEA) of land at Haverhill, Suffolk (Ordnance Survey National Grid Reference TL 670 468, taken from the centre of the site).

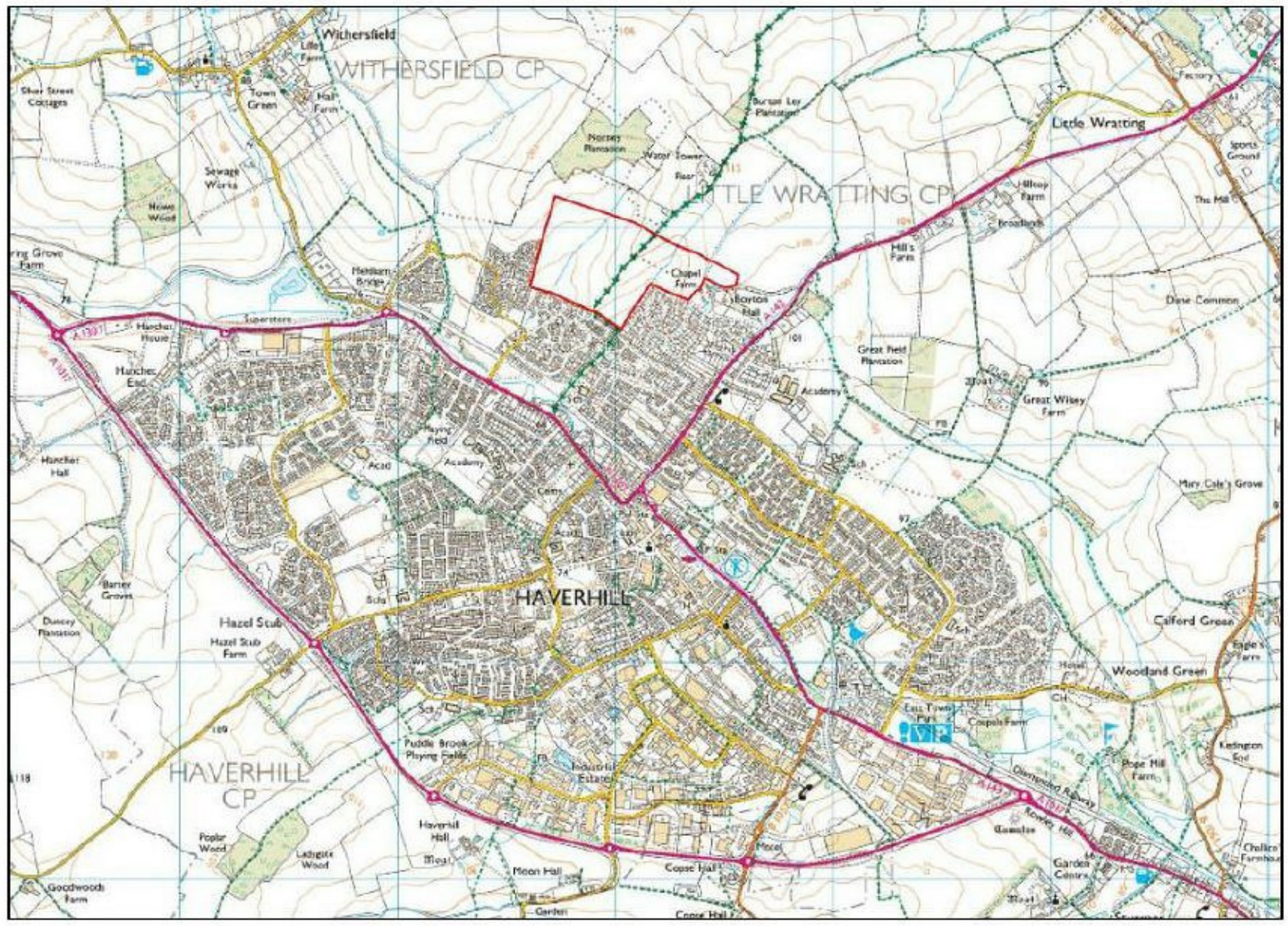
1.2 The assessment was required to accompany a planning application for the development of a series of residential dwellings units.

Site Description

1.3 The site is located to the north west of Haverhill Road (A143), north of Haverhill town in Suffolk. Arable fields border the site with residential housing to the south. Norney Plantation County Wildlife Site (CWS), an area of ancient replanted woodland, is approximately 65m north of the site boundary. The wider landscape includes mainly arable fields with scattered woodland. The River Stour lay approximately 1.8km east

of the site, and the Stour Brook lay approximately 300m south, along with a series of drainage ditches (see Figure 1 below).

Figure 1: Site location



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Aims and objectives

1.4 The aim of the survey was to:

- Identify the presence, or potential presence, of any protected or notable species or habitats on, or adjacent to, the site;
- assess the potential impact of the proposed works on any protected or notable species and/or habitats present including nature conservation sites on, or adjacent to, the site; and
- make recommendations for further surveys if required, to advise on avoidance and/or mitigation measures following the survey (if necessary) and

provide suggestions to enhance the wildlife value of the site post-development to provide a net gain in biodiversity value.

Wildlife Legislation and Planning Policy

1.5 The relevant wildlife legislations and planning policies are listed below:

- Conservation of Habitats and Species Regulations 2017, ['The Habitats Regulations']. The Habitats Regulations implement The Habitats Directive 1992 [92/43/EEC] into English Law. [Amended by the Conservation of Habitats and Species (Amendment) Regulations 2012 S.I. 2012/1927].
- Wildlife and Countryside Act, 1981 (as amended) (WCA). [Amended by the Countryside and Rights of Way Act (2000)].
- The Natural Environment and Rural Communities Act, 2006 (NERC).
- The Protection of Badgers Act, 1992 (The Badgers Act).
- The Wild Mammals (Protection) Act, 1996.
- The Hedgerows Regulations, 2007.
- National Planning Policy Framework, 2018 (NPPF).

2 Methodology

Desk study

2.1 A desk study was undertaken for statutory and non-statutory designated wildlife sites within a 7km and 2km radius of the site, respectively using 'MAGIC', the Multi-Agency Geographic Information system for the Countryside. The data provided from Suffolk Biodiversity Information Service (SBIS) was consulted for records of non-statutory sites and protected and rare species within a 2km search radius (SBIS data provided on the 11th January 2018, JBA 2018).

2.2 The site is covered by the Local Biodiversity Action Plan (LBAP) for Suffolk which was consulted as part of the desk study.

2.3 Results from a previous survey by RPS (2009) and SES (2016) were consulted and referred to in this report.

2.4 Within the desk study results, the Birds of Conservation Concern (BoCC) are split into three criteria; the red list is the highest conservation priority (species needing urgent action). The amber list is the next most critical group, followed by green. Red listed species are those that are globally threatened according to the International Union for Conservation of Nature (IUCN) criteria, species with populations or ranges that have declined rapidly in recent years, and those that have declined historically and have not shown a substantial recent recovery.

2.5 Ponds which are ecologically connected and within 500m of the site, were also identified using 'MAGIC' to determine the location of ponds which may support breeding protected amphibians, such as great crested newts (*Triturus cristatus*) (GCN) (Langton et al., 2001).

Walkover Survey

2.6 The survey was undertaken by Rachel Hall BSc (Hons) (Natural England Great Crested Newt Class Licence WML-CL08) and Sam Kench BSc (Hons) on the 12th December, 2018. Weather conditions:temperature 9°C, 100% cloud cover with Beaufort Scale 1.

2.7 The survey methodology followed the standard Phase 1 methodology of Joint Nature Conservation Committee Guidelines (JNCC, 2010). An extension of this basic methodology was also undertaken to provide further details in relation to notable or

protected habitats present within the survey area, or in relation to habitats present that have the potential to support notable or protected species (CIEEM, 2013).

2.8 **Bats**: Trees and buildings within the site boundary were surveyed, from the ground, for their potential to support roosting bats in accordance with Bat Conservation Trust's Guidelines (Collins (ed.), 2016).

2.9 **Reptiles**: A visual survey for the presence of suitable habitat was carried out according to the criteria given in the Herpetofauna Workers' Manual (Gent and Gibson 1998).

2.10 **Amphibians:** Where accessible, known ponds within 500m of the site (unless ecologically separated from the site by significant barriers, such as major roads or rivers) were assessed for potential to support breeding amphibians, such as great crested newts. Ponds were assessed for their potential suitability to support GCN by undertaking a Habitat Suitability Index (HSI) assessment (Oldham *et al.*, 2000). The HSI for GCN is assessed using ten habitat variables (suitability indices – SI) which are known to affect the survival and ability to breed, of GCN. The variables include:

- Geographical location.
- Pond area.
- Pond permanence (number of years a pond is likely to dry out per decade).
- Water quality.
- Percentage of shade of margin.
- Number of waterfowl.
- Occurrence of fish.
- Pond density.
- Amount of GCN-friendly habitat.
- Macrophyte (plant) cover.

Each variable (or suitability index) is assessed in the field and expressed on a scale from 1 (optimal suitability for GCN) to 0 (totally unsuitable). The ten variables, or indices, are combined using geometric mean to derive the final HSI score for the waterbody. The scoring system is presented in Table 1 below:

Table 1: HSI score and suitability of a waterbody habitat to support breeding GCN

HSI Score	Suitability of water body habitat to support breeding GCN
0.01-0.49	'Poor'
0.50-0.59	'Below average'
0.60-0.69	'Average'
0.70-0.79	'Good'

0.80-1.00	'Excellent'

2.11 **Invertebrates**: The site was scoped for significant rotting deadwood, and high quality aquatic or other habitats, which could be used by significant assemblages of invertebrates, or by any of the invertebrates highlighted in the data search.

2.12 **Flora and habitats**: All habitats and plant species that were identifiable at the time of the survey were recorded.

[redacted]

2.14 **Birds:** A visual survey of bird activity and suitable nesting habitat was carried out, to determine if any areas would be suitable for WCA Schedule 1 birds, BoCC or other common and widespread nesting birds.

2.15 **Adjacent Habitat**: Habitats close to the site were identified, using aerial maps and field observation, so that the ecological impact of the proposed works on the wider landscape could be assessed.

Limitations and Assumptions

2.16 The baseline conditions reported in this document represent those identified at the time of the survey on the 12th December, 2018. Although a reasonable assessment of habitats present can be made during a single walkover survey, seasonal variations are not observed. The survey was conducted in December, which is outside the optimal season for PEA.

2.17 The desk study used available records and historical data from the local area. However, this does not provide a reliable indication of species present since records depend entirely on survey effort in the area, which is highly variable. The data are useful as a general guide to supplement the site visit, but absence of records does not reflect absence of species.

3 Results

Desk Study

Statutory Designated Wildlife Areas – 7km radius

3.1 The desk study identified three statutory designated wildlife areas within 7km of the site (Table 2). These areas are also mapped in Appendix A.

Table 2: Statutory conservation sites within 7km

Site Name	Designation	Distance from Site	Description
Trundley and Wadgell's Woods	SSSI (Site of Special Scientific Interest)	3.3km north east	Ancient woodland with characteristic species including Early Purple Orchid *Orchis mascula*, Yellow Archangel *Lamiastrum galeobdolon, Bluebells Hyacinthoides non-scriptus* and Sanicle *Sanicula europaea*.
Over and Lawn Woods	SSSI	2.7km north west	An ancient with well-developed plant and animal communities. The dominant tree species are pedunculate oak *Quercus robur* and ash *Fraxinus excelsior* standards together with ash, hazel *Coryllus avellana* and field maple *Acer campestre* as coppice. A stream and pond within the woods add additional habitat variety and further enhance the value of the area for animal life.
Carlton Wood	SSSI	5.8km north	Carlton Wood is ancient and semi-natural and holds one of the finest of the few hornbeam (*Carpinus betulus*) stands in the county. In addition both the hornbeam and ash-maple stands are of a nationally uncommon variant containing oxlip (*Primula elatior)*.

3.2 The proposed development site is within several Impact Risk Zones (IRZ) for the SSSIs. However, the development does not meet any qualifiying criteria for consulation with Natural England and the Local Planning Authority (LPA).

Non-Statutory Designated Wildlife Sites

3.3 There were nine non-statutory designated wildlife sites identified within 2km of the site: eight Local Wildlife Sites (LWS), and a single Local Nature Reserve (LNR). These are listed in Table 3 and shown in Appendix A.

Table 3: Non-statutory designated wildlife sites within 2km of the site

Site Name	Designation	Distance from Site	Description
Ann Suckling's Way	LWS	Adjacent to northern boundary of site	Ann Suckling's Way is a footpath and bridleway with wide grassy verges, supporting a species-rich flora including wild carrot, spiny restharrow and sulphur clover. It also supports a population of crested cow-wheat.
Norney Plantation	LWS	65m north	Ancient woodland reported to have large starling roost.
Haverhill Railway Walks	LNR	290m south	Areas of dense species-rich, native scrub composed of elder, blackthorn, hawthorn, filed-rose, dog-rose, field maple, oak and ash. There are also areas of unimproved grassland. The mosaic of habitats supports a good range of wildlife and it is particularly important for breeding birds and reptiles.
Haverhill Disused Railway Line	LWS	290m south	
Haverhill Flood Park	LWS	490m west	Situated to the western outskirts of Haverhill. The grassy embankments of the reservoir support a species-diverse flora which is improving diversity. The boulder clay soils support a number of scarce plant species such as sulphur clover and pyramidal orchid. Skylarks (*Alauda arvensis*), meadow pipits (*Phylloscopus trochilus*) and reed bunting (*Emberiza schoeniclus*) breed here.
Broad Street Old Allotment	LWS	950m south	Disused allotment site situated in the northern part of Haverhill adjacent to the south border of the disused railway line. The land is managed by the owners to attract and provide suitable habitats for many kinds of wildlife. It is particularly important for reptiles.
Howe Wood	LWS	1.1km west	Ancient woodland dominated by hornbeam coppice with ash, field maple and oak.
Abbacy Wood	LWS	1.4km north	Ancient woodland situated close to Trundley Wood. The diversity of woodland plants here is high with a good range of shrubs and woodland flora.
Chimswell Ditch	LWS	1.7km south west	A small watercourse, situated close to the outskirts of Haverhill on the western side. The deep sided watercourse is overgrown with dense scrub consisting of elm, hazel, sycamore, horse chestnut and oak. It provides

Site Name	Designation	Distance from Site	Description
			important nesting habitat for birds. There is also a population of green hellebore here.
Littley Wood	LWS	1.9km north west	Ancient woodland situated close to the Over and Lawn Woods. The wood is dominated by ash, field maple, ash and oak. The abundance of dead wood here provides suitable habitat for invertebrates and hole-nesting birds.

Ponds within 500m

3.4 Four ponds were identified within 500m of the site boundary. Pond 1 located 70m from site, Pond 2 adjacent to southern red line boundary, Pond 318m south east and Pond 4 130m north (Figure 2).

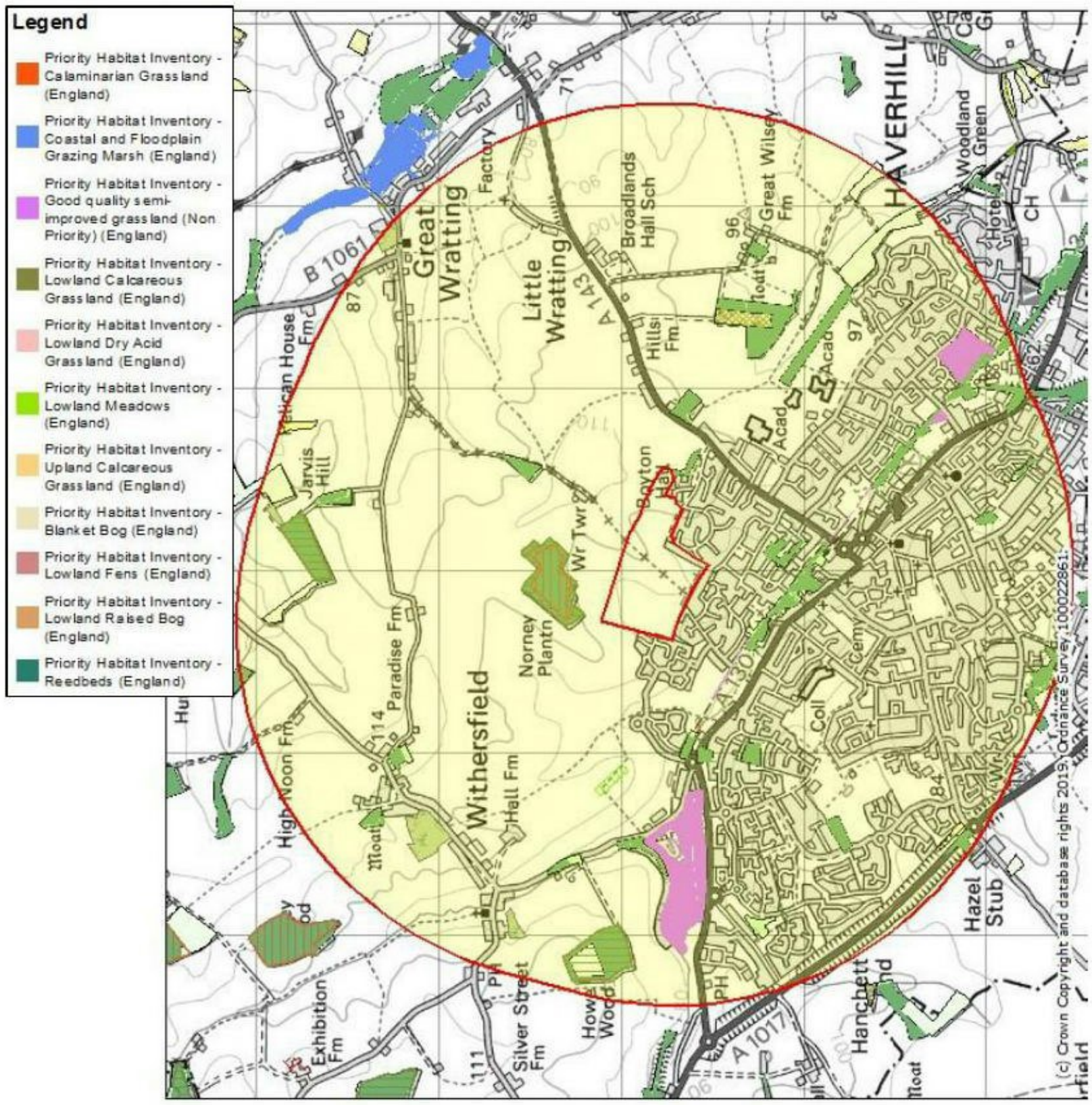
Figure 2: Ponds within 500m of the site boundary

Habitat Types within 2km

3.5 Habitat types within the area included ancient, semi-natural and deciduous woodland, ancient replanted woodland, woodpasture and parkland, coastal and floodplain grazing marsh and good quality semi-improved grassland. The nearest deciduous woodland lay approximately 17m to the south east of the site. Areas of ancient

replanted woodland and semi-natural ancient woodland also lay approximately 250m to the north of the site boundary. The nearest area of good quality semi-improved grassland was approximately 400m south of the site as part of the County Wildlife Site of Haverhill Disused Railway Line. Broadleaved, young trees, conifer and mixed (mainly conifer) habitats were also identified within the 2km search area. See Figure 3.

Figure 3: Habitat types within 2km of the site



Protected, priority and rare species

3.6 The SBIS recorded that crested cow-wheat (*Melampyrum arvense*) which is listed as *Endangered,* was found on site in 2009. There were also numerous records for species within 2km of the site (Appendix B). The most relevant records are described below. Records over twenty years old have not been referred to as the walkover survey is

considered to provide a more up to date and accurate account of species and habitats for the site.

3.7 Common pipistrelle (*Pipistrellus pipistrellus*) was recorded 1.3km north west in 2015, soprano pipistrelle (*Pipistrellus pygmaeus*) 1.8km south east in 2014, and Daubenton's bat (*Myotis daubentonii*) was recorded 1.1km south of site in 2000. Noctule (*Nyctalus leisleri*) and Western barbastelle (*Barbastella barbastellus*) bats were recorded 1.2km south east in 2014 and serotine (*Eptesicus serotinus*) bat 460m south east in 2014. Brown long-eared bat (*Plecotus auritus*) was recorded within 2km square 240m east in 2012 and an unidentified bat 1.8km in 2014

3.8 West European hedgehogs (*Erinaceus europaeus*) were recorded 1.2km south east in 2017.

3.9 European water voles (*Arvicola amphibious*) were within a 2km square 700m south east in 2003.

3.10 Hazel dormouse (*Muscardinus avellanarius*) were 1.7km south east of the site in 2007.

3.11 Harvest mouse (*Micromys minutus*) were within a 2km square 700m south east in 2001.

3.12 Twenty-one Red listed birds and ten Amber listed birds were identified within the desk study. These included the following: skylark within a 2km square 285m east in 2011 and yellowhammer (*Emberiza citronella*) 920m west in 2016.

3.13 Common lizard was recorded 1km south east in 2014, grass snake 1.1km south east in 2014 and slow worm 1.5km south east in 2006.

3.14 Broad-faced mining bee (*Andrena proxima*) were recorded within the same 2km square as site in 2007. Broad-faced mining bee are IUCN Red List rare species.

3.15 IUCN Red List Near Threatened species small heath butterfly (*Coenonympha pamphilus*) was recorded 830m west in 2016.

3.16 Cornflower (*Centaurea cyanus*) IUCN Red List *Endangered* was recorded 1.9km south east in 2004, corn chamomile (*Anthemis cotula*) IUCN Red List *Endangered* within 2km 100m west in 1998, stinking chamomile (*Anthemis cotula*) IUCN Red List *Vulnerable* recorded 1.9km south east in 2004 and sulphur clover (*Trifolium ochroleucon*) IUCN Red List *Rare* recorded 1.4km south east in 2011.

Report Reviews

Ecological Survey Report (RPS, 2009)

[redacted]

3.18 Bat activity surveys recorded six species of bat commuting on site.

3.19 No evidence of water voles was recorded in any of the ditches on site.

3.20 The bird survey recorded four Amber list species (goldcrest, willow warbler meadow pipit and dunnock) and five Red list species (yellowhammer, linnet *Linaria cannabina*, song thrush *Turdus philomelos*, skylark and house sparrow *Passer domesticus*) – these species had breeding territories within site boundaries.

3.21 RPS surveyed two ponds (Ponds 2 and 3 referred to in this report which were inaccessible at the time of the survey) for GCN. Pond 2 was described as a large, deep artificial pond stocked with fish which had densely vegetated margins, Pond 3 was a small ornamental pond with fish, dense submerged vegetation and marginal reeds, grass and a pump system. Smooth newts, common frogs and tadpoles were recorded during torching and bottle trapping. No GCN were recorded during the GCN survey.

3.22 The reptile survey recorded a single slow worm on site.

3.23 The invertebrate survey found several categories of invertebrates of ecological significance such as a ground nesting bee (*Andrena proxima*) and solitary bee (*Lasioglossum pauxillum)*, however, no invertebrate species that are afforded protection under any UK or European legislation were encountered during these surveys.

3.24 RPS undertook several botanical surveys, hedgerow surveys, surveys of the grassland strips associated with the hedgerows and also surveys for rare plant species known to be present in the nearby Ann Suckling Way Country Wildlife Site (CWS).

3.25 Nineteen hedgerows were surveyed, eight hedges were deemed both 'important' and 'ancient and/or species-rich', and one was 'important' but not ancient and/or species-rich. Some of the hedgerows present on site were found to be 'important' under the Hedgerows Regulations but did not reach the criteria for being considered UKBAP Priority Habitat, were assessed as being of county importance. Cowslip and sulphur clover was found during the survey of arable field margins. A small patch of sulphur

clover was found during the botanical survey for plants of conservation interest along hedgerows.

Landscape and Ecological Management Plan (SES, 2016)

[redacted]

3.27 Six species of bat was recorded within the site, common pipistrelle, soprano pipistrelle, serotine, brown long-eared, barbastelle and *Myotis* spp.

3.28 A total of 43 species of bird were recorded during the breeding bird survey. These included: Amber list species - dunnock *Prunella modularis* (6 pairs), goldcrest *Regulus regulus* (1-2 pairs), meadow pipit *Anthus pratensis* (1 pair), and willow warbler *Phylloscopus trochilus* (2 pairs). Red list species - linnet (1 pair), skylark (6 pairs) ;song thrush (2 pairs), house sparrow (6 pairs) and yellow hammer (11 pairs).

3.29 A single juvenile slow worm was recorded during the reptile survey.

3.30 Eleven Nationally Notable invertebrate species were recorded. Twenty species associated with dead wood habitats were also recorded.

3.31 A population of the nationally scarce plant sulphur clover was found on site.

3.32 A single hedgerow on site was considered important under the Hedgerows Regulations 1997 and UKBAP/ NERC Act habitat.

Walkover Survey

3.33 The habitats on site were considered with respect to their potential to support protected species.

3.34 Within the redline boundary the site comprises a number of dominant 'habitat types', taken from those listed in the Handbook for Phase 1 Habitat Survey (JNCC, 2010). These habitat types are described below and are shown schematically on Figure 4. Target Notes (TN) are presented in Table 4. A list of plant species identified on site is included in Appendix C. The baseline conditions reported and assessed in this document represent those identified at the time of the survey on the 12th December, 2018. Although a reasonable assessment of habitats present can be made during a single walkover survey, seasonal variations are not observed. The plant species list (Appendix A) was based on the current site visit.

3.35 The majority of the site comprises fields of poor semi-improved grassland with false oat-grass (*Arrhenatherum elatius*) and meadow-grasses (*Poa spp*), and tall ruderal with amenity grassland margins. Defunct species-poor hedgerow vertically separates field margins. Along the northern boundary is an intact species-rich hedgerow with dense scrub mostly comprising bramble (*Rubus fruticosus*). The southern boundary hedgerows are intact species-poor and defunct species-poor with dense scrub. Hedgerows are dominated by common hawthorn (*Crataegus monogyna*), blackthorn (*Prunus spinose*) and field maple (*Acer campestre*) with scattered pedunculate oak (*Quercus robur*) and elm (*Ulmus sp.*). Dry ditches separate four of the fields; a dry ditch on the north-eastern boundary leads to a pond. A newly planted mixed plantation is located along the southern boundary adjacent to Moneypiece Close with a row of semi-mature field maple and elm and common ash (*Fraxinus excelsior*).

3.36 The following photographs in Table 4 show the Target Notes referred to in Figure 4 which include Pond 1 and dry ditch.

Figure 4: Phase 1 Habitat Map

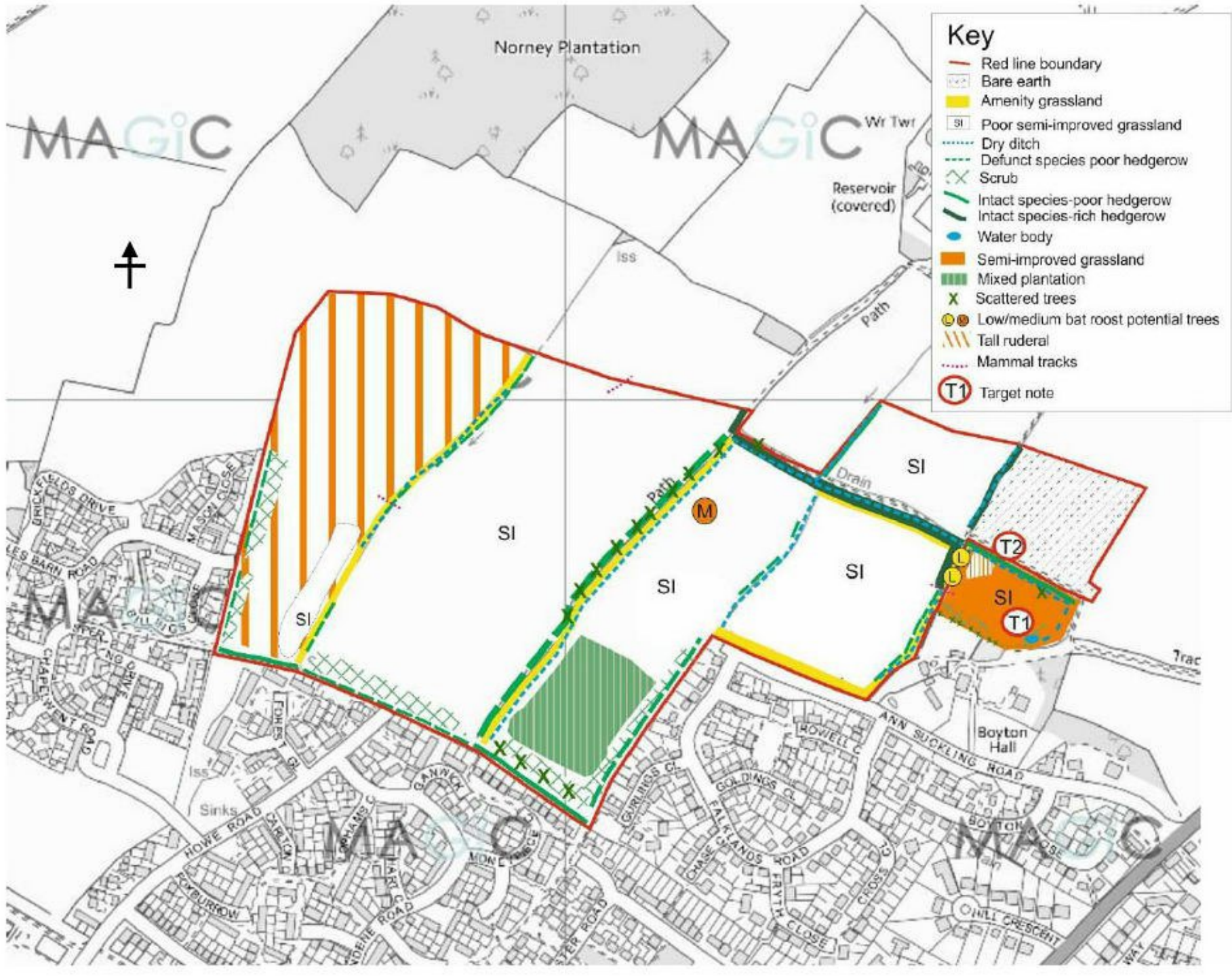


Table 4: Target Notes

Target Note	Habitat description	Photo
1	Pond located north east of site surrounded by dense scrub dominated by bramble. Pond 1, Figure 2.	
2	Dry ditch along north-eastern boundary, which leads to the pond above (Target note 1).	

4 Protected Species – Results and Evaluation

[redacted]

Bats

4.4 The scattered trees (Figure 4) were assessed from the ground for bat roost potential. See Table 5 for tree bat roosting feature photographs.

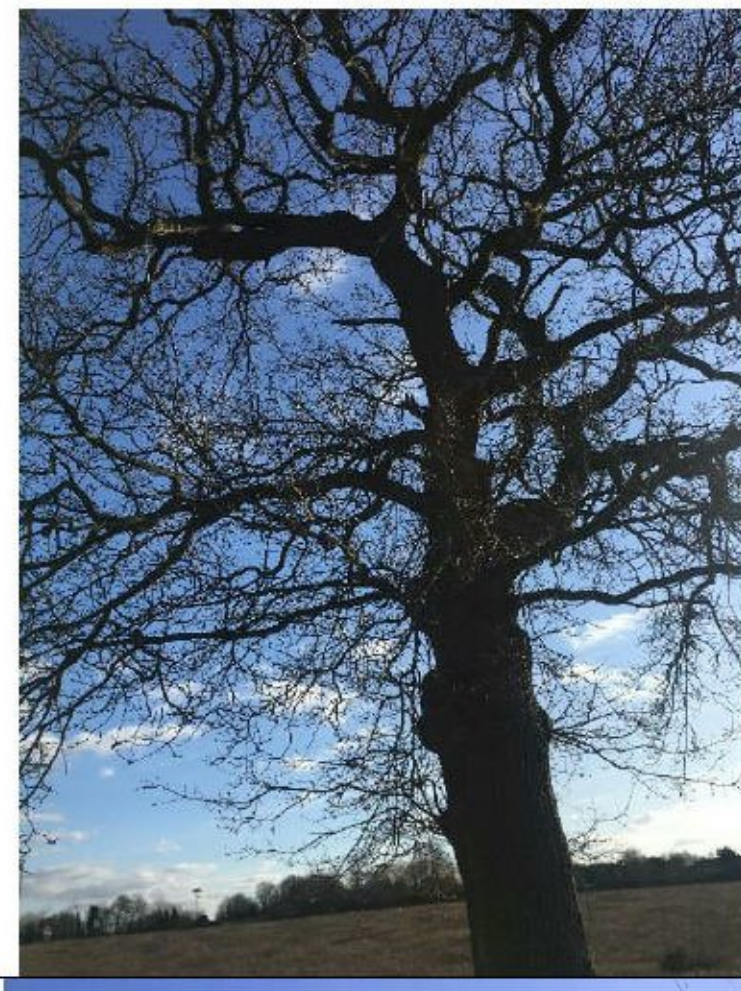
4.5 Three trees on the site were assessed as having potential to support a bat roost. A 'moderate' bat roost potential (BRP) mature oak tree showed knot holes and cracks; and 'low' BPR elm and field maple showed dense ivy cover, which may be covering more potential features.

4.6 The substation (B1) is a brick walled structure with flat roof, assessed as having 'negligible' BRP as there are no suitable features present for roosting bats.

4.7 Habitat on site was assessed as 'moderate' for foraging bats and provided good commuting routes due to connectivity to the wider landscape.

4.8 If boundary hedgerows and BRP trees are to be removed, bat activity surveys are recommended to determine if the site supports commuting and foraging bats.

Table 5: Photographs showing potential bat roost features

Potential bat roost features	Photo
'Moderate' BRP pedunculate oak with cracks and knot holes.	
'Low' BRP field maple with dense ivy cover.	

Potential bat roost features	Photo
'Low' BRP dead elm with dense ivy cover.	
'Negligible' BRP substation (B1).	

Hedgehog

4.9 The site provides moderate habitat for hedgehog due to hedgerows, scrub, field margins and semi-improved grassland that could provide shelter and foraging opportunities. No evidence of hedgehog was recorded during the walkover survey.

Water vole

4.10 There are no wet ditches on-or adjacent to the site which were considered suitable for water vole. No evidence of water vole was recorded during the walkover survey.

Dormice

4.11 The site is considered potentially suitable for dormice. Many hedgerows have not been intensively managed (particularly those along the northern boundary) and are continuous and species-rich, providing cover and foraging opportunities for dormice. Woodlands outside the site boundary provide potential habitat for dormice with mature canopy structure. Hedgerows on the site provide potential corridors for dormice to move between woodland areas connected to the site.

4.12 There was a record of dormice highlighted in the 2km desk study, 1.7km south east of the site boundary in 2007.

Birds

4.13 Trees and hedgerows throughout and surrounding the site provide potential nesting and foraging opportunities for birds. The semi-improved grassland and tall ruderal fields are considered suitable for ground nesting birds due to little disturbance and the size of the habitat.

4.14 Bird species observed during the walkover survey included sparrow hawk (*Accipiter nisus*), coal tit (*Periparus ater*), great tit (*Parus major*), blue tit (*Cyanistes caeruleus*) and wood pigeon (*Columba palumbus*). Six skylarks were observed during the 2018 survey (JBA, 2018) which are BoCC Red listed species.

4.15 A small number of records for wintering birds were highlighted in the 2km desk study and therefore the proposed development may disturb wintering birds. Further surveys for wintering birds are considered necessary to provide a complete assessment of the site.

Reptiles

4.16 The semi-improved grassland and tall ruderal vegetation provides moderate quality habitat for reptiles, with the hedgerows and scrub providing hibernation and sheltering opportunities.

Amphibians

4.17 Four ponds were identified during the desk study search within 500m of site boundaries. The ponds were visited as part of the walkover survey. Pond 1 scored an HSI of 0.56 (see Appendix D) which is a pond suitability of 'below average'. Ponds 2 and 3 were not accessible, Pond 4 has dried. The hedgerow, scrub and semi-improved

grassland provide potential sheltering and foraging opportunities for GCN. The majority of terrestrial habitat on site comprises poor semi-improved grassland and tall ruderal which has the potential to support terrestrial GCN.

Invertebrates

4.18 The poor semi-improved grassland and tall ruderal habitats on the majority of the site are unlikely to support a diverse assemblage of invertebrates due to lack of plant diversity. However, the field margins, scrub and hedgerows grassland do provide potential habitat for invertebrates.

4.19 The data search highlighted records of the small heath butterfly, cinnabar moth and broad-faced mining bee within 2km of the site. While some food plants for these species were present with the site, the habitats within the site were suboptimal and limited for these species. Additionally, similar habitats were present within the wider landscape. Therefore, the local conservation status of invertebrates is unlikely to be significantly affected by the proposed development.

Flora

4.20 No rare, protected plant flora were recorded during the walkover survey. However, sulphur clover which is a rare plant species was recorded on site in 2009 (RPS, 2009), and during the 2016 surveys (SES, 2016). Two '*vulnerable'*, two '*endangered'* and a single '*rare'* plant species as categorised by the JNCC Red list, were highlighted within 2km in the desk study which could utilise habitats present on site. These plant species included cornflower, corn chamomile, sulphur clover and stinking chamomile. None of these species were noted on site during the walkover survey; however, the survey was conducted outside the optimal period for botanical surveys.

4.21 Invasive plant species, such as Japanese knotweed (*Fallopia japonica*), were not identified at the site during the walkover survey.

5 Evaluation, Legislation and Recommendations

5.1 Table 6 below includes a summary of all identified and potential ecological constraints to the development, including those where there is insufficient information at the time of survey to be definitive. Only those impacts which are potentially significant are given below. Relevant legislation has been given here.

Table 6: Survey evaluation, relevant legislation and recommendations

Ecological Receptor	Summary of desk and walkover survey findings	Likely impact and recommendations for further survey
Designated wildlife areas - statutory	The desk study identified three statutory designated wildlife areas (SSSI's) within 7km of the site: • Trundley and Wadgell's Woods, 3.3km north east; • Over and Lawn Woods, 2.7km north west; and • Carlton Wood, 5.8km north west. The site is within several IRZ for SSSI's; however the development does not meet any of the qualifying criteria for consultation between the LPA and Natural England.	No further assessment required.
Designated wildlife areas – non-statutory	The desk study identified nine non-statutory designated wildlife areas (eight LWS and a single LRN) within 2km of the site. • Ann Suckling's, adjacent to northern boundary of site; • Norney Plantation, 65m north; • Haverhill Railway Walks, 290m south; • Haverhill Disused Railway Line, 290m south; • Haverhill Flood Park, 490m west; • Broad Street Old Allotment, 950m south; • Howe Wood, 1.1km west; • Abbacy Wood, 1.4km north; • Chimswell Ditch, 1.7km south west; and • Littley Wood, 1.9km north west.	Housing development may create impacts from increased recreational disturbance to these sites. This could be mitigated using appropriate management regimes. An Ecological Impact Assessment (EcIA) may be required.
Habitats	The main habitats on the site comprise: • Tall ruderal; • Semi-improved grassland; • Poor semi-improved grassland; • Scrub; • Mixed plantation • Intact species-rich hedgerow; • Defunct species-poor hedgerow; and • Scattered broadleaved trees.	The proposed development is likely to result in the fragmentation of hedgerow habitats. Due to species-rich hedgerows on site, a hedgerow survey is recommended. The survey should be undertaken between the months of April to October,

Ecological Receptor	Summary of desk and walkover survey findings	Likely impact and recommendations for further survey
	Species-rich hedgerows are listed as a habitat of Principal Importance under Section 41 of NERC. The S41 list is used to guide decisions-makers in implementing their duty under Section 40 of NERC, to have regard to the conservation of biodiversity in England, when carrying out their normal functions.	with the optimal period being June and July. A Landscape and Ecological Management Plan (L&EMP) is recommended as a Condition in future planning permission.
[redacted]		
Bats	A pedunculate oak tree north east of the site was assessed as having 'moderate', bat roost potential due to the presence of suitable features such as cracks and knot holes. An elm and a field maple along the eastern hedgerow were assessed to have 'low' BRP due to dense vegetation cover. The hedgerows and tree lines are considered suitable for commuting and foraging bats. The site has high connectivity to the wider landscape such as woodlands. All species of bat are afforded full legal protection under Schedule 5 of the WCA. They are also listed under Schedule 2 of the Habitats Regulations. Some species of bat are also listed	If the pedunculate oak is likely to be adversely impacted by the proposals, further bat surveys will be required. If the trees with BRP on site are to be removed, a climb and inspect survey can be undertaken to ascertain whether the potential features are suitable for roosts, using endoscopes. If the features are still considered suitable then at least one emergence and re-entry survey will be required before removal. If boundary hedgerows and trees are retained **and unlit** by the

Ecological Receptor	Summary of desk and walkover survey findings	Likely impact and recommendations for further survey
	in Section 41 of NERC as Species of Principal Importance. Combined legislation makes it an offence: to deliberately kill, injure, capture/take a wild bat; intentionally or recklessly disturb bats, including whilst occupying a place of shelter or protection; to damage or destroy a place used by a bat for breeding or resting (does not need to deliberate, reckless or intentional); and to intentionally or recklessly obstruct access to any place used by a bat for shelter or protection. Bats are classed as 'European Protected Species' (EPS) and mitigation will typically be undertaken under the auspices of an EPS licence from Natural England.	development, bat activity surveys are not required. If these features will be adversely impacted by the proposed development, bat activity surveys are recommended to determine use of the site by foraging and commuting bats. Activity surveys can be undertaken April to October with one survey visit per month totalling 6 surveys. Lighting may need to be a consideration with respect to foraging bats. This will be determined after the bat activity surveys have been undertaken.
Hazel dormouse	Woodland edge and species-rich hedgerows are considered suitable to support hazel dormouse on the site. There are biological records of dormouse within 1.7km of the site and moderate connectivity to the proposed development site. The hazel dormouse is afforded full legal protection under Schedule 5 of the WCA. It is also listed under Schedule 2 of the Habitat Regulations and in section 41 of NERC as a species of Principal Importance. The hazel dormouse is classed as a 'European Protected Species' and mitigation will typically be undertaken under the auspices of a licence from Natural England.	If species-rich hedgerows are likely to be adversely impacted by the proposals, then surveys are likely to be necessary. The dormouse survey season runs from April to November using at least 50 dormouse 'tubes', spaced at 20m at a minimum. These tubes are placed in suitable habitat from January to March at the start of the survey year and visited monthly or bi-monthly throughout the survey season. The survey must be undertaken by a suitably experienced ecologist who holds a current Natural England survey licence for hazel dormouse.
Hedgehog	No evidence of hedgehogs was found. The site provided moderate hibernation and foraging habitat for hedgehogs in hedgerows, scrub and semi-improved grassland. Hedgehogs are listed on Schedule 6 of WCA which makes it illegal to kill or capture wild hedgehog, with certain methods listed. The hedgehog is also a species of principle importance under Section 41of NERC. All the wild mammals protected under the Wild Mammals (Protection) Act 1996. Offences relate	No further surveys recommended.

Ecological Receptor	Summary of desk and walkover survey findings	Likely impact and recommendations for further survey
	to any act which results in the intent to inflict unnecessary suffering. Mercy killings and killing in a swift and humane way in the course of a lawful activity are not offences under the Act.	
Birds	The following habitats have the potential to support breeding birds: • Scattered trees; • Scrub; • Broad-leaved trees; • Species rich hedgerows; and • Species poor hedgerows. Common birds were recorded on site including wood pigeon, blue tit, coal tit, great tit, crow, sparrow hawk and magpie. House sparrow which is a BoCC Red list species was recorded on site. All wild birds while actively nesting are afforded legal protection under the WCA. Special protection is also afforded to birds listed on Schedule 1 of the WCA which makes it an offence to disturb these species at nest or the dependent young. Combined legislation means that all birds, their nests and eggs are protected by law and it is an offence, with certain exceptions, to: a) intentionally kill, injure or take any wild bird; b) intentionally take, damage or destroy the nest of any wild bird while it is in use or being built; c) intentionally take or destroy the egg of any wild bird; d) have in one's possession or control any wild bird (dead or alive), part of a wild bird or egg of a wild bird; e) intentionally or recklessly disturb any wild bird listed on **Schedule 1** while it is nest building or is in, on or near a nest with eggs or young; or disturb the dependent young of such a bird; and f) have in one's possession or control any birds of a species listed on Schedule 4 of the Act unless registered in accordance with the Secretary of State's regulations.	A breeding bird survey in accordance with BTO guidelines is recommended. The breeding bird survey season runs from March to June and consists of four site visits (one per month). A wintering bird survey in accordance with BTO guidelines is also recommended. The wintering bird survey season runs from November to February and consists of four site visits (one per month). It is recommended that vegetation clearance/building disturbance is undertaken outside of the nesting season. The nesting season is deemed to be from mid-March to mid-August, although these times can be temperature dependent. If this timing is not possible then a nesting bird check must be carried out by a suitably experienced person, no more than 48 hours between the check and the removal. If the 'all clear' is given, then removal/building works can commence. If birds are found to be nesting, then no works should be undertaken within at least 7m of the nest until chicks have fledged.
Reptiles	Habitats on site are considered suitable for reptiles due to suitable basking/foraging areas and well-structured vegetation within the semi-improved grassland. The hedgerows and scrub offer good habitat for hibernation.	Further reptile surveys are recommended. Reptile surveys can be undertaken from mid-match to

Ecological Receptor	Summary of desk and walkover survey findings	Likely impact and recommendations for further survey
	Common reptiles are afforded protection under Schedule 5 of the WCA from deliberate injury, killing and trade. They are also listed under Section 41 of NERC as species of Principal Importance.	mid-October in 'suitable weather conditions' i.e. when the temperatures are between 9 and 18 °C with no or little rain. An initial visit would be required to lay reptile refugia (bitumen felts) in suitable habitat. These warm up in the sun and act as lures to reptiles and must be left for a least seven days to bed in. the felts would then be visited seven times on separate occasions to establish presence / likely absence of reptiles. If reptiles are found, then mitigation would likely involve trapping and translocating the reptiles to a specific designated area on the site and managed as such. The level of mitigation would depend upon the result of the survey.
Amphibians, particularly GCN	Four ponds were identified in the desk study, located within 500m of the site boundary. From the walkover survey, Pond 1 was assessed as having an HSI of 'below average', Ponds 2 and 3 were inaccessible, Pond 4 was dry at the time of the survey. Although Pond 1 was assessed as 'below average' the terrestrial habitat such as hedgerows, scrub and semi-improved grassland could provide shelter and foraging opportunities and therefore considered suitable for terrestrial GCN. Both aquatic and terrestrial habitat is protected under wildlife legislation. GCN is afforded full legal protection under Schedule 5 of the WCA. It is also listed under Schedule 2 of the Habitats Regulations. This species is also listed under Section 41 of NERC as a species of Principal Importance. GCN are classes as a 'European Protected Species' (EPS) and any necessary mitigation is typically undertaken under the auspices of a licence from Natural England.	It is recommended that an HSI is undertaken for Ponds 2 and 3 which will require access. Furthermore, it is recommended that Pond 1 is tested for presence / likely absence of GCN by, in the first instance, using the environmental DNA (eDNA) method. This required a combined water sample to be taken from around the pond and sent to a specialist laboratory for analysis. Samples can be taken from 15th April to 30th June. A positive result will be given if GCN have occupied the pond. If a negative result is given, then it is assumed that the site does not support GCN in terms of terrestrial habitat. A positive result will require further survey work to determine the population size of GCN in the pond. This will require 6 visits

Ecological Receptor	Summary of desk and walkover survey findings	Likely impact and recommendations for further survey
		using traps / torches between mid-March and mid-June. At least 3 of these visits must be between mid-April and mid-May. It is therefore important that the eDNA samples are taken on early in the season. After a population estimate has been made, the likely impacts can be assessed.
Invertebrates	The poor semi-improved grassland and tall ruderal habitats on the majority of the site are unlikely to support a diverse assemblage of invertebrates due to lack of plant diversity.	No further surveys recommended.
Flora	RPS (2009) found sulphur clover within site boundaries which is a Nationally Scarce species. No invasive plant species were identified on site.	A survey for sulphur clover should be undertaken between the months of June and July. Dust deposition, run-off and accidental spillages of oil/diesel from construction activities could have adverse impacts on flora. If sulphur clover is identified on the site, a mitigation plan is recommended to avoid potential negative impacts to the colony.

6 Ecological Enhancements

6.1 The proposed development is considered unlikely to be adversely detrimental to designated areas, protected species or habitats, provided the recommendations are followed in Table 5. However, a number of considerations and enhancements are recommended with respect to the overall biodiversity of the site in line with current Planning Policy.

6.2 Where possible, hedgerows, scrub and scattered trees at the boundaries of the site should be retained and enhanced to create corridors and shelter/foraging areas for wildlife including birds, bats and small mammals.

6.3 The addition of six bat boxes on the proposed buildings or retained trees within the site would provide additional roosting opportunities. Schwegler bat boxes are recognised as being suitable for roosting bats and long lasting. They are designed to be installed on the external walls of buildings and trees; ideally to be located south facing (between south east and south west) and above 5m. Boxes such as Schwegler 2F for retained trees or integral bat tubes Schwegler 1FR for buildings would be suitable for this site.

6.4 The addition of six house sparrow and/or swift boxes on the new buildings on site will provide additional nesting opportunities for this BoCC red listed species. Standard bird boxes will attract a greater diversity of birds to nest. Boxes should be located out of direct sunlight and close to, but not restricted by, vegetation.

6.5 Landscaping should incorporate native or wildlife attracting trees, shrubs, and wildflower areas as these would likely be of benefit to a variety of wildlife including, birds, bats and invertebrates, including pollinators.

6.6 ‘Hedgehog links' (i.e. 15cm diameter gaps at the base of fences) are recommended to enable small mammals to move through the development.

7 Conclusion

7.1 A Preliminary Ecological Appraisal has been undertaken at land at Haverhill, Suffolk by JBA Ltd in support of a planning application for development.

7.2 The proposed development site is located within 7km of a number of statutory and non-statutory wildlife areas. Adverse impacts on these sites are anticipated. An EcIA is recommended due to increased predicted recreational disturbance to these sites.

7.3 The majority of the site comprises semi-improved grassland with scattered broad-leaved trees and species-rich hedgerows along field boundaries with dense scrub along the southern boundary.

7.4 Further protected species surveys are recommended prior to development for GCN, bats, dormouse, reptiles, [redacted] and breeding birds. A survey for sulphur clover is also recommended.

7.5 If any mitigation or compensation measures recommended following these further surveys is carried out, and if the precautionary measures for birds detailed in this report are followed, it is considered that the development is able to proceed with minimal impact on the local conservation status of any protected, principally important or rare species within the area.

7.6 It is also considered that with a sensitive landscape scheme, and by including some, or all, of the additional enhancements, the site could be improved for local wildlife post development.

8 References

CIEEM (Chartered Institute of Ecology and Environmental Management) (2013) Guidelines for Preliminary Ecological Appraisal. Technical Guidance Series

Collins, J. (ed.) (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines, third edition. The Bat Conservation Trust, London.

Gent, A.H. and Gibson, S.D., eds. (1998) *Herpetofauna Workers' Manual*. Peterborough, Joint Nature Conservation Committee.

Harris S, Cresswell P and Jefferies D (1989) Surveying Badgers, Mammal Society.

JBA (2018) *Relief Road Phase 1 Habitat Survey Report,* on behalf of Persimmon Homes Essex

JNCC (2010) *Handbook for Phase 1 habitat survey: a technique for environmental audit (revised reprint*) JNCC: Peterborough.

Langton, T.E.S., Beckett, C.L., and Foster, J.P. (2001), Great Crested Newt Conservation Handbook, Froglife, Halesworth.

RPS (2009) *Land at North-west Haverhill – ecological surveys and assessment,* for Bidwells.

SES (2016a) Ecological Scoping Survey, on behalf of Persimmon Homes Essex

SES (2016b) Landscape and Ecological Management Plan, on behalf of Persimmon Homes Essex

Web references

MAGIC: Designated area data downloaded from URL http://www.magic.gov.uk.html

Essex Biodiversity Action Plan (BAP)
http://www.essexfieldclub.org.uk/portal/p/Essex+BAP+species

Suffolk Biodiversty Action Plan (BAP)

https://www.suffolkbis.org.uk/biodiversity/speciesandhabitats

9 Bibliography

W.J. Cresswell, J.D.S. Birks, M.Dean, M. Pacheco, W.J.Trewhella, D. Wells and S. Wray (2012) UK BAP Mammals Interim Guidance for Survey Methodologies, Impacts and Mitigation. Eds. The Mammal Society, Southampton.

English Nature (2001) *Great Crested Newt Mitigation Guidelines*. English Nature.

English Nature (2004) *Guidelines for Developers*. English Nature, Peterborough.

Gregory, R. D. Wilkinson, N. I. Noble, D. G. Robinson, J. A. Brown A. F. Hughes, J. Proctor, D .A. Gibbons, D. W. & Galbraith, C.A. (2007) The population status of birds in the United Kingdom and Isle of Man: an analysis of conservation concern 2002-2007 *British Birds* **95**: 410-450.

HMSO (1981) Wildlife and Countryside Act. HMSO, London.

HMSO (1992) Protection of Badgers Act, HMSO London.

HMSO (2000) Countryside and Rights of Way (CRoW) Act. HMSO, London.

HMSO (2006) Natural Environment and Rural Communities Act HMSO London.

HMSO (2017) Conservation of Habitats and Species Regulations 2010 (as amended) HMSO, London.

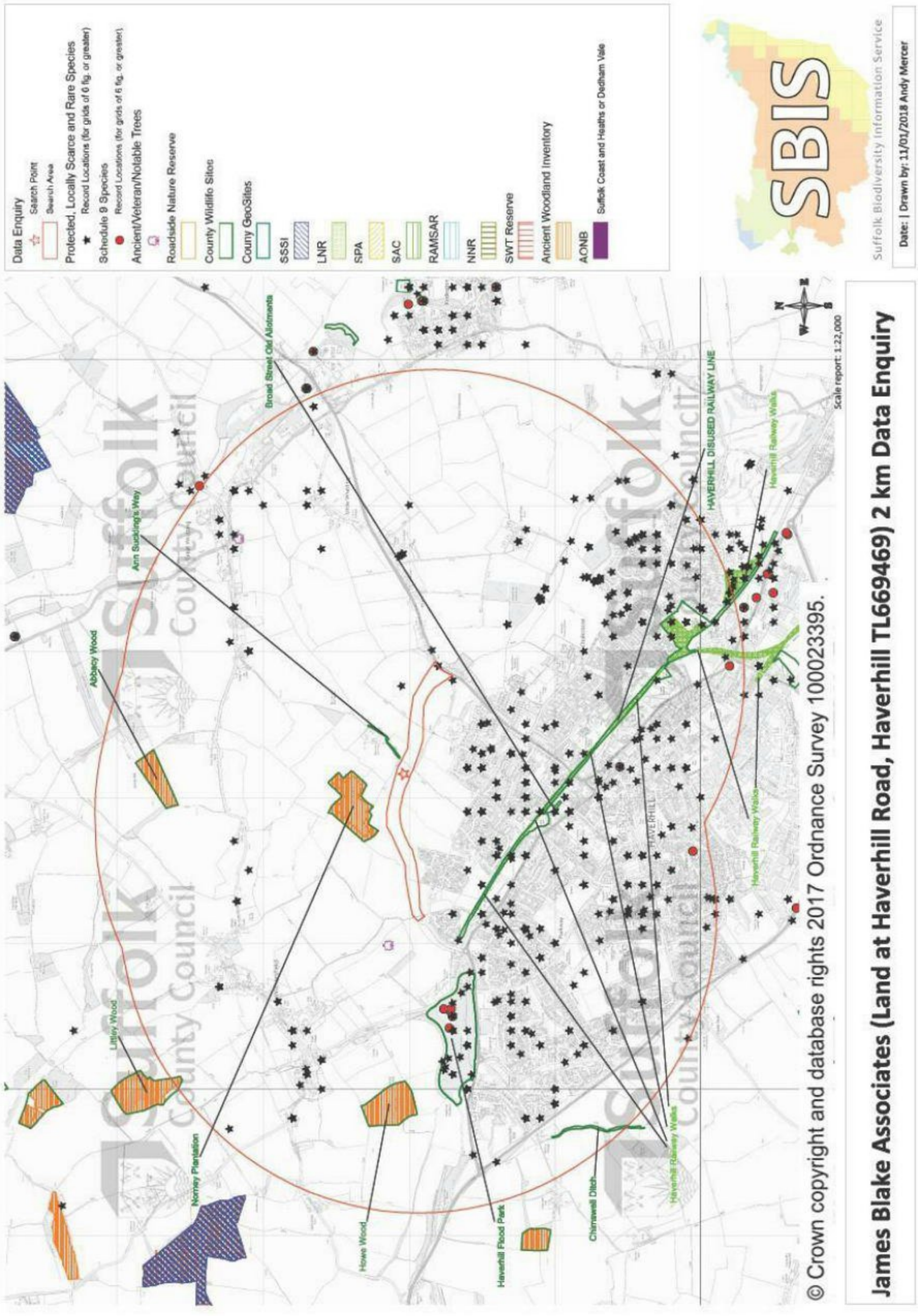
National Planning Policy Framework (2018) ISBN: 9781409834137.

Stace, C (2005) *Field Flora of the British Isles*. Cambridge University Press.

Stroh, P.A., Leach, S.J., August, T.A., Walker, K.J., Pearman, D.A., Rumsey, F.J., Harrower, C.A., Fay, M.F., Martin, J.P., Pankhurst, T., Preston, C.D. & Taylor, I. (2014) A Vascular Plant Red List for England. Botanical Society of Britain and Ireland, Bristol.

10 Appendices

Appendix A: Statutory and non-statutory sites within 2km



Appendix B: Protected species desk study results

Common Name	Grid Ref	Year
Smooth Newt	TL66104621	2016
Smooth Newt	TL68784545	2016
Smooth Newt	TL6883346196	2015
Smooth Newt	TL6850145690	2015
Smooth Newt	TL6837046106	2015
Smooth Newt	TL6847945727	2015
Smooth Newt	TL6834746104	2015
Smooth Newt	TL6847445727	2015
Smooth Newt	TL6835746094	2015
Smooth Newt	TL6836346113	2015
Smooth Newt	TL6848145724	2015
Smooth Newt	TL6866847043	2015
Smooth Newt	TL6865547056	2015
Smooth Newt	TL6865147068	2015
Smooth Newt	TL6864747071	2015
Smooth Newt	TL6850645776	2014
Smooth Newt	TL6844	2010
Smooth Newt	TL669460	2003
Common Toad	TL6850145690	2015
Common Toad	TL6875146252	2015
Common Toad	TL6866847043	2015
Common Toad	TL6875146251	2015
Common Toad	TL6850645776	2014
Common Toad	TL6844	2010
Common Toad	TL669460	2003
Common Frog	TL6847445727	2015
Common Frog	TL6847945727	2015
Common Frog	TL6848145724	2015
Common Frog	TL6866847043	2015
Common Frog	TL6850145690	2015
Common Frog	TL6875146251	2015
Common Frog	TL684456	2015
Common Frog	TL6850645776	2014
Common Frog	TL6844	2010
Common Frog	TL669460	2003
Greylag Goose	TL64N	2011
Shelduck	TL64Z	2011
Little Egret	TL67774502	2016
Little Egret	TL67394545	2015
Little Egret	TL684448	2013
Little Egret	TL6745	2013

Common Name	Grid Ref	Year
Little Egret	TL64S	2009
Little Egret	TL64T	2009
Little Egret	TL64X	2008
Grey Partridge	TL64X	2011
Grey Partridge	TL6945	2011
Grey Partridge	TL64Y	2011
Grey Partridge	TL64S	2008
Kestrel	TL65194677	2016
Kestrel	TL65224665	2015
Kestrel	TL651467	2015
Kestrel	TL645464	2014
Kestrel	TL6547	2013
Kestrel	TL6745	2013
Kestrel	TL64N	2011
Kestrel	TL64P	2011
Kestrel	TL684448	2010
Kestrel	TL64Y	2009
Kestrel	TL64M	2008
Kestrel	TL64S	2008
Kestrel	TL64X	2008
Kestrel	TL64T	2008
Hobby	TL6745	2014
Hobby	TL64X	2011
Hobby	TL64N	2009
Hobby	TL64S	2008
Hobby	TL64M	2008
Crane	TL6745	2009
Lapwing	TL64P	2009
Lapwing	TL64X	2009
Green Sandpiper	TL6848	2013
Herring Gull	TL64Z	2011
Herring Gull	TL64U	2011
Herring Gull	TL64Y	2011
Herring Gull	TL64N	2008
Common Tern	TL64N	2010
Turtle Dove	TL64Z	2011
Turtle Dove	TL64X	2009
Turtle Dove	TL6848	1999
Cuckoo	TL6947	2010
Cuckoo	TL6848	2010
Cuckoo	TL64S	2009
Cuckoo	TL6546	2008

Common Name	Grid Ref	Year
Cuckoo	TL64N	2008
Barn Owl	TL6842846067	2014
Barn Owl	TL6848	2013
Barn Owl	TL6745	2012
Barn Owl	TL64X	2009
Barn Owl	TL64S	2007
Little Owl	TL64X	2011
Little Owl	TL6945	2011
Little Owl	TL6745	2010
Little Owl	TL64N	2009
Tawny Owl	TL6904345866	2014
Tawny Owl	TL6745	2013
Tawny Owl	TL64N	2011
Tawny Owl	TL64S	2008
Tawny Owl	TL64X	2008
Short-eared Owl	TL6745	2012
Swift	TL669459	2017
Swift	TL67074565	2017
Swift	TL67004593	2017
Swift	TL66104621	2016
Swift	TL658465	2016
Swift	TL67194548	2016
Swift	TL66094620	2015
Swift	TL6745	2014
Swift	TL67124570	2013
Swift	TL66094635	2013
Swift	TL6945	2013
Swift	TL660463	2013
Swift	TL671457	2013
Swift	TL64N	2011
Swift	TL662463	2011
Swift	TL64X	2011
Swift	TL64S	2011
Swift	TL661464	2011
Swift	TL66214635	2011
Swift	TL64U	2011
Swift	TL66134647	2011
Swift	TL65654630	2010
Swift	TL672453	2010
Swift	TL674453	2010
Swift	TL67474534	2010
Swift	TL67264538	2010

Common Name	Grid Ref	Year
Swift	TL656463	2010
Swift	TL64P	2009
Swift	TL64T	2009
Swift	TL64M	2008
Swift	TL6645	2007
Kingfisher	TL65804658	2015
Kingfisher	TL6745	2014
Kingfisher	TL6746145407	2014
Kingfisher	TL6630446402	2013
Kingfisher	TL6657846298	2013
Kingfisher	TL684448	2012
Kingfisher	TL6848	2010
Kingfisher	TL64Z	2010
Kingfisher	TL64S	2009
Kingfisher	TL64N	2009
Kingfisher	TL64X	2008
Green Woodpecker	TL6842846067	2014
Green Woodpecker	TL6745	2013
Green Woodpecker	TL64Z	2011
Green Woodpecker	TL64N	2011
Green Woodpecker	TL64U	2011
Green Woodpecker	TL64X	2011
Green Woodpecker	TL64Y	2011
Green Woodpecker	TL64P	2011
Green Woodpecker	TL6544	2010
Green Woodpecker	TL64M	2010
Green Woodpecker	TL684448	2010
Green Woodpecker	TL675465	2009
Green Woodpecker	TL64S	2009
Green Woodpecker	TL682451	2006
Great Spotted Woodpecker	TL68374563	2016
Great Spotted Woodpecker	TL6745	2013
Great Spotted Woodpecker	TL64N	2011
Great Spotted Woodpecker	TL64X	2011
Great Spotted Woodpecker	TL64P	2011
Great Spotted Woodpecker	TL64Z	2011
Great Spotted Woodpecker	TL64U	2011
Great Spotted Woodpecker	TL64Y	2011
Great Spotted Woodpecker	TL6544	2010
Great Spotted Woodpecker	TL64M	2010
Great Spotted Woodpecker	TL684448	2010
Great Spotted Woodpecker	TL666462	2009

Common Name	Grid Ref	Year
Great Spotted Woodpecker	TL688454	2009
Great Spotted Woodpecker	TL649460	2009
Great Spotted Woodpecker	TL64S	2007
Grasshopper Warbler	TL64U	2011
Skylark	TL64P	2011
Skylark	TL64N	2011
Skylark	TL64Y	2011
Skylark	TL64Z	2011
Skylark	TL64U	2011
Skylark	TL64M	2008
Skylark	TL6546	2002
Swallow	TL64T	2009
Swallow	TL653466	2016
Swallow	TL6745	2014
Swallow	TL64Y	2011
Swallow	TL64N	2011
Swallow	TL64P	2011
Swallow	TL64X	2011
Swallow	TL64Z	2011
Swallow	TL64U	2011
Swallow	TL64S	2008
House Martin	TL6745	2014
House Martin	TL64N	2011
House Martin	TL64Y	2011
House Martin	TL64Z	2011
House Martin	TL64X	2011
House Martin	TL6848	2010
House Martin	TL64M	2008
House Martin	TL64S	2008
Meadow Pipit	TL64N	2010
Meadow Pipit	TL64P	2009
Meadow Pipit	TL64T	2009
Meadow Pipit	TL64X	2009
Meadow Pipit	TL64S	2008
Meadow Pipit	TL64M	2007
Yellow Wagtail	TL67224563	2017
Yellow Wagtail	TL6745	2008
Grey Wagtail	TL653466	2016
Grey Wagtail	TL684448	2014
Grey Wagtail	TL6745	2013
Grey Wagtail	TL6947	2012
Grey Wagtail	TL64Y	2011

Common Name	Grid Ref	Year
Grey Wagtail	TL6848	2011
Grey Wagtail	TL64N	2009
Grey Wagtail	TL64X	2009
Grey Wagtail	TL64S	2008
Pied Wagtail	TL662467	2009
Pied Wagtail	TL683455	2009
Pied Wagtail	TL649460	2009
Pied Wagtail	TL64T	2009
Pied Wagtail	TL64X	2008
Pied Wagtail	TL64N	2008
Pied Wagtail	TL64P	2008
Pied Wagtail	TL64S	2008
Pied Wagtail	TL64Y	2011
Pied Wagtail	TL64N	2010
Pied Wagtail	TL64X	2009
Pied Wagtail	TL64M	2007
Pied Wagtail	TL64S	2007
Waxwing	TL6745	2013
Waxwing	TL684448	2011
Waxwing	TL64X	2011
Waxwing	TL64S	2011
Wren	TL64P	2011
Wren	TL64N	2011
Wren	TL64Y	2011
Wren	TL64Z	2011
Wren	TL64U	2011
Wren	TL682454	2009
Wren	TL662465	2009
Wren	TL672466	2009
Wren	TL64T	2009
Wren	TL690452	2009
Wren	TL688454	2009
Wren	TL675465	2009
Wren	TL688453	2009
Wren	TL664458	2009
Wren	TL673465	2009
Wren	TL679468	2009
Wren	TL64S	2008
Wren	TL64X	2008
Wren	TL64M	2008
Wren	TL682451	2006
Dunnock	TL64Z	2011

Common Name	Grid Ref	Year
Dunnock	TL64U	2011
Dunnock	TL64N	2011
Dunnock	TL64Y	2011
Dunnock	TL64P	2011
Dunnock	TL64X	2010
Dunnock	TL670464	2009
Dunnock	TL650460	2009
Dunnock	TL675453	2009
Dunnock	TL648478	2009
Dunnock	TL669465	2009
Dunnock	TL669466	2009
Dunnock	TL657483	2009
Dunnock	TL680481	2009
Dunnock	TL684455	2009
Dunnock	TL672466	2009
Dunnock	TL648462	2009
Dunnock	TL666464	2009
Dunnock	TL682454	2009
Dunnock	TL661462	2009
Dunnock	TL662454	2009
Dunnock	TL672451	2009
Dunnock	TL64T	2009
Dunnock	TL670457	2009
Dunnock	TL687450	2009
Dunnock	TL666454	2009
Dunnock	TL687453	2009
Dunnock	TL655463	2009
Dunnock	TL683455	2009
Dunnock	TL673463	2009
Dunnock	TL679468	2009
Dunnock	TL654478	2009
Dunnock	TL688454	2009
Dunnock	TL662455	2009
Dunnock	TL688453	2009
Dunnock	TL672465	2009
Dunnock	TL671462	2009
Dunnock	TL690452	2009
Dunnock	TL663449	2009
Dunnock	TL683450	2009
Dunnock	TL669459	2009
Dunnock	TL691482	2009
Dunnock	TL666462	2009

Common Name	Grid Ref	Year
Dunnock	TL64S	2008
Dunnock	TL64M	2008
Dunnock	TL682451	2006
Robin	TL68774544	2016
Robin	TL68754549	2015
Robin	TL6720845552	2014
Robin	TL6842846067	2014
Robin	TL64P	2011
Robin	TL64N	2011
Robin	TL64Z	2011
Robin	TL64U	2011
Robin	TL64Y	2011
Robin	TL64X	2010
Robin	TL654478	2009
Robin	TL657483	2009
Robin	TL672451	2009
Robin	TL662454	2009
Robin	TL669462	2009
Robin	TL687453	2009
Robin	TL691482	2009
Robin	TL683455	2009
Robin	TL660460	2009
Robin	TL687450	2009
Robin	TL673463	2009
Robin	TL655463	2009
Robin	TL661462	2009
Robin	TL664453	2009
Robin	TL666454	2009
Robin	TL673465	2009
Robin	TL652476	2009
Robin	TL684455	2009
Robin	TL659461	2009
Robin	TL648462	2009
Robin	TL64T	2009
Robin	TL669461	2009
Robin	TL669459	2009
Robin	TL666462	2009
Robin	TL649460	2009
Robin	TL683450	2009
Robin	TL666464	2009
Robin	TL682454	2009
Robin	TL688453	2009

Common Name	Grid Ref	Year
Robin	TL672466	2009
Robin	TL662467	2009
Robin	TL662465	2009
Robin	TL673459	2009
Robin	TL670464	2009
Robin	TL671460	2009
Robin	TL683482	2009
Robin	TL680481	2009
Robin	TL650460	2009
Robin	TL664455	2009
Robin	TL675453	2009
Robin	TL675460	2009
Robin	TL675465	2009
Robin	TL669465	2009
Robin	TL670462	2009
Robin	TL663449	2009
Robin	TL662455	2009
Robin	TL663456	2009
Robin	TL688454	2009
Robin	TL672460	2009
Robin	TL672465	2009
Robin	TL690452	2009
Robin	TL648478	2009
Robin	TL64S	2008
Robin	TL64M	2008
Robin	TL682451	2006
Nightingale	TL6842846067	2014
Black Redstart	TL6745	2012
Wheatear	TL6945	2013
Fieldfare	TL6745	2013
Fieldfare	TL6947	2013
Fieldfare	TL64Y	2011
Fieldfare	TL64Z	2011
Fieldfare	TL64N	2011
Fieldfare	TL64U	2010
Fieldfare	TL64S	2010
Fieldfare	TL64P	2009
Fieldfare	TL649460	2009
Fieldfare	TL64T	2008
Fieldfare	TL64M	2007
Fieldfare	TL64X	2007
Song Thrush	TL64P	2011

Common Name	Grid Ref	Year
Song Thrush	TL64N	2011
Song Thrush	TL64S	2011
Song Thrush	TL64Z	2011
Song Thrush	TL64Y	2011
Song Thrush	TL64U	2011
Song Thrush	TL64X	2010
Song Thrush	TL656454	2009
Song Thrush	TL666464	2009
Song Thrush	TL662455	2009
Song Thrush	TL64T	2009
Song Thrush	TL661462	2009
Song Thrush	TL64M	2008
Song Thrush	TL682451	2006
Redwing	TL6947	2013
Redwing	TL64N	2011
Redwing	TL64U	2011
Redwing	TL64Y	2011
Redwing	TL64S	2011
Redwing	TL64Z	2010
Redwing	TL684455	2009
Redwing	TL64P	2009
Redwing	TL64T	2008
Redwing	TL64X	2008
Redwing	TL64M	2007
Spotted Flycatcher	TL6848	2013
Spotted Flycatcher	TL64Z	2011
Spotted Flycatcher	TL6745	2011
Spotted Flycatcher	TL6947	2011
Spotted Flycatcher	TL64S	2008
Goldcrest	TL64P	2011
Goldcrest	TL64Y	2011
Goldcrest	TL64Z	2011
Goldcrest	TL64X	2009
Goldcrest	TL673463	2009
Goldcrest	TL672466	2009
Goldcrest	TL64S	2008
Goldcrest	TL64M	2008
Blue Tit	TL650466	2016
Blue Tit	TL653466	2016
Blue Tit	TL68754549	2016
Blue Tit	TL6842846067	2014
Blue Tit	TL64Z	2011

Common Name	Grid Ref	Year
Blue Tit	TL64N	2011
Blue Tit	TL64P	2011
Blue Tit	TL64U	2011
Blue Tit	TL64Y	2011
Blue Tit	TL64M	2010
Blue Tit	TL64X	2010
Blue Tit	TL682454	2009
Blue Tit	TL666464	2009
Blue Tit	TL672451	2009
Blue Tit	TL648462	2009
Blue Tit	TL669466	2009
Blue Tit	TL675465	2009
Blue Tit	TL664458	2009
Blue Tit	TL669462	2009
Blue Tit	TL670457	2009
Blue Tit	TL672460	2009
Blue Tit	TL688454	2009
Blue Tit	TL670462	2009
Blue Tit	TL669465	2009
Blue Tit	TL662455	2009
Blue Tit	TL672465	2009
Blue Tit	TL662465	2009
Blue Tit	TL671462	2009
Blue Tit	TL690452	2009
Blue Tit	TL663456	2009
Blue Tit	TL670464	2009
Blue Tit	TL64T	2009
Blue Tit	TL652476	2009
Blue Tit	TL684455	2009
Blue Tit	TL666462	2009
Blue Tit	TL656454	2009
Blue Tit	TL659461	2009
Blue Tit	TL654478	2009
Blue Tit	TL673463	2009
Blue Tit	TL657483	2009
Blue Tit	TL691482	2009
Blue Tit	TL687450	2009
Blue Tit	TL661462	2009
Blue Tit	TL666454	2009
Blue Tit	TL655463	2009
Blue Tit	TL666453	2009
Blue Tit	TL666455	2009

Common Name	Grid Ref	Year
Blue Tit	TL664455	2009
Blue Tit	TL683455	2009
Blue Tit	TL648478	2009
Blue Tit	TL680481	2009
Blue Tit	TL683482	2009
Blue Tit	TL650460	2009
Blue Tit	TL653458	2009
Blue Tit	TL672466	2009
Blue Tit	TL663449	2009
Blue Tit	TL688453	2009
Blue Tit	TL649460	2009
Blue Tit	TL669461	2009
Blue Tit	TL669459	2009
Blue Tit	TL683450	2009
Blue Tit	TL64S	2008
Blue Tit	TL682451	2006
Great Tit	TL650466	2016
Great Tit	TL651467	2016
Great Tit	TL68754549	2016
Great Tit	TL653466	2016
Great Tit	TL6842846067	2014
Great Tit	TL64U	2011
Great Tit	TL64N	2011
Great Tit	TL64Z	2011
Great Tit	TL64Y	2011
Great Tit	TL64P	2011
Great Tit	TL64X	2010
Great Tit	TL64M	2010
Great Tit	TL662465	2009
Great Tit	TL648462	2009
Great Tit	TL669466	2009
Great Tit	TL666464	2009
Great Tit	TL684455	2009
Great Tit	TL64T	2009
Great Tit	TL659461	2009
Great Tit	TL670464	2009
Great Tit	TL691482	2009
Great Tit	TL688454	2009
Great Tit	TL669461	2009
Great Tit	TL683450	2009
Great Tit	TL669459	2009
Great Tit	TL666462	2009

Common Name	Grid Ref	Year
Great Tit	TL672465	2009
Great Tit	TL675460	2009
Great Tit	TL664458	2009
Great Tit	TL653458	2009
Great Tit	TL683482	2009
Great Tit	TL680481	2009
Great Tit	TL657483	2009
Great Tit	TL672451	2009
Great Tit	TL687450	2009
Great Tit	TL655463	2009
Great Tit	TL683455	2009
Great Tit	TL652476	2009
Great Tit	TL654478	2009
Great Tit	TL670457	2009
Great Tit	TL669465	2009
Great Tit	TL670462	2009
Great Tit	TL648478	2009
Great Tit	TL64S	2008
Great Tit	TL682451	2006
Coal Tit	TL64N	2011
Coal Tit	TL64P	2011
Coal Tit	TL64Z	2011
Coal Tit	TL64M	2010
Coal Tit	TL64U	2010
Coal Tit	TL64Y	2010
Coal Tit	TL687450	2009
Coal Tit	TL655463	2009
Coal Tit	TL687453	2009
Coal Tit	TL664458	2009
Coal Tit	TL662455	2009
Coal Tit	TL670462	2009
Coal Tit	TL670457	2009
Coal Tit	TL691482	2009
Coal Tit	TL64T	2009
Coal Tit	TL680481	2009
Coal Tit	TL669465	2009
Coal Tit	TL64S	2008
Coal Tit	TL64X	2008
Marsh Tit	TL64U	2011
Marsh Tit	TL64P	2009
Nuthatch	TL6745	2014
Nuthatch	TL6547	2011

Common Name	Grid Ref	Year
Nuthatch	TL64U	2010
Nuthatch	TL64P	2009
Nuthatch	TL64M	2008
Nuthatch	TL64N	2007
Treecreeper	TL6842846067	2014
Treecreeper	TL684448	2013
Treecreeper	TL6745	2013
Treecreeper	TL64S	2010
Treecreeper	TL64X	2008
Treecreeper	TL64M	2007
Treecreeper	TL64N	2007
Starling	TL68754549	2016
Starling	TL6745	2014
Starling	TL64Y	2011
Starling	TL64N	2011
Starling	TL64Z	2011
Starling	TL64P	2011
Starling	TL670464	2009
Starling	TL656454	2009
Starling	TL659461	2009
Starling	TL684455	2009
Starling	TL672466	2009
Starling	TL648478	2009
Starling	TL650460	2009
Starling	TL670462	2009
Starling	TL675460	2009
Starling	TL687454	2009
Starling	TL669465	2009
Starling	TL664455	2009
Starling	TL669466	2009
Starling	TL683450	2009
Starling	TL649460	2009
Starling	TL669461	2009
Starling	TL672452	2009
Starling	TL661462	2009
Starling	TL664458	2009
Starling	TL669462	2009
Starling	TL64T	2009
Starling	TL64X	2009
Starling	TL682454	2009
Starling	TL672451	2009
Starling	TL667465	2009

Common Name	Grid Ref	Year
Starling	TL666464	2009
Starling	TL683455	2009
Starling	TL675451	2009
Starling	TL675465	2009
Starling	TL687453	2009
Starling	TL653458	2009
Starling	TL654463	2009
Starling	TL673463	2009
Starling	TL673465	2009
Starling	TL664453	2009
Starling	TL664454	2009
Starling	TL666454	2009
Starling	TL655463	2009
Starling	TL688454	2009
Starling	TL662454	2009
Starling	TL662455	2009
Starling	TL671462	2009
Starling	TL688453	2009
Starling	TL672460	2009
Starling	TL663449	2009
Starling	TL663456	2009
Starling	TL672465	2009
Starling	TL690452	2009
Starling	TL667456	2008
Starling	TL64S	2008
Starling	TL656479	2008
Starling	TL654477	2008
Starling	TL665452	2008
Starling	TL681456	2008
Starling	TL653478	2008
Starling	TL666463	2008
Starling	TL686453	2008
Starling	TL686454	2008
Starling	TL665460	2008
Starling	TL686452	2008
Starling	TL689451	2008
Starling	TL677457	2008
Starling	TL661461	2008
Starling	TL681453	2008
Starling	TL666458	2008
Starling	TL661454	2008
Starling	TL660460	2008

Common Name	Grid Ref	Year
Starling	TL659465	2008
Starling	TL675462	2008
Starling	TL64M	2008
Starling	TL653461	2008
Starling	TL653463	2008
Starling	TL648461	2008
Starling	TL658462	2008
Starling	TL656462	2008
Starling	TL654456	2008
Starling	TL654459	2008
Starling	TL668452	2008
Starling	TL669463	2008
Starling	TL670450	2008
Starling	TL671459	2008
Starling	TL671464	2008
Starling	TL674462	2008
Starling	TL667464	2008
Starling	TL672462	2008
Starling	TL682451	2006
House Sparrow	TL650466	2016
House Sparrow	TL68754549	2016
House Sparrow	TL6745	2013
House Sparrow	TL64Y	2011
House Sparrow	TL64U	2011
House Sparrow	TL64Z	2011
House Sparrow	TL64N	2011
House Sparrow	TL64P	2011
House Sparrow	TL688454	2009
House Sparrow	TL690452	2009
House Sparrow	TL687450	2009
House Sparrow	TL652476	2009
House Sparrow	TL682454	2009
House Sparrow	TL664454	2009
House Sparrow	TL664455	2009
House Sparrow	TL664453	2009
House Sparrow	TL661462	2009
House Sparrow	TL664458	2009
House Sparrow	TL673459	2009
House Sparrow	TL672460	2009
House Sparrow	TL672452	2009
House Sparrow	TL672465	2009
House Sparrow	TL672451	2009

Common Name	Grid Ref	Year
House Sparrow	TL683450	2009
House Sparrow	TL684455	2009
House Sparrow	TL683455	2009
House Sparrow	TL656454	2009
House Sparrow	TL655463	2009
House Sparrow	TL654463	2009
House Sparrow	TL650460	2009
House Sparrow	TL675465	2009
House Sparrow	TL675451	2009
House Sparrow	TL659461	2009
House Sparrow	TL666455	2009
House Sparrow	TL673463	2009
House Sparrow	TL675453	2009
House Sparrow	TL680481	2009
House Sparrow	TL653458	2009
House Sparrow	TL648462	2009
House Sparrow	TL669465	2009
House Sparrow	TL670464	2009
House Sparrow	TL670457	2009
House Sparrow	TL670462	2009
House Sparrow	TL669466	2009
House Sparrow	TL648478	2009
House Sparrow	TL649460	2009
House Sparrow	TL666464	2009
House Sparrow	TL691482	2009
House Sparrow	TL663456	2009
House Sparrow	TL662455	2009
House Sparrow	TL662467	2009
House Sparrow	TL663449	2009
House Sparrow	TL662454	2009
House Sparrow	TL669459	2009
House Sparrow	TL669461	2009
House Sparrow	TL667465	2009
House Sparrow	TL64T	2009
House Sparrow	TL64X	2009
House Sparrow	TL671464	2008
House Sparrow	TL672462	2008
House Sparrow	TL673458	2008
House Sparrow	TL674462	2008
House Sparrow	TL675462	2008
House Sparrow	TL674452	2008
House Sparrow	TL665460	2008

Common Name	Grid Ref	Year
House Sparrow	TL666463	2008
House Sparrow	TL666458	2008
House Sparrow	TL671459	2008
House Sparrow	TL667456	2008
House Sparrow	TL667464	2008
House Sparrow	TL668452	2008
House Sparrow	TL668459	2008
House Sparrow	TL670450	2008
House Sparrow	TL656479	2008
House Sparrow	TL676463	2008
House Sparrow	TL648461	2008
House Sparrow	TL653461	2008
House Sparrow	TL662457	2008
House Sparrow	TL665452	2008
House Sparrow	TL678467	2008
House Sparrow	TL681456	2008
House Sparrow	TL677457	2008
House Sparrow	TL650476	2008
House Sparrow	TL662449	2008
House Sparrow	TL687453	2008
House Sparrow	TL64S	2008
House Sparrow	TL686452	2008
House Sparrow	TL686453	2008
House Sparrow	TL686454	2008
House Sparrow	TL687454	2008
House Sparrow	TL689451	2008
House Sparrow	TL661461	2008
House Sparrow	TL654456	2008
House Sparrow	TL658462	2008
House Sparrow	TL656462	2008
House Sparrow	TL654462	2008
House Sparrow	TL654459	2008
House Sparrow	TL653463	2008
House Sparrow	TL661464	2008
House Sparrow	TL661454	2008
House Sparrow	TL660460	2008
House Sparrow	TL659465	2008
House Sparrow	TL64M	2007
House Sparrow	TL682451	2006
Greenfinch	TL64Z	2011
Greenfinch	TL64Y	2011
Greenfinch	TL64P	2011

Common Name	Grid Ref	Year
Greenfinch	TL64S	2011
Greenfinch	TL64N	2011
Greenfinch	TL64U	2011
Greenfinch	TL669465	2009
Greenfinch	TL670462	2009
Greenfinch	TL670464	2009
Greenfinch	TL648462	2009
Greenfinch	TL669461	2009
Greenfinch	TL64T	2009
Greenfinch	TL64X	2009
Greenfinch	TL683450	2009
Greenfinch	TL654478	2009
Greenfinch	TL657483	2009
Greenfinch	TL688454	2009
Greenfinch	TL690452	2009
Greenfinch	TL672466	2009
Greenfinch	TL671462	2009
Greenfinch	TL672460	2009
Greenfinch	TL669462	2009
Greenfinch	TL691482	2009
Greenfinch	TL687453	2009
Greenfinch	TL664455	2009
Greenfinch	TL666455	2009
Greenfinch	TL683455	2009
Greenfinch	TL682454	2009
Greenfinch	TL687450	2009
Greenfinch	TL673463	2009
Greenfinch	TL664458	2009
Greenfinch	TL653458	2009
Greenfinch	TL688453	2009
Greenfinch	TL682451	2006
Linnet	TL64U	2011
Linnet	TL64Y	2011
Linnet	TL64N	2010
Linnet	TL64P	2009
Linnet	TL64S	2008
Linnet	TL64X	2008
Linnet	TL64M	2008
Linnet	TL682451	2006
Linnet	TL6945	2003
Linnet	TL6745	2002
Linnet	TL6546	2002

Common Name	Grid Ref	Year
Linnet	TL6847	1999
Siskin	TL6745	2013
Siskin	TL64X	2008
Siskin	TL64S	2008
Siskin	TL64N	2008
Brambling	TL669465	2009
Brambling	TL64X	2008
Brambling	TL64Y	2008
Goldfinch	TL653466	2016
Goldfinch	TL650466	2016
Goldfinch	TL6842846067	2014
Goldfinch	TL64Z	2011
Goldfinch	TL64Y	2011
Goldfinch	TL64U	2011
Goldfinch	TL64P	2011
Goldfinch	TL64S	2011
Goldfinch	TL64N	2011
Goldfinch	TL654478	2009
Goldfinch	TL675451	2009
Goldfinch	TL691482	2009
Goldfinch	TL666454	2009
Goldfinch	TL672466	2009
Goldfinch	TL683450	2009
Goldfinch	TL669461	2009
Goldfinch	TL671462	2009
Goldfinch	TL648462	2009
Goldfinch	TL669462	2009
Goldfinch	TL664458	2009
Goldfinch	TL670464	2009
Goldfinch	TL673463	2009
Goldfinch	TL687450	2009
Goldfinch	TL64T	2009
Goldfinch	TL64X	2009
Goldfinch	TL64M	2007
Goldfinch	TL682451	2006
Bullfinch	TL6842846067	2014
Bullfinch	TL684448	2014
Bullfinch	TL6848	2013
Bullfinch	TL6945	2013
Bullfinch	TL6745	2013
Bullfinch	TL64N	2011
Bullfinch	TL670457	2009

Common Name	Grid Ref	Year
Bullfinch	TL664458	2009
Bullfinch	TL64T	2009
Bullfinch	TL64X	2009
Bullfinch	TL64P	2009
Bullfinch	TL64Y	2008
Bullfinch	TL64M	2008
Bullfinch	TL64S	2008
Bullfinch	TL682451	2006
Bullfinch	TL6646	2002
Yellowhammer	TL653466	2016
Yellowhammer	TL650466	2016
Yellowhammer	TL6842846067	2014
Yellowhammer	TL64Y	2011
Yellowhammer	TL64U	2011
Yellowhammer	TL64Z	2011
Yellowhammer	TL64P	2011
Yellowhammer	TL64N	2011
Yellowhammer	TL64X	2009
Yellowhammer	TL64T	2008
Yellowhammer	TL64M	2008
Reed Bunting	TL651467	2016
Reed Bunting	TL64Y	2011
Reed Bunting	TL64U	2011
Reed Bunting	TL64N	2011
Reed Bunting	TL64X	2009
Reed Bunting	TL64T	2009
Reed Bunting	TL64P	2009
Reed Bunting	TL682451	2006
Reed Bunting	TL6745	2003
Reed Bunting	TL6945	2002
Corn Bunting	TL64P	2009
Corn Bunting	TL6745	2003
Common Spotted-orchid	TL650466	2016
Common Spotted-orchid	TL6546	2016
Common Spotted-orchid	TL654467	1999
Southern Marsh-orchid	TL650466	2016
Southern Marsh-orchid	TL6546	2016
Early-purple Orchid	TL64M	2001
Pyramidal Orchid	TL65154675	2016
Pyramidal Orchid	TL6546	2016
Pyramidal Orchid	TL650466	2016
Pyramidal Orchid	TL65664664	2015

Common Name	Grid Ref	Year
Pyramidal Orchid	TL65214673	2015
Pyramidal Orchid	TL65594670	2015
Pyramidal Orchid	TL65134676	2015
Pyramidal Orchid	TL665466	2013
Pyramidal Orchid	TL655467	1999
Pyramidal Orchid	TL654467	1998
Bee Orchid	TL65104657	2016
Bee Orchid	TL6546	2016
Bee Orchid	TL667482	2016
Bee Orchid	TL650466	2016
Bee Orchid	TL67724623	2015
Bee Orchid	TL655467	1999
Bee Orchid	TL654467	1998
Bee Orchid	TL681452	1998
Bee Orchid	TL6745	1997
Bottle Sedge	TL655467	1999
Quaking-grass	TL665481	1998
Stinking Hellebore	TL64N	2003
Lesser Meadow-rue	TL681452	1998
Wild Strawberry	TL64N	2003
Hoary Plantain	TL687482	2006
Hoary Plantain	TL667458	2004
Hoary Plantain	TL654467	1998
Hoary Plantain	TL6446	1998
Corn Mint	TL64M	2004
Corn Mint	TL654467	1998
Crested Cow-wheat	TL6747	2009
Sulphur Clover	TL682452	2011
Sulphur Clover	TL685457	2000
Sulphur Clover	TL681452	1998
Sulphur Clover	TL655467	1997
Oxlip	TL64N	2003
Oxlip	TL64M	2001
Oxlip	TL6446	1998
Oxlip	TL6448	1998
Oxlip	TL6646	1998
Wood-sorrel	TL64M	2004
Dwarf Spurge	TL64N	2004
Treacle-mustard	TL64N	2004
Yellow-wort	TL64X	2004
Cornflower	TL684448	2004
Smooth Cat's-ear	TL6846	1998

Common Name	Grid Ref	Year
Corn Chamomile	TL6446	1998
Stinking Chamomile	TL684448	2004
Common Valerian	TL6448	1998
Field Scabious	TL690477	2006
Field Scabious	TL667458	2004
Field Scabious	TL64X	2004
Field Scabious	TL655467	1999
Field Scabious	TL654467	1998
Shepherd's-needle	TL6846	2004
Shepherd's-needle	TL64N	2003
Shepherd's-needle	TL690477	1998
Shepherd's-needle	TL687476	1998
Greater Burnet-saxifrage	TL6628348184	2012
Greater Burnet-saxifrage	TL66294818	2006
Small Heath	TL654466	2016
Small Heath	TL6546	2013
Small Heath	TL6646	2012
Small Heath	TL690470	2012
Small Heath	TL6446	2012
Small Heath	TL654467	2011
Small Heath	TL6746	2009
Small Heath	TL657466	2006
Broad-faced Mining Bee	TL6746	2007
Lobe-spurred Furrow Bee	TL6746	2007
Cinnabar	TL6546	2015
Cladonia chlorophaea	TL651477	2013
Cladonia pyxidata	TL651477	2013
Common Lizard	TL6850645802	2014
Common Lizard	TL6861845936	2014
Common Lizard	TL684455	2006
Common Lizard	TL682451	2006
Common Lizard	TL680458	2006
Common Lizard	TL669460	2003
Common Lizard	TL6646	1998
Common Lizard	TL669459	1998
Common Lizard	TL682452	1998
Common Lizard	TL664465	1998
Slow-worm	TL682451	2006
Slow-worm	TL669460	2003
Slow-worm	TL669459	1998
Slow-worm	TL6646	1998
Slow-worm	TL682452	1998

Common Name	Grid Ref	Year
Slow-worm	TL678453	1998
Slow-worm	TL664465	1998
Grass Snake	TL6875445889	2014
Grass Snake	TL669460	2003
Grass Snake	TL669459	1998
West European Hedgehog	TL6631444952	2017
West European Hedgehog	TL6630644929	2017
West European Hedgehog	TL6806448228	2017
West European Hedgehog	TL6674245267	2016
West European Hedgehog	TL6623545495	2016
West European Hedgehog	TL6534645087	2016
West European Hedgehog	TL6750946461	2016
West European Hedgehog	TL6729346220	2016
West European Hedgehog	TL6502747748	2016
West European Hedgehog	TL6513847707	2016
West European Hedgehog	TL6795944829	2016
West European Hedgehog	TL6602046660	2015
West European Hedgehog	TL6518545930	2015
West European Hedgehog	TL6782645774	2015
West European Hedgehog	TL6747646064	2015
West European Hedgehog	TL6604946172	2015
West European Hedgehog	TL6828145222	2015
West European Hedgehog	TL6800846843	2015
West European Hedgehog	TL6717845998	2015
West European Hedgehog	TL6733746437	2015
West European Hedgehog	TL6454946560	2015
West European Hedgehog	TL6732446437	2015
West European Hedgehog	TL6710945439	2015
West European Hedgehog	TL6854245610	2015
West European Hedgehog	TL6870445046	2015
West European Hedgehog	TL6858845094	2015
West European Hedgehog	TL6524145844	2014
West European Hedgehog	TL6621645621	2014
West European Hedgehog	TL6538046160	2014
West European Hedgehog	TL6665046381	2014
West European Hedgehog	TL6560946391	2014
West European Hedgehog	TL6601745692	2014
West European Hedgehog	TL6559746413	2014
West European Hedgehog	TL6629845222	2014
West European Hedgehog	TL6776147053	2014
West European Hedgehog	TL6740845416	2014
West European Hedgehog	TL6631845346	2014

Common Name	Grid Ref	Year
West European Hedgehog	TL6627046301	2014
West European Hedgehog	TL6622745387	2014
West European Hedgehog	TL6819345654	2014
West European Hedgehog	TL6824845600	2014
West European Hedgehog	TL6733046560	2014
West European Hedgehog	TL6807744781	2014
West European Hedgehog	TL6848645686	2014
West European Hedgehog	TL6524046234	2014
West European Hedgehog	TL6825645544	2014
West European Hedgehog	TL6837445214	2014
West European Hedgehog	TL6831445201	2014
West European Hedgehog	TL6571145871	2014
West European Hedgehog	TL6679245061	2014
West European Hedgehog	TL6707245148	2014
West European Hedgehog	TL6585646299	2014
West European Hedgehog	TL6850945030	2014
West European Hedgehog	TL6610844960	2014
West European Hedgehog	TL6874045483	2014
West European Hedgehog	TL6605646383	2014
West European Hedgehog	TL664458	2014
West European Hedgehog	TL662453	2014
West European Hedgehog	TL654462	2014
West European Hedgehog	TL6472748232	2012
West European Hedgehog	TL682449	2012
West European Hedgehog	TL6547	2006
West European Hedgehog	TL6844	2005
West European Hedgehog	TL6544	2005
West European Hedgehog	TL64X	1997
Bats	TL691477	2003
Bats	TL688482	2000
Bats	TL691476	2000
Western Barbastelle	TL6871345766	2014
Serotine	TL68344482	2014
Serotine	TL689483	2000
Unidentified Bat	TL6818346326	2014
Daubenton's Bat	TL658458	2000
Noctule Bat	TL6871345766	2014
Noctule Bat	TL6818346326	2014
Pipistrelle Bat species	TL68284498	2015
Pipistrelle Bat species	TL674449	2009
Pipistrelle	TL651477	2015
Pipistrelle	TL682449	2015

Common Name	Grid Ref	Year
Pipistrelle	TL6881845580	2014
Pipistrelle	TL68184499	2014
Pipistrelle	TL6818346326	2014
Pipistrelle	TL6871345766	2014
Pipistrelle	TL6834946095	2014
Pipistrelle	TL68344482	2014
Pipistrelle	TL6720845552	2014
Pipistrelle	TL6904945755	2014
Pipistrelle	TL6967647654	2010
Pipistrelle	TL670464	2006
Pipistrelle	TL688483	2000
Pipistrelle	TL689483	2000
Pipistrelle	TL671456	2000
Pipistrelle	TL687482	1999
Soprano Pipistrelle	TL68344482	2014
Soprano Pipistrelle	TL6871345766	2014
Soprano Pipistrelle	TL6834946095	2014
Soprano Pipistrelle	TL6745	2014
Soprano Pipistrelle	TL6881845580	2014
Soprano Pipistrelle	TL68184499	2014
Soprano Pipistrelle	TL6818346326	2014
Soprano Pipistrelle	TL6967647654	2010
Brown Long-eared Bat	TL679455	2012
Brown Long-eared Bat	TL689483	2000
[redacted]		
European Water Vole	TL6844	2003
European Water Vole	TL64X	1997
European Water Vole	TL664463	1997
Harvest Mouse	TL6844	2001
Hazel Dormouse	TL69174551	2015

Appendix C: Flora list identified during the walkover survey

Common Name	Scientific Name	Scattered Trees	Hedgerow	Scrub	Poor semi-improved
Pedunculate Oak	*Quercus robur*	✓	✓	✓	
Meadowgrass	*Meadowgrass sp*				✓
Blackthorn	*Prunus spinosa*	✓	✓	✓	
Hazel			✓		
Field Maple	*Acer campestre*		✓		
Hawthorn	*Crataegus monogyna*	✓	✓	✓	
Dog rose	*Rosa canina*		✓		
Bramble	*Rubus fruticosus agg.*	✓	✓		
Common nettle	*Urtica dioica*		✓	✓	
False Oat-grass	*Arrhenatherum elatius*				✓
Ivy	*Hedera helix*	✓	✓	✓	
Holly	*Ilex aquifolium*		✓		
Cleaver Sp.	*Galium aparine*		✓		✓

Appendix D: Pond 1 HSI results

	Field Score	**SI**
Location	A	1
Pond area m^2	60	0.1
Pond permanence	Sometimes dries	0.5
Water quality	Poor	0.33
Shade %	60	1
Fowl	Absent	1
Fish	Absent	1
Pond density	2	0.6
Terrestrial Habitat	Moderate	0.67
Macrophyte cover %	10	0.45
HSI value	**0.56**	
Pond Suitability	**Below Average**	