



Preliminary Ecological Appraisal

of

Anglia Business Park, Wattisham Road, Ringshall, Suffolk

on behalf of

Wilkinson Planning (Ipswich)

**February 2022
Revision A – April 2022**

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A	Updated site plan included	SM	SR	JBA	April 2022
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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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Non-technical Summary

Site:	Anglia Business Park, Wattisham Road, Ringshall, Suffolk
Ordnance Survey National Grid Reference:	TM 02166 52339
Report Commissioned by:	Wilkinson Planning (Ipswich)
Date of Walkover Survey:	14 th October 2021

Considerations	Description	Potential impacts and timing
Statutory designated wildlife areas within 7km of the site:	Four 'Sites of Special Scientific Interest' (SSSI) and one 'Local Nature Reserve' (LNR).	Consultation with Natural England and the Local Planning Authority may be required with regards to the Suffolk Recreational Disturbance Avoidance and Mitigation Strategy.
Non-statutory designated wildlife sites within 2km of the site:	Three 'County Wildlife Sites' (CWS).	Due to the nature of the development is unlikely to cause a significant impact to non-statutory sites.
Results of walkover survey:	The site is considered suitable to support badger, barn owl, bats, breeding birds, great crested newt, hazel dormouse, hedgehog and reptiles. The site is considered to be of 'moderate' habitat value for roosting, foraging and commuting bats.	
Phase 2 surveys:	Barn owl survey.	Surveys are undertaken all year round; priority is March to October consisting of four survey visits in 'suitable weather conditions'.
	Bat emergence/return to roost survey.	Up to three survey visits undertaken from May to August.
	Dormouse survey.	If hedgerows are to be removed, then surveys are recommended from April to November.
Phase 2 surveys dependent on final layout:	Reptile survey.	If semi-improved grassland is allowed to grow up.
	If vegetation is to be removed.	Under the supervision of a GCN licenced ecologist. Outside of the nesting bird season or following a clear nesting bird check.

Considerations	Description	Potential impacts and timing
		<p>Nesting season is March to September.</p> <p>Scrub should be cut to 20cm using hand-held tools and checked for hedgehogs.</p>
<p>Precautionary measures:</p>	<p>Fox and Rabbit earths and holes.</p> <p>Precautionary measures for removing soil/vegetation near earths and holes.</p>	

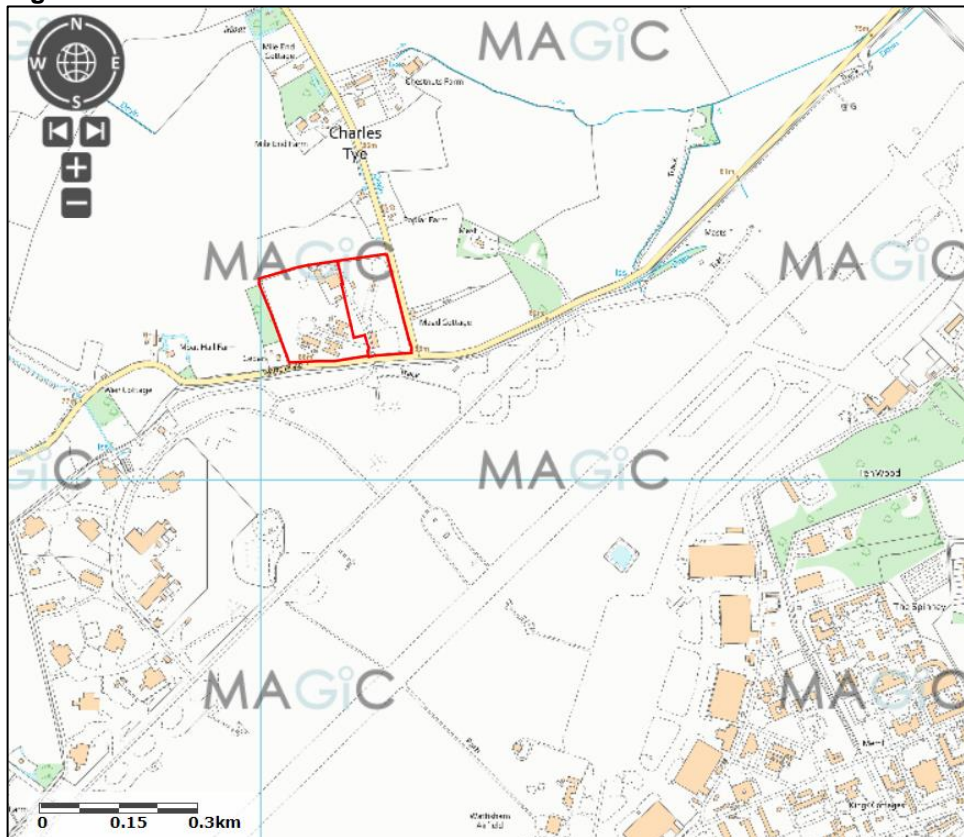
1 Introduction

Background

- 1.1 James Blake Associates Ltd. was commissioned by Wilkinson Planning (Ipswich) to undertake a Preliminary Ecological Appraisal (PEA) of land at Anglia Business Park, Wattisham Road, Ringshall, Suffolk. Ordnance Survey National Grid Reference; TM 02166 52339, taken from the centre of the site.
- 1.2 The assessment was required to accompany a full planning application for the erection of up to 20 commercial units consisting of seven class E (office), six class E (light industrial) and seven B2 (general industrial) uses, and associated infrastructure (see Appendix).
- 1.3 The site itself is separated into several phases. A proposed layout is currently available for Phase 1 only (see Appendix E); however, the walkover survey included the entire site as a whole.

Site Description

- 1.4 The site is approximately 4.3 hectares in size and is located to the north of Ware Road, between Wattisham and the village of Ringshall, Suffolk. The wider landscape includes Wattisham airfield, arable land, small areas of mixed woodland, residential and farm buildings (see Figure 1 below).
- 1.5 The site itself is on the former radar station at Wattisham. It mainly consists of improved and semi-improved grassland, scrub and bare/waste ground, and is surrounded by a perimeter fence, hedgerows and boundary trees. There are some post-war brick buildings, pre-fabricated (nissan huts) and more modern metal and pre-fabricated buildings. There is also some associated hardstanding (mainly tarmac roads) and two concrete structures.

Figure 1: Site location

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Aims and objectives

1.6 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; 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

1.7 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, 2021 (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 13th October 2021).
- 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 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.

Walkover Survey

- 2.4 The survey was undertaken by Christopher Bridge BSc (Hons) (Natural England Great Crested Newt Class Licence CL08 and Natural England Great Crested Newt Class Licence CL29) and Sean Minns BA (Hons) on the 14th October 2021.
- 2.5 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).
- 2.6 **Badgers (*Meles meles*):** A visual survey for setts, hair, latrines, prints, snuffle marks or other signs of badgers was undertaken within the site boundary, following guidelines set out by the Mammal Society (1989).
- 2.7 **Western Eurasian hedgehog (*Erinaceus europaeus*):** A visual survey for possible hibernacula sites, droppings and prints of hedgehogs was undertaken within the site boundary.

- 2.8 **Bats:** Buildings and trees 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 **Hazel Dormouse (*Muscardinus avellanarius*):** Hedgerows within the site boundary were surveyed, from the ground, for their potential to support hazel dormouse in accordance with survey guidelines in Bright et al (2006) and Natural England.
- 2.10 **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.
- 2.11 **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).
- 2.12 **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 (GCN) (*Triturus cristatus*). 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.
 - Terrestrial 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'

- 2.13 **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.
- 2.14 **Flora and habitats:** All habitats and plant species that were identifiable at the time of the survey were recorded.
- 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 14th October 2021. 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 October, which is outside the optimal season for the identification of flora, however this is not considered a significant constraint.
- 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 is 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 Sites

- 3.1 Four 'Sites of Special Scientific Interest' (SSSI) and one 'Local Nature Reserve' (LNR) were identified within 7km of the site. Statutory designated sites are detailed in Appendix A.
- 3.2 The proposed development site is also within the Impact Risk Zones (IRZ) for at least one SSSI. However, the development does not fall under the IRZ criteria that would likely trigger consultation between the Local Planning Authority (LPA) and Natural England for this site.

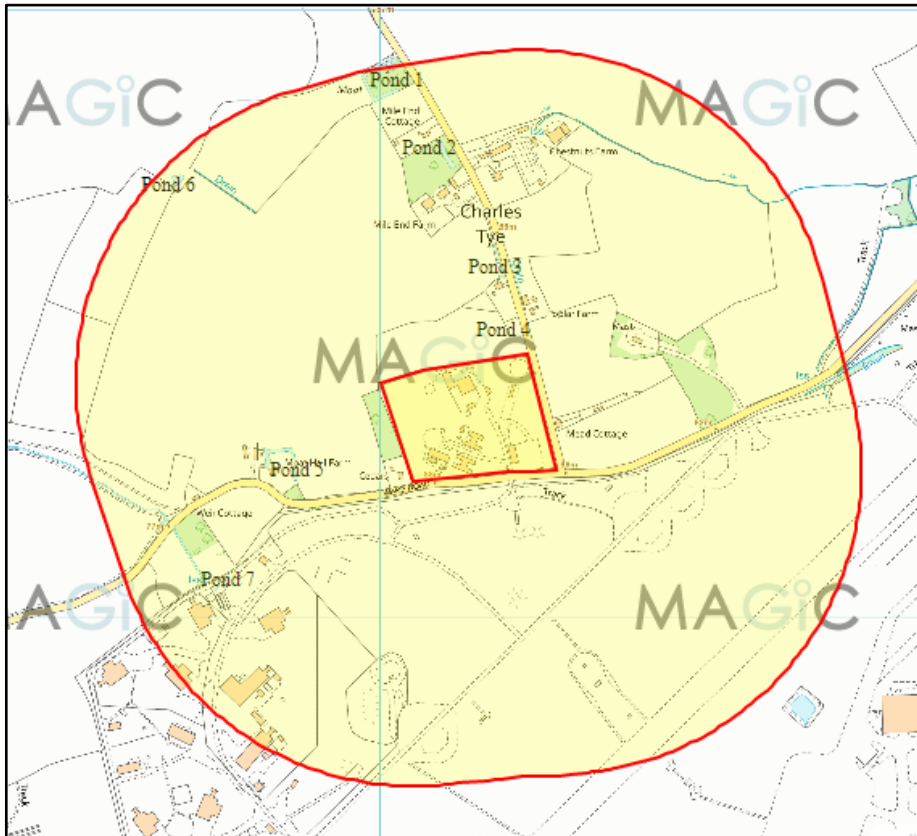
Non-Statutory Designated Wildlife Sites

- 3.3 There were three non-statutory designated wildlife sites identified within 2km of the site; all of which are County Wildlife Sites (CWS). These are detailed in Appendix B.
- 3.4 Due to the nature of the proposed development, it is unlikely to cause any significant impacts to non-statutory designated wildlife sites.

Ponds within 500m

- 3.5 Seven ponds were identified within 500m of the site boundary (Figure 2); Pond 1 was located 450m north of the site, Pond 2 325m north, Pond 3 130m north, Pond 4 29m north, Pond 5 181m west, Pond 6 located 477m north-west and Pond 7 355m south west of the site.
- 3.6 Pond 1 and 2 are immediately surrounded by more suitable habitat than those found within the site boundary and therefore, the GCN population from these ponds (if present) is unlikely to be present on site.

Figure 2: Ponds within 500m of the site boundary



Habitat Types within 2km

3.7 Habitat types within the area include poor quality arable fields, a small area of good quality semi-improved grassland, mature and young hedgerows, small to medium sized areas of planted broadleaf and mixed woodland, ancient and semi-natural woodland and several ancient and veteran trees including several black poplar (*Populus nigra subsp. betulifolia*). Habitat types are shown on Figure 3. The nearest broadleaved woodland is located 385m east with ancient and semi-natural woodland 1km south of the site.

Figure 3: Habitat types within 2km of the site



Protected, priority and rare species within 2km of site

- 3.7 There were no records of protected or rare species for the site itself; although there were numerous records of species within 2km of the site (full raw data can be provided upon request). The most relevant records are described below. Records over ten years old have not been referred to as the walkover survey is considered to provide a more up to date and accurate account of the species and habitats for the site.
- 3.8 Within the desk study only common pipistrelle (*Pipistrellus pipistrellus*) were recorded; an individual recorded 1km south-east of the site in 2014 and two recorded 2km SE of the site in 2018.
- 3.9 Hedgehog (*Erinaceus europaeus*) has been recorded on multiple occasions; the most recent record was from 2015, 1.8km south east of the site.
- 3.10 Brown hare (*Lepus europaeus*) was identified within 2km of the site; the most recent records were from 1.7km south of the site in 2011.
- 3.11 17 Red listed bird species were identified within 2km of the site; including herring gull (*Larus argentatus*), turtle dove (*Streptopelia turtur*), mistle thrush (*Turdus viscivorus*), skylark (*Alauda arvensis*), linnet (*Carduelis cannabina*), house sparrow (*Passer domesticus*) and yellowhammer (*Emberiza citrinella*).
- 3.12 15 Amber listed bird species were also identified within the desk study; including stock dove (*Columba oenas*), house martin (*Delichon urbicum*), bullfinch (*Pyrrhula pyrrhula*), dunnoek (*Prunella modularis*) and meadow pipit (*Anthus pratensis*).
- 3.13 Stag beetle (*Lucanus cervus*) has been recorded on a single occasion in 2018, 1.7km north east of the site.
- 3.14 Small heath (*Coenonympha pamphilus*) have been recorded many times within 2km of the site boundary, the latest was in 2018, 1.1km north east of the site.
- 3.15 A total of nine moth species were identified; all of which are UK BAP, including the Lackey (*Malacosoma neustria*), small emerald (*Hemistola chrysoprasaria*) and green-brindled crescent (*Allophyas oxyacanthae*).
- 3.16 A total of fifteen plant species were identified; one, the bluebell (*Hyacinthoides non-scripta*) is protected under Schedule 8 of the Wildlife and Countryside Act (1981). A further ten are on the red data list for the United Kingdom, including seven of which

are near-threatened, three vulnerable and one endangered. The species on the red data list include man orchid (*Orchis anthropophora*) considered endangered, yellow vetchling (*Lathyrus aphaca*) vulnerable and field scabious (*Knautia arvensis*) near-threatened.

Walkover Survey

- 3.17 The habitats on site were considered with respect to their potential to support protected species.
- 3.18 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 2. 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 14th October 2021. Although a reasonable assessment of habitats present can be made during a single walkover survey, seasonal variations are not observed.
- 3.19 The majority of the site comprises improved and semi-improved grassland, with areas of gravelled waste-ground. Other habitats present on site are scrub, hedgerows, boundary trees, three small groups of deciduous trees and hardstanding. There were 17 brick buildings and pre-fabricated buildings in various states. Two areas of open water were recorded on site, a small concrete ditch and a small open metal water tank were also present on site, as well as one area of spoil.
- 3.20 The following photographs in Table 2 show the Target Notes referred to in Figure 4.

Figure 4: Phase 1 Habitat Map

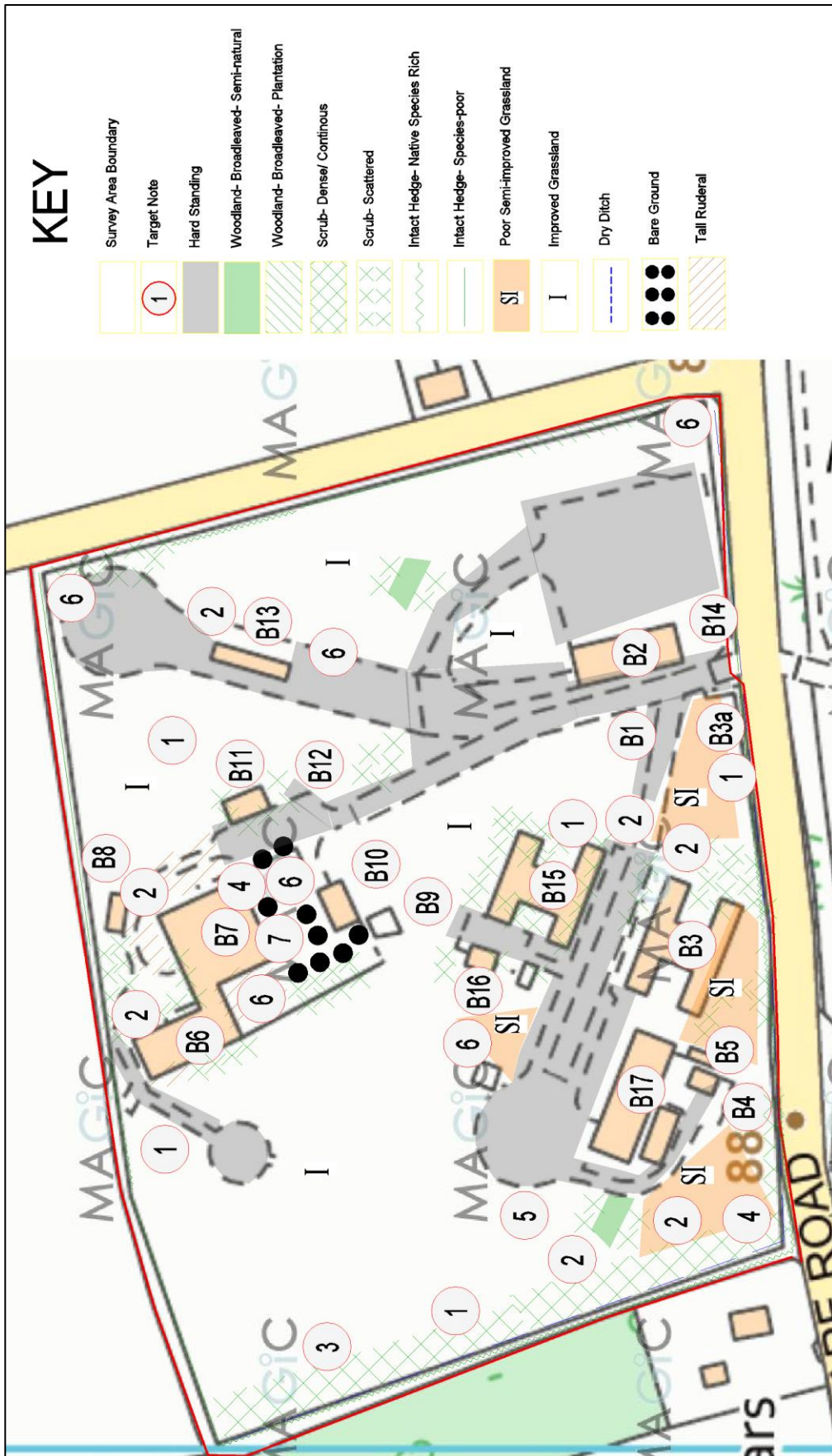









Table 2: Target Notes

Target Note	Description	Photo
1	Rabbit (<i>Oryctolagus cuniculus</i>) droppings.	
2	Brash piles, (as well as dead wood and grass piles).	
3	Muntjac deer (<i>Muntiacus reevesi</i>) droppings.	
4	Woodpigeon (<i>Columba palumbus</i>) likely killed by fox (<i>Vulpes vulpes</i>).	

Target Note	Description	Photo
6	Rubble piles.	
7	Barn owl pellets in building 7.	
8	Standing water sources; concrete ditch and metal water tank.	

4 Protected Species – Results and Evaluation

Badger

- 4.1 The habitats on the site varied with respect to suitability for badger. Areas of scrub could provide shelter and sett creation; however, this habitat is limited to the boundary of the site and given there is a well-maintained wire fence around the whole site, and a set of metal entrance gates, there may be limited exit/entry points for this species.
- 4.2 Some mammal push-throughs and a single hole were present during the survey, which are considered to be fox and rabbit; not large enough to have been created by badgers.
- 4.3 No setts or evidence of badger activity with regard to hair, latrines or snuffle holes were recorded on the site itself during the survey. However, badgers can move into an area relatively rapidly, especially if there is pressure on the habitat they are currently using or if foraging opportunities increase.

Bats

- 4.4 Seventeen buildings were noted during the walkover survey which were constructed of a variety of materials; all assessed from the ground for bat roost potential (BRP) and evidence.
- 4.5 A total of seven buildings are brick-built, breeze-block buildings (B5, B7, B8, B10, B12, B14 and B17), a further five are either wooden-framed or pre-fabricated buildings (B3, B6, B11, B15 and B16), three are corrugated iron structures (B2, B4 and B13), one concrete (B1) and one plastic (B9) (see Figure 4). Most are older buildings dating from the period when the business park was part of Royal Air Force (RAF) Wattisham, with two new commercial buildings built once it became a business park (B2 and B4). There are four in-use as commercial buildings (B2, B4, B10 and B17), the remainder being largely abandoned/in-active.
- 4.6 Although none of the buildings had any clear signs of bat roosting evidence such as droppings or deceased individuals, some were still considered to be suitable for roosting bats with several features noted, including gaps and crevices behind felt and wooden beams, internal cavities and large underground cavities which could be used by hibernating bats.
- 4.7 Six buildings (B1, B2, B4, B5, B9 and B10) were all assessed to have 'negligible' BRP, due to a lack of suitable features.

- 4.8 A total of five buildings (B3a, B8, B12, B13 and B14) were all assessed to have ‘low’ BRP, due to several features that could provide roosting habitat for a small number of bats, such as wooden crevices behind wooden beams, dark habitats internally and in-active use. Four of these are within the footprint for Phase One (B8, B12, B13 and B14).


- 4.9 A total of four buildings had ‘moderate’ BRP (B3, B15, B16 and B17), none are within the footprint for Phase One, although B15 is within close proximity to the boundary for Phase One.




- 4.10 A total of two buildings (B6 and B7) had ‘high’ BRP and although not within the footprint of Phase One, they are both within close proximity of the Phase One site boundary. See Table 3 for bat roosting feature photographs (numbering corresponds to those seen in Figure 4).



- 4.11 The scattered boundary trees and groups of trees on site (Figure 4) were assessed from the ground for BRP; all trees are considered to have ‘negligible’ to ‘low’ BRP due to no or minimal suitable features present, such as dense ivy cover, peeling bark or knot holes.

- 4.12 Habitat on site was assessed as ‘moderate’ value for foraging and commuting bats. There is good connectivity to the wider landscape by boundary vegetation. Some semi-improved grassland within the site provided good foraging habitat, though this is limited, as most is highly managed (mown).

Table 3: Photographs showing potential bat roost features

Potential bat roost features	Photo
<p>B6: ‘High’ BRP; single-storey dilapidated wooden roof timbers, open access through roof and windows, low disturbance and in-active use.</p>	

Potential bat roost features	Photo
<p>B7: 'High' BRP; tall brick-built building including several attached buildings, dark and dry inside with little disturbance with rotting flooring. Many obvious access points for bats, hibernation potential.</p>	
<p>B15: 'Moderate' BRP; single-storey pre-fabricated building with intact roof, open doorway and some smashed windows, dry, dark and un-disturbed.</p>	
<p>B3: 'Moderate' BRP; wooden exterior with several large doorway openings, dilapidated and collapsed roofs, open aspect at several points.</p>	

Potential bat roost features	Photo
<p>B16: 'Moderate' BRP; small wooden-framed building with timber beams and some glass windows with broken panes. Dry, dark and un-disturbed.</p>	
<p>B17: 'Moderate' BRP; wooden-framed and brick-built building with timber beams and some glass windows with broken panes. Dry, dark and un-disturbed. Partly an active sawmill.</p>	

Hazel Dormouse

- 4.13 The site is considered suitable for dormouse. Hedgerows on site have not been intensively managed (particularly those on the southern, eastern and western boundaries), continuous and species-rich, providing cover and foraging opportunities. However, the hedgerows and scrub on site are not well connected to suitable habitat in the wider landscape due to gappy and well-managed hedgerows.
- 4.14 No records of dormouse were identified within the desk study.

Mammals - Other

- 4.15 The site provides good habitat for hedgehog due to scrub, hedgerow and semi-improved grassland that could provide shelter and foraging opportunities. However, no evidence of hedgehog was recorded during the walkover survey.
- 4.16 Fox, rabbit, brown rat (*Rattus norvegicus*) and muntjac deer (*Muntiacus reevesi*) faeces were found on site, suggesting they use the site for foraging.

Birds

- 4.17 Trees, hedgerows and scrub on site provide nesting and foraging opportunities for birds. The semi-improved grassland is considered largely unsuitable for ground-nesting birds due to the current high management (mown) of most of the grass, with only a small area left unmanaged, so offering limited shelter.
- 4.18 Twenty-seven species of birds, eleven of them being BoCC Amber or Red Listed were observed during the walkover survey, species include dunnock, house sparrow, linnet, mistle thrush, song thrush (*Turdus philomelos*), woodpigeon and wren (*Troglodytes troglodytes*).
- 4.19 Other common species included blackbird (*Turdus merula*), robin (*Erithacus rubecula*), blue tit (*Cyanistes caeruleus*), long-tailed tit (*Aegithalos caudatus*), treecreeper (*Certhia familiaris*) and goldfinch (*Carduelis carduelis*).
- 4.20 Barn owl (*Tyto alba*) signs were found at ground level within building 7, with c25 pellets visible on the floor and white-wash (droppings) situated beneath an obvious perch. There were also anecdotal records of barn owl from site personnel from March 2021 during the PEA. Several of the buildings have a high suitability for nesting as well as wintering/roosting barn owls, with the wider landscape containing suitable habitat for foraging, e.g. for their main food source, small mammals.
- 4.21 In addition, a song thrush nest and swallow (*Hirundo rustica*) nest were found inside two of the outbuildings.

Reptiles

- 4.22 There were no records of reptiles within the desk study and the majority of the site is largely managed improved and semi-improved grassland, which currently does not provide good habitat for reptiles. However, if the grassland is left to grow up then the area will become suitable in the future.
- 4.23 There is a small amount of unmanaged semi-improved grassland, as well as some bordering tall ruderal vegetation, extensive hedgerows and scrub within and at the site boundaries which provides some foraging, hibernation and sheltering opportunities for reptiles; surrounding habitat, particularly to the south is also favourable.

- 4.24 Several large brash piles on site could provide sheltering and hibernation opportunities, as could some areas of rubble, decaying outbuildings and abandoned metal debris.

Amphibians

- 4.25 Seven ponds were identified during the desk study search within 500m of the site boundary. Ponds 1 and 2 and 4 to 7 were not accessible at the time of survey due to private ownership. Pond 3 was subject to a HSI assessment and is considered to have 'average' suitability for breeding GCN (see Table 4).

Table 4: HSI Score

HSI Variable	Pond 3	
	Field Score	SI Value
Location	Zone A	1
Pond area (m ²)	205.8	0.4
Pond permanence	Rarely dries	0.9
Water quality	Moderate	0.67
Shade %	76-80	0.4
Waterfowl	Absent	1
Fish	Minor	0.3
Pond density	11	0.95
Terrestrial Habitat	Poor	0.33
Macrophyte cover %	10%	0.4
HSI value	0.635	
Pond Suitability	Average	

- 4.26 In addition, two areas of standing water were present on site, both were considered unsuitable habitat for amphibians. The first is a small round raised iron/metal container on the western side of the site with very steep and slippery edges. The second is an open sunken concrete ditch with standing water, roughly 5m x 1m x 1m, with no access/egress points for amphibians and no vegetation under which to shelter or egg laying.
- 4.27 The boundary habitats are considered suitable for GCN; the hedgerows, scrub and brash/deadwood/rubble piles provide suitable hibernation and sheltering opportunities.

Invertebrates

- 4.28 The habitats on the site are unlikely to support a diverse assemblage of invertebrates. However, the scrub, elm (*Ulmus procera*) suckers and semi-improved grassland provide potential habitat for invertebrates for moth species such as lackey and oak eggar moth (*Watsonalla binaria*) and small heath butterflies which were identified within the desk study. Although not recorded in the desk study the large amount of elm and bramble (*Rubus fruticosus*) are suitable breeding and 'nectaring' habitat for white-letter hairstreak butterfly (*Satyrrium w-album*) protected under the WCA (Section 5) and a UK BAP species.
- 4.29 Areas of deadwood are also present on site which provide suitable habitat for stag beetles which were identified in the desk study.
- 4.30 No rare or protected invertebrate species were observed during the walkover.

Flora

- 4.31 No rare, principally important, local BAP or protected plant flora was identified during the walkover survey. Nearly 100 plant species were recorded during the walkover survey and there are several scarce species recorded within close proximity to the site; however, the majority of the site is managed.
- 4.32 Schedule 9 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 5 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. Relevant legislation has also been given here.

Table 5: Survey evaluation, relevant legislation and recommendations

Ecological Receptor	Summary of desk and walkover survey findings and relevant legislation	Likely impact and recommendations for further survey
Designated wildlife areas - statutory	<p>The desk study identified five SSSI's and one LNR within 7km of the site:</p> <ul style="list-style-type: none"> • Middle Wood, Offton SSSI (4.3km south-east); • Barking Woods SSSI (4.6km east); • Church Meadow LNR (5.5 km north-east); • Combs Wood SSSI (5.7km north-east); and • Hascot Hill Pits SSSI (6.0 km east). 	<p>The site is within several IRZ for SSSI's; however the development does not meet the qualifying criteria for likely consultation between the LPA and NE.</p>
Designated wildlife areas – non-statutory	<p>The desk study identified three CWS within 2km of the site:</p> <ul style="list-style-type: none"> • Wattisham Baptist Chapel (1.2km west); • RNR 136 (880m east); and • RAF Wattisham Woodlands (1km south east and 1.7km south). 	<p>The nature of the proposed development is unlikely to adversely impact the designated areas. No further assessment required.</p>
Habitats	<p>Habitats on the site comprise:</p> <ul style="list-style-type: none"> • Semi-improved grassland; • Improved grassland; • Waste-ground; • Dense/continuous scrub; • Hedgerows; • Boundary trees; and • Hardstanding. 	<p>No NERC Priority Habitats present on site; no further survey required.</p>
Badger	<p>The site was considered suitable for sett creation, in particular, the scrub habitats. However, the site is heavily fenced and it is therefore considered unlikely for badgers to utilise the site when more accessible areas are present in the wider landscape.</p> <p>Some mammal push-throughs throughout the site were present. These were assigned to fox, muntjac deer and rabbit.</p> <p>No evidence of badger activity was recorded during the walkover survey.</p> <p>Badgers and their setts are protected under the Protection of Badgers Act 1992 and also protected by the Wild Mammals (Protection) Act 1996. Protection also extends to include disturbance.</p> <p>Under the Protection of Badgers Act 1992, it is an offence to intentionally or recklessly:</p> <ul style="list-style-type: none"> • Kill, injure or take badgers; • Damage a badger sett or any part of it; • Destroy a badger sett; • Obstruct access to, or any entrance of a badger sett; and • Disturb a badger whilst it is occupying a badger sett. 	<p>Six months prior to the commencement of construction, a badger check should be undertaken for the presence of setts. This is to assess any likely adverse impacts on active setts / or badgers using a sett for shelter or protection. Setts can extend up to 20m underground from their entrance.</p> <p>Surveys can be undertaken all year round with the optimum period being February to April or September.</p> <p>If the proposed works are likely to adversely impact a sett (if present), then a development licence would be necessary from Natural England prior to commencement.</p>

Ecological Receptor	Summary of desk and walkover survey findings and relevant legislation	Likely impact and recommendations for further survey
Bats	<p>A total of seventeen buildings were recorded during the walkover survey. All were assessed from the ground for BRP.</p> <p>Six buildings were considered to hold 'negligible' BRP (B1, B2, B4, B5, B9 and B10). One of these (B2) is within Phase One.</p> <p>Five buildings were considered to hold 'low' BRP (B3a, B8, B12, B13 and B14). Four buildings were considered to hold 'moderate' BRP (B3, B15, B16 and B17) and the remaining two buildings were considered to hold 'high' BRP (B6 and B7).</p> <p>All trees within the site boundary are considered to have 'negligible' to 'low' BRP.</p> <p>The site was considered to have 'moderate' suitability for foraging and commuting bats; habitats can be used by small number of bats. Moreover, connectivity to other habitats in the wider countryside is good.</p> <p>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 in Section 41 of NERC Act as an SPI.</p> <p>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 be deliberate, reckless or intentional); and to intentionally or recklessly obstruct access to any place used by a bat for shelter or protection.</p> <p>Bats are classed as 'European Protected Species' (EPS) and mitigation will typically be undertaken under the auspices of an EPS licence from Natural England.</p>	<p>As there are currently no trees within the site with 'moderate' or 'high' BRP, no further surveys are required for any trees on site.</p> <p>For the six buildings with 'low' BRP, a single survey is required if they are to be impacted in any way by the development. The BCT Guidelines recommend either a single emergence or re-entry survey for these buildings. Four of these buildings (B8, B12, B13 and B14) are within Phase One and it is recommended these should be surveyed as a priority. Building B3a should still be surveyed if there are further phases of development.</p> <p>For the four buildings with 'moderate' BRP, two surveys are required if they are to be impacted in any way by the development. The BCT Guidelines recommend a single emergence and a single re-entry survey for these buildings. Although none of the buildings with 'moderate' BRP are currently within the footprint of Phase One, B15 is within close proximity to the boundary of Phase One and should be surveyed as a priority. All other buildings (B3, B16, B17) should still be surveyed if there are further phases of development.</p> <p>For the two buildings with 'high' BRP, three surveys are required if they are to be impacted in any way by the development. The BCT Guidelines recommend single emergence and re-entry surveys for the buildings and one further survey, either re-entry or emergence. Although B6 and B7 are not within the footprint of Phase One they should be surveyed as priority given their close proximity to Phase One and their 'high' BRP evaluation.</p> <p>The optimum months for emergence and re-entry surveys are from May to August, although it is sometimes possible to survey in September if previous surveys have already been undertaken, weather permitting.</p> <p>Emergence surveys commence 15 minutes prior to sunset to up to two hours after sunset; re-entry surveys commence two hours prior to sunrise, to sunrise. Surveys would be undertaken using electronic bat</p>

Ecological Receptor	Summary of desk and walkover survey findings and relevant legislation	Likely impact and recommendations for further survey
		<p>detectors and observation aids. The number of surveyors is dependant on the proportion of potential exit/entry points of the tree for bats.</p> <p>If bats are discovered using the building(s) as a roost, works can only proceed under the auspices of a European Protected Species (EPS) licence granted by Natural England. Mitigation would be required to offset the loss of roost(s).</p> <p>Lighting may need to be a consideration with respect to foraging bats, particularly along all boundary vegetation.</p> <p>If there is to be proposed removal of boundary vegetation and/or connecting vegetation; further bat activity surveys are required;</p> <p>'Moderate' habitat for bats requires one survey visit per month (April to October) in suitable weather conditions. At least one of the surveys should comprise dusk and pre-dawn (or dusk to dawn) within one 24-hour period. Automated/static detectors should also be used in appropriate locations on site and left in situ for at least five consecutive nights during suitable weather conditions for foraging bats.</p>
Hazel dormouse	<p>There are no biological records of dormouse within 2km of the site. Furthermore, the site is considered un-connected to suitable habitats in the wider landscape.</p> <p>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.</p> <p>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.</p>	No further survey considered necessary.
Mammals - other	<p>Signs of fox, rabbit, muntjac deer and brown rat, including mammal runs, faeces and odour were present on site.</p> <p>No evidence of hedgehogs was found during the walkover survey. However, the site provides good hibernation and foraging habitat for hedgehogs within scrub and remaining unmanaged semi-improved grassland areas.</p> <p>Hedgehogs are listed on Schedule 6 of the WCA which makes it illegal to kill or capture wild hedgehogs, with certain methods listed. The hedgehog is also a SPI under Section 41 of the NERC.</p>	<p>No further surveys recommended.</p> <p>It is recommended that if scrub is to be removed then scrub areas should be cut to 20cm using hand-held tools (brushcutter/trimmer) and checked for hedgehog before removal.</p> <p>See Section 6 for enhancements.</p>

Ecological Receptor	Summary of desk and walkover survey findings and relevant legislation	Likely impact and recommendations for further survey
	<p>All wild mammals are protected under the Wild Mammals (Protection) Act 1996. Offences relate 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.</p>	
Birds	<p>The following habitats have the potential to support breeding birds:</p> <ul style="list-style-type: none"> • Abandoned buildings; • Scattered/boundary trees; • Hedgerows; and • Scrub. <p>Single song thrush and swallow nests were present on site during the walkover survey.</p> <p>All wild birds while actively nesting are afforded legal protection under the WCA.</p> <p>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.</p> <p>Combined legislation means that all birds, their nests and eggs are protected by law and it is an offence, with certain exceptions, to:</p> <ol style="list-style-type: none"> 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. 	<p>Although the building B7 is not within the footprint of Phase One, its close proximity to the Phase One development and the potential for use of other buildings on site, means a barn owl scoping survey (includes habitat assessment of all trees/buildings) and verification activity surveys is recommended. The surveys consist of four survey visits from March to October. Any mitigation will be dependant on the results of the surveys.</p> <p>No building or vegetation removal should take place until the breeding bird surveys are complete and mitigation in place (if required, dependent on survey outcome).</p> <p>It is recommended that vegetation clearance/building disturbance is undertaken outside of the nesting season.</p> <p>The nesting season is deemed to be from mid-March to mid-August, although these times can be temperature dependent.</p> <p>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.</p> <p>If birds are found to be nesting, then no works should be undertaken within at least 7m of the nest until chicks have fledged.</p>
Reptiles	<p>Habitats on site are considered largely unsuitable for reptiles, at present, due to managed improved and semi-improved grassland (regularly mown).</p> <p>A small amount of unmanaged semi-improved grassland, as well as some bordering tall ruderal vegetation, extensive hedgerows and scrub offer optimal foraging, sheltering and hibernation opportunities for reptiles.</p>	<p>It is recommended that the grassland is kept mown on a regular basis and is not allowed to grow up. If grassland is left to grow up above 20cm for long periods of time (a year), further surveys will be required.</p> <p>Reptile surveys can be undertaken from mid-march to mid-October in 'suitable weather conditions' i.e.</p>

Ecological Receptor	Summary of desk and walkover survey findings and relevant legislation	Likely impact and recommendations for further survey
	<p>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 an SPI.</p>	<p>when the temperatures are between 9 and 18 °C with no or little rain.</p> <p>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 at least seven days to bed in. The felts would then be visited seven times on separate occasions to establish presence / likely absence of reptiles.</p> <p>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.</p>
Amphibians, particularly GCN	<p>Seven ponds were identified within 500m of the site boundary. Only Pond 3 was accessible during the walkover survey which was assessed as having 'average' HSI.</p> <p>The boundaries of the site are considered suitable terrestrial habitat for GCN. However, GCN were not identified within the desk study.</p> <p>Both aquatic and terrestrial habitat is protected under wildlife legislation.</p> <p>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.</p> <p>GCN are classed as a 'European Protected Species' and any necessary mitigation is typically undertaken under the auspices of a licence from Natural England.</p>	<p>According to current plan proposals, majority of the boundary vegetation will be retained. Small sections may be removed from the southern boundary to widen the access gateway. Removal should be undertaken under licenced ecologist supervision between the months of April and November.</p> <p>It is also recommended that the grassland is kept mown on a regular basis and is not allowed to grow up.</p> <p>If GCN are found to be present during the supervision works, then works must stop until an EPS licence from Natural England is acquired.</p> <p>Timings and consideration will also be needed in relation to nesting birds.</p>
Invertebrates	<p>The habitats on site are unlikely to support a diverse assemblage of invertebrates.</p> <p>However, areas of scrub can be used by a small number of invertebrates, such as butterflies. Given there is a lot of Elm sp. in the surrounding boundary hedgerows and large areas of bramble for nectaring; white-letter hairstreak (UK BAP) species could be present on site.</p>	<p>No further surveys are considered necessary. See Section 6 for enhancements.</p> <p>It is recommended that deadwood on site is kept in situ and protected during development to preserve stag beetle habitat. If this is not possible then the deadwood should be carefully moved to a suitable area nearby.</p>
Flora	<p>The walkover survey recorded 98 species of plants. However, the majority of the site is managed.</p> <p>No Schedule 9 invasive plant species were identified on site.</p>	<p>No further surveys are considered necessary; however, it is recommended that a suitably managed 3m buffer is retained from the site boundary for local flora to colonise.</p>

6 Ecological Considerations and 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 A Biodiversity Net Gain (BNG) assessment may be requested by the LPA to provide a net gain of at least 10%. BNG calculations can be undertaken using Defra Metric 3.0 (2019, as amended) which involves comparing 'baseline' habitat measurements with proposed habitats, post-development.
- 6.3 Where possible, hedgerows, scrub and scattered trees at the boundaries of the site should be retained with a suitably managed 3m buffer zone and enhanced to create corridors and shelter/foraging areas for wildlife including bats, birds, hedgehogs and small mammals. This will also be of benefit for the local flora population which may colonise the site.
- 6.4 As there was evidence of barn owl pellets within building 7, a barn owl nest box should be either, integrated into or sited on this building or on the equivalent building in-situ that may be proposed and/or erected on one of the larger boundary trees (if suitable). All works should be carried out by a Natural England barn owl licenced surveyor.
- 6.5 The addition of standard bird boxes for common bird species e.g., robin, great tit or blue tit on retained trees and proposed new buildings will attract a greater diversity of birds to nest. A number of 1SP Schwegler sparrow terraces should be installed onto new buildings. These should be located out of direct sunlight and close to but not restricted by vegetation. A number of Schwegler Swift bricks or boxes should also be installed on the periphery of any proposed two-storey buildings.
- 6.6 The addition of bat boxes could also be installed on retained trees and proposed new buildings to provide roosting opportunities for common species.
- 6.7 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.

6.8 If practical, a small pond, planted with native plant species which are favoured by GCN and other amphibians would enhance the site for a number of species. Plant species that should be planted include greater willowherb (*Epilobium hirsutum*), flag iris (*Iris pseudacorus*), water forget-me-not (*Myosotis scorpioides*), floating sweet grass (*Glyceria fluitans*) and rigid hornwort (*Ceratophyllum demersum*) among others, would also be a valuable addition to the site for amphibians, birds and mammals.

7 Conclusion

7.1 A Preliminary Ecological Appraisal was undertaken at Anglia Business Park, Ringshall, Suffolk by James Blake Associates Ltd in support of a planning application for commercial units and associated infrastructure.

7.2 The majority of the site comprises improved and semi-improved grassland with some wasteland, scattered/boundary trees and scrub.

7.3 Further protected species surveys are recommended prior to development for badger, bats and barn owl.

7.4 If hedgerows and scrub at the boundaries of the site require removal, a licenced GCN ecologist should be present during the works. Ideally this should be done between April and November. However, considerations for nesting birds will also be required.

7.5 If any mitigation or compensation measures recommended following these further surveys is carried out, and if the precautionary measures for birds and hedgehogs 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.

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[2F Schwegler Bat Box \(General Purpose\) | NHBS Practical Conservation Equipment](#)

[1SP Schwegler Sparrow Terrace | NHBS Practical Conservation Equipment](#)

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10 Appendices

Appendix A: Statutory designated wildlife sites within 7km

Site Name	Designation	Distance from Site	Description
Middleton Wood, Offton	SSSI	4.3km south-east	A 23.2 hectare medieval coppice with standards wood on wet boulder clay, and a very diverse ground flora, including species typical of ancient woodland. Oak (<i>Quercus robur</i>) is the main standard tree, but there is also cherry (<i>Prunus avium</i>), elm sp. (<i>Ulmus sp.</i>), ash (<i>Fraxinus excelsior</i>), field maple (<i>Acer campestre</i>), hazel (<i>Corylus avellana</i>), willow (<i>Salix sp.</i>), aspen (<i>Populus tremula</i>) and small-leaved lime (<i>Tilia cordata</i>). Other species include wild crab-apple (<i>Malus coronaria</i>) and wild pear (<i>Dombeya rotundifolia</i>). Ground flora includes bluebell (<i>Hyacinthoides non-scripta</i>), sanicle (<i>Sanicula europaea</i>), herb-paris (<i>Paris quadrifolia</i>), early purple orchid (<i>Orchis mascula</i>) and greater butterfly orchid (<i>Platanthera chlorantha</i>).
Barking Woods	SSSI	4.6km east	A 98.7 hectare complex of six inter-connected woodlands. These ancient woodlands have been documented since 1251. The canopy is mainly oak, ash and silver birch (<i>Betula pendula</i>), and other trees include the rare wild pear. The flora is diverse, including herb-paris, ramsons (<i>Allium ursinum</i>), sanicle, greater butterfly orchid, and early purple orchid. Invertebrates include white admiral (<i>Limenitis camilla</i>), silver-washed fritillary (<i>Argynnis aglaja</i>) and purple emperor (<i>Apatura iris</i>) butterfly. Birds include woodcock (<i>Scolopax rusticola</i>), hobby (<i>Falco subbuteo</i>) and willow warbler (<i>Phylloscopus trochilus</i>).
Church Meadow	LNR	5.5km north-east	A 3.8 hectare area of wet meadow and remnants of a formal garden, including earth banks that originally surrounded an ornamental lake and a small circular pond. Plants include early marsh orchids (<i>Dactylorhiza incarnata</i>) and double-flowered Lady's Smock (<i>Cardamine pratensis</i>).
Combs Wood	SSSI	5.7km north-east	A 15.07 hectare site of ancient coppice woodland on boulder clay, with variable quantities of sand and loess resulting in different soil types. In areas of oak and hornbeam (<i>Carpinus betulus</i>) the ground flora is sparse, but it is rich and diverse in ash and maple (<i>Acer sp.</i>) woodland. Grassy rides and a pond provide additional habitats for invertebrates. The flora is diverse and includes ragged robin (<i>Lychnis flos-cuculi</i>), ransom, oxlip (<i>Primula elatior</i>), early purple orchid, birds nest orchid (<i>Neottia nidus-avis</i>), bluebell, wood anemone (<i>Anemone nemorosa</i>) and moschatel (<i>Adoxa moschatellina</i>).
Hascot Hill Pits	SSSI	6.0km east	An important 0.3 hectare site. This is the only known site to expose beach deposits of the late Pliocene and early Pleistocene Red Crag Formation. It has beach cobbles and fossils from a littoral fauna, whereas other Red Crag sites have deposits from deeper water facies.

Appendix B: Non-statutory designated wildlife sites within 2km

Site Name	Designation	Distance from Site	Description
RNR 136	CWS	880m east	An important Roadside Nature Reserve with populations of Man Orchid (<i>Orchis anthropophora</i>) and Yellow Vetchling (<i>Lathyrus aphaca</i>), both are red-listed species and very scarce species nationally.
Wattisham baptist chapel	CWS	1.2km west	A good example of unimproved species-rich grassland (Priority habitat). The site supports a range of wildflowers and grasses indicative of ancient grassland on chalky Boulder Clay including pyramidal orchid (<i>Anacamptis pyramidalis</i>), quaking-grass (<i>Briza media</i>) and fairy flax (<i>Linum catharticum</i>). Of particular interest is a good population of sulphur clover (<i>Trifolium ochroleucon</i>). This is a nationally scarce grassland species which appears in the Suffolk Rare Plant Register, the stronghold for which is on the Suffolk Boulder Claylands.
RAF Wattisham woodlands	CWS	1km south-east (Ten wood) and 1.7km south (Park wood)	This County Wildlife Site consists of two areas of woodland: Park Wood situated to the south of the airfield and Ten Wood located immediately to the north of the main airfield buildings. Both woodlands are listed in English Nature's Inventory of Ancient Woodland and consist of a wet ash-field maple stand type. Ash is the dominant species, with hazel and field maple coppice and occasional oak standards. Other tree species include crab apple, silver birch, goat willow (<i>Salix caprea</i>), aspen and elm. The ground flora includes bramble (<i>Rubus fruticosus agg.</i>), dog's mercury (<i>Mercurialis perennis</i>), bugle (<i>Ajuga reptans</i>) and primrose (<i>Primula vulgaris</i>). A number of scarce ancient woodland indicator plants e.g. bluebell and pendulous sedge () can be found in small quantities.

Appendix C: Flora list identified during the walkover survey

Common Name	Scientific Name
Annual mercury	<i>Mercurialis perennis</i>
Annual pearlwort	<i>Sagina apetala</i>
Argentine vervain	<i>Verbena bonariensis</i>
Ash	<i>Fraxinus excelsior</i>
Aspen	<i>Populus tremula</i>
Barren strawberry	<i>Potentilla sterilis</i>
Black bryony	<i>Tamus communis</i>
Black horehound	<i>Ballota nigra</i>
Black nightshade	<i>Solanum nigrum</i>
Blackthorn	<i>Prunus spinosa</i>
Bramble	<i>Rubus fruticosus agg.</i>
Broad-leaved dock	<i>Rumex obtusifolius</i>
Clover sp.	<i>Trifolium sp.</i>
Coltsfoot	<i>Tussilago farfara</i>
Common cudweed	<i>Filago vulgaris</i>
Common evening primrose	<i>Oenothera biennis</i>
Common fleabane	<i>Pulicaria dysenterica</i>
Common nettle	<i>Urtica dioica</i>

Common Name	Scientific Name
Common ragwort	<i>Senecio jacobaea</i>
Common sorrel	<i>Rumex acetosa</i>
Cotton thistle	<i>Onopordum acanthum</i>
Cow parsley	<i>Anthriscus sylvestris</i>
Crab apple	<i>Malus sylvestris</i>
Creeping buttercup	<i>Ranunculus repens</i>
Creeping cinquefoil	<i>Potentilla reptans</i>
Creeping thistle	<i>Cirsium arvense</i>
Cut-leaved cranesbill	<i>Geranium dissectum</i>
Daisy	<i>Bellis perennis</i>
Dandelion sp.	<i>Taraxcum Sect. Vulgaria</i>
Dewberry	<i>Rubus caesius</i>
Dog rose	<i>Rosa canina agg.</i>
Dogwood	<i>Cornus sanguinea</i>
Downy birch	<i>Betula pubescens</i>
Elder	<i>Sambucus nigra</i>
Elm sp.	<i>Ulmus sp.</i>
Euphorbia sp.	<i>Euphorbia sp.</i>
False brome	<i>Brachypodium sylvaticum</i>
Feverfew	<i>Tanacetum parthenium</i>
Field horsetail	<i>Equisetum arvense</i>
Field maple	<i>Acer campestre</i>
Field rose	<i>Rosa arvensis</i>
Great mullein	<i>Verbascum Thapsus</i>
Great willowherb	<i>Epilobium hirsutum</i>
Greater plantain	<i>Greater plantain</i>
Ground elder	<i>Aegopodium podagraria</i>
Ground ivy	<i>Glechoma hederacea</i>
Groundsel	<i>Senecio vulgaris</i>
Hairy bittercress	<i>Cardamine hirsute</i>
Hawthorn	<i>Crataegus monogyna</i>
Hazel	<i>Corylus avellana</i>
Hedge bindweed	<i>Calystegia sepium</i>
Hemlock	<i>Conium maculatum</i>
Hemp agrimony	<i>Eupatorium cannabinum</i>
Herb robert	<i>Geranium robertianum</i>
Hogweed	<i>Heracleum sphondylium</i>
Honeysuckle	<i>Lonicera perclymenum</i>
Horse chestnut	<i>Aesculus hippocastanum</i>
Ivy	<i>Hedera helix</i>
Mugwort	<i>Artemesia vulgaris</i>
Oxford ragwort	<i>Senecio squalidus agg.</i>
Pedunculate oak	<i>Quercus robur</i>
Pendulous sedge	<i>Carex pendula</i>
Perennial rye grass	<i>Lolium perenne</i>

Common Name	Scientific Name
Perennial sow-thistle	<i>Sonchus arvensis</i>
Perforate st johns wort	<i>Hypericum perforatum agg.</i>
Prickly sow-thistle	<i>Sonchus asper</i>
Purple toadflax	<i>Linaria purpurea</i>
Pussy willow	<i>Salix caprea agg.</i>
Red campion	<i>Silene dioica</i>
Red dead-nettle	<i>Lamium purpureum</i>
Red hemp-nettle	<i>Galeopsis tetrahit agg.</i>
Rosebay willowherb	<i>Epilobium angustifolium</i>
Rowan	<i>Sorbus aucuparia</i>
Scarlet pimpernel	<i>Angallis arvensis</i>
Self-heal	<i>Prunella vulgaris</i>
Shepherd's needle	<i>Scandix pectens-veneris</i>
Shepherd's purse	<i>Capsella bursa-pastoralis agg.</i>
Shining cranesbill	<i>Geranium lucidum</i>
Silver birch	<i>Betula pendula</i>
Slender thistle	<i>Cirsium tenuiflorus</i>
Small nettle	<i>Urtica urens</i>
Smooth sow thistle	<i>Sonchus olearaceus</i>
Spear mint	<i>Mentha spicata</i>
Spear thistle	<i>Cirsium vulgare</i>
Spear-leaved orache	<i>Atriplex prostrata</i>
Speedwell sp.	<i>Veronica sp.</i>
Spindle tree	<i>Euonymus europaeus</i>
Spotted medick	<i>Medicago arabica</i>
Teasel	<i>Dipsacus fullonum</i>
Traveller's joy	<i>Clematis vitalba</i>
Turkey oak	<i>Quercus cerris</i>
Walnut	<i>Juglans regia</i>
Weld	<i>Reseda lutea</i>
White bryony	<i>Bryonia cretica</i>
White dead-nettle	<i>Lamium album</i>
Wild cherry	<i>Prunus avium</i>
Willowherb sp.	<i>Epilobium sp.</i>
Yarrow	<i>Achillea millefolium</i>

Appendix D: Bird list identified during the walkover survey

Common Name	Scientific Name
Blackbird	<i>Turdus merula</i>
Blue tit	<i>Cyanistes caeruleus</i>
Buzzard	<i>Buteo buteo</i>
Carrion crow	<i>Corvus corone</i>
Dunnock	<i>Prunella modularis</i>
Goldcrest	<i>Regulus regulus</i>
Goldfinch	<i>Carduelis carduelis</i>
Great tit	<i>Parus major</i>
Green woodpecker	<i>Picus viridis</i>
Grey wagtail	<i>Motacilla cinerea</i>
Herring gull	<i>Larus argentatus</i>
House sparrow	<i>Passer domesticus</i>
Linnet	<i>Carduelis cannabina</i>
Long-tailed tit	<i>Aegithalos caudatus</i>
Magpie	<i>Pica pica</i>
Meadow pipit	<i>Anthus pratensis</i>
Mistle thrush	<i>Turdus viscivorus</i>
Pheasant	<i>Phasianus colchicus</i>
Red kite	<i>Milvus milvus</i>
Redwing	<i>Turdus iliacus</i>
Robin	<i>Erithacus rubecula</i>
Siskin	<i>Carduelis spinus</i>
Skylark	<i>Alauda arvensis</i>
Song thrush	<i>Turdus philomelos</i>
Treecreeper	<i>Certhia familiaris</i>
Woodpigeon	<i>Columba palumbus</i>
Wren	<i>Troglodytes troglodytes</i>

Appendix E: Site Plan of Phase One

