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Preliminary Ecological Appraisal and Reptile Survey

of

**Land East of 10 Gate Farm Road,
Shotley, Suffolk, IP9 1QH**

Survey Commissioned by:	Jack Wilkinson on behalf of Mr and Mrs Pack
Project Number:	REP23003
Report issued:	8 th August 2023 (Draft: 11 th June 2023)
Date of surveys:	30 th January 2023 and 26 th May 2023 (PEA) 23 rd March to 26 th May 2023 (Reptile Surveys)
Lead Surveyor:	Odette Robson BSc (Hons) PhD MCIEEM

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Disclaimer

The findings detailed in this report are based on evidence from thorough survey, where every effort has been taken to provide an accurate assessment of the site at the time of the survey. No liability can be assumed for omissions or changes after the survey has taken place.

This report was instructed by Jack Wilkinson on behalf of Mr and Mrs Pack, and following the brief agreed. Robson Ecology Ltd has made every effort to meet the client's brief.

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1 Summary

Site:	Land East of 10 Gate Farm Road, Shotley, Suffolk, IP9 1QH
Grid Reference (taken from centre of site):	TM 24708 34270
Report Commissioned by:	Jack Wilkinson on behalf of Mr and Mrs Pack
Date of Survey:	30 th January and 26 th May 2023 (PEA) 23 rd March to May 26 th 2023 (Reptile Surveys)

Considerations	Description	Timings, potential impacts and mitigation.
Statutory wildlife sites within 2km	Two Site of Special Scientific Interest (SSSI).	The nearest SSSI is 360m from the site and the CWS's are both over 1km. No construction or operational phase impacts predicted due to intervening land-use/habitat between construction site and local designated sites, and scale/low impact of a small residential development (up to 6no units) on well-managed garden.
Non-statutory wildlife sites within 2km	Two County Wildlife Sites (CWS).	
European designated sites	Site lies within the Zone of Influence of five European designated sites.	No direct impacts to the European designated sites from the development are predicted: The site is a garden (short mown lawn) which provides sub-optimal supporting habitat for species listed in the site designations (predominantly wintering birds). The development could cause an increase in recreational use of the nature reserves. All new residential development in this area will require consideration of the Recreational disturbance Avoidance and Mitigation Strategy (RAMS) to reduce visitor impact to the European sites. To off-set any indirect impact from increased visitor pressure, a financial contribution to fund mitigation measures will be required for each new dwelling built.
Further Surveys Carried out to inform planning application	Reptile Surveys	Due to risk of reptiles using parts of the site, full reptile surveys were carried out to inform any mitigation or avoidance measures. Artificial refuges were set out (23/03/23) and surveyed on seven subsequent visits in appropriate weather between 16 th April and 26 th May 2023. A small population of common lizards was recorded, using an area of the site which will be minimally disturbed (beyond the clearance zone for the proposed new dwellings). Due to the low numbers of lizards recorded, sub-optimal habitat within the construction zone, and retention of habitat within the area lizards were recorded, a translocation will not be necessary and the population can be protected through precautionary clearance and long-term appropriate management of retained habitat. A Reptile Mitigation Strategy should be implemented to protect reptiles close to the clearance zone and enhance the site for retiles post-completion.

Precautionary Measures to comply with wildlife legislation.	Nesting birds	Any tree-works (felling or management) or vegetation removal taking place within the nesting bird season (March to August inclusive), must be preceded by a precautionary survey for active bird nesting.
	Tree-protection	All retained trees within impact distance of the construction zone should be protected at the extent of the root protection zone, in line with BS5837 to avoid incidental access, tree-root compaction, and/or damage to trees.
	Nocturnal animals	A plank must be secured within any pits or excavations left open overnight, to provide an escape route for any animals which could become trapped (badger, hedgehog, reptiles). Materials and waste/spoil must be stored on pallets above ground to avoid formation of refuge opportunities.
	Hedgehogs	Precautionary clearance of vegetation during the active hedgehog season. Hedgehog links at the base of any solid fencing.
	Commuting and foraging bats	Sensitive lighting scheme to maintain dark corridors at the site boundaries, and to avoid light-spill towards hedges, and mature trees.
Biodiversity Enhancements	Native planting	Native tree and hedgerow-planting at site boundaries; infill planting and diversification of existing species-poor and gappy hedges.
	Habitat creation and boxes.	Bird and bat boxes in retained mature trees or on new buildings. Habitat/hibernacula for reptiles.
Habitat types:	Modified grassland (lawn); mature trees, hedges, garden shrubs/planting.	

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2 Introduction

2.1 Background

Robson Ecology Ltd. was commissioned to undertake a Preliminary Ecological Appraisal (PEA) at a parcel of land to the east of 10 Gate Farm Road, Shotley. National Grid co-ordinates for the centre of the site are TM 24708 34270. The assessment was required to inform plans to construct new dwellings on the land, with associated parking, landscaping, and access from Gate Farm Road (existing entrance) on the north-western side of the site boundary.

2.2 Site Description and Context

The proposed development area is part of the garden of 10 Gate Farm Road on the north-eastern edge of the village of Shotley Gate, approximately 13km to the south-east of the centre of Ipswich.

Number 10 Gate Farm Road is a detached, residential property adjacent to the western site boundary. The site itself is an extensive garden associated with the property, which is largely laid to lawn, well-used, and actively managed. A band of planted mature specimen trees forms the southern boundary. The northern and eastern boundaries are marked by well-managed species-poor hedges. The land has been regularly managed as a lawn by mowing to maintain a short sward. To the south of the site boundary (shown by red-dotted line on plan at Appendix B), there are areas of less intensively mown, longer rough grass surrounding the sheds, a caravan, chicken run, raised bed, and other garden features.

The Orwell and Stour Estuaries lie 660m to the south-east and 700m to the south-west of the site respectively. A marina lies 500m to the east, and the nearest pond (marked on available maps) is 75m to the north-east.

The wider landscape is predominantly agricultural, dominated by arable land with pockets of woodland. Habitats associated with the Stour and Orwell Estuaries, include coastal and floodplain grazing marsh to the north-east, and intertidal foreshore and mudflats.

2.3 Planning Policy and Legislation

For the purposes of this report, protected species are taken to be those which are protected under the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019. and UK legislation (Wildlife and Countryside Act 1981; Protection of Badgers Act 1992). Protected species, and Species of Principle Importance for conservation of biodiversity in England (SPIE species – formally Biodiversity Action Plan species), are a material consideration for individual planning decisions under the National Planning Policy Framework (NPPF), which places responsibility on Local Planning Authorities to aim to conserve and enhance biodiversity in and around developments, promote the enhancement of natural and local environments through planning, and achieve net gains for biodiversity where possible (MHCLG, 2021).

2.3.1 Reptiles

All widespread reptiles, including common lizards, grass snakes and slow worms, are protected from harm under Schedule 5 of the Wildlife and Countryside Act 1981 and are Species of Principal Importance in England (SPIE). Protected and SPIE/BAP species are a consideration under the National Planning Policy Framework (NPPF), 2019.

2.3 Aims and Objectives

2.4.1 Preliminary Ecological Appraisal

The purpose of the PEA was to:

- Identify the presence, or potential presence, of any protected, locally rare or notable species or habitats on the site, or within the zone of impact;
- assess the potential impact of developing the site on any protected or notable species and/or habitats present, including designated nature conservation sites on the site, or within the zone of impact;
- make recommendations for further surveys to inform the planning application (if required);
- detail any precautions required to protect habitats or species from impact, and/or mitigation or compensation, where necessary.

2.4.2 Reptile Survey

The reptile survey was designed to determine presence or likely absence of protected reptiles that could be materially impacted by proposals (during the construction and/or operational phase). Results from the surveys would inform the need for further actions required to maintain the local conservation status of reptiles, and to ensure that individual reptiles would not be harmed during the construction phase.

3 Survey Methodology

2.1 Site Survey (PEA)

The site survey was undertaken by Odette Robson BSc (Hons) PhD MCIEEM, a full member of the Chartered Institute of Ecology & Environmental Management (MCIEEM), subject to the CIEEM Professional Code of Conduct and licensed by Natural England to survey for great crested newts (WML-CL09; Level 2), bats (WML-CL18; Level 2) and dormice (WML-CL10A).

During the survey on 30th January 2023, the temperature was 5-7°C, there was a moderate breeze (Beaufort Scale 4), 10% cloud cover, and good visibility. On May 26th 2023, the temperature was 13°C, there was a moderate breeze (Beaufort Scale 4), 30% cloud cover, and good visibility.

The PEA survey was undertaken in accordance with the Guidelines for Preliminary Ecology Appraisal (CIEEM, 2017), and the broad methodology and principles of the Joint Nature Conservation Committee (JNCC) Phase 1 Habitat Survey (JNCC 2010), which included mapping habitat types and identifying plant species observed on the site, including Wildlife and Countryside Act Schedule 9 invasive plant species. The habitat codes of UKHabs have been used. The Ecological Features Plan in Appendix B shows main habitat types, and features of interest, identified as target notes.

The potential for presence of protected, SPIE/BAP and locally rare species was assessed as follows:

Amphibians - Habitats on the site and known ponds within 250m of the site (where access was available and unless ecologically separated by significant barriers) were assessed for potential to support amphibians during their terrestrial or breeding phases.

Bats – Habitat within, and adjacent to, the site boundary was assessed for potential to support roosting, foraging and commuting bats, aided by aerial images of the surrounding landscape.

Dormice – the site was assessed for potential to support dormice: Wooded/scrub areas or hedges with good under-storey/shrub layer and a diversity of foraging opportunities covering the active dormouse season.

Reptiles – Habitats were assessed for potential to support foraging or breeding reptiles and hibernation or refuge opportunities (Gent and Gibson, 1998; Froglife, 1999).

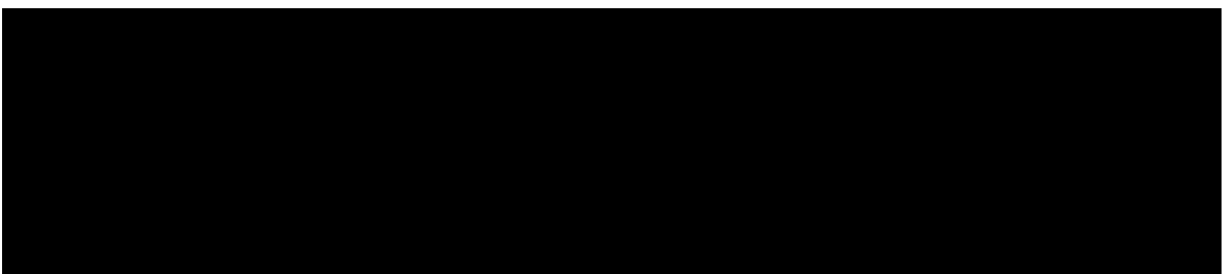
Invertebrates - The site was surveyed for high quality aquatic, deadwood or other habitats which could be used by significant assemblages of invertebrates, or by invertebrates identified in the data search.

Flora and Habitats - Habitats and plant species which were identifiable at the time of the survey were recorded, including Wildlife and Countryside Act Schedule 9 invasive plant species, such as Japanese Knotweed *Fallopia japonica* and Giant Hogweed *Heracleum mantegazzianum*. The survey was not a pre-construction survey for Japanese Knotweed.

Broad habitat types were assigned to the UKHabs classification coding system for all habitats in the UK.

The Hedgerow Regulations (1997) prescribe the criteria for determining ‘important’ hedgerows, and removal or replacement of hedges. Any hedgerows impacted by proposals were assessed under Criteria 6 to 8 of the Hedgerow Regulations, which cover the Wildlife and Landscape value of a hedgerow and define the diversity of flora and type of features present that would qualify a hedgerow as ‘important’.

Water Voles and Otters – Water bodies within impact distance of the site were identified and (where necessary) assessed for potential to support water voles and otters.



Birds - A visual survey of suitable nesting or foraging habitats was carried out, to determine if any habitats on the site would be used by WCA Schedule 1 birds, Birds of Conservation Concern (BoCC), SPIE, Suffolk BAP, or other common and widespread nesting birds.

Adjacent Habitat - Aerial photographs and available maps were used, and the area beyond the site boundary surveyed (where access was available), to identify any habitat in the wider landscape which could be impacted by proposed works.

2.2 Reptile Survey

Artificial refuges (roofing-felt and coroline sheets) measuring approximately 0.5 x 0.5m and 0.5 x 1m, were used to increase the probability of observing reptiles which use these 'refuges' to regulate their body temperatures. Refugees were placed over the majority of the site, though the boundaries provided more suitable reptile habitat. One hundred and twenty refuges were laid down on 23rd March 2023, in all areas suitable for reptiles, focusing on boundary features and close to natural refuges which receive early sun. At the time of the survey the vegetation was predominantly below 10cm over the majority of the site, with patches of longer grass/vegetation around the boundary and scattered throughout the southern part of the site (TN14), outside the development area.

The refuges were left for 24 days prior to the commencement of the survey to allow any reptiles present to find these new refuge opportunities.

Seven subsequent visits to the site were carried out to record any reptiles basking on top of, or sheltering beneath, the refuges, and to recorded any reptiles using natural features within the survey area.

Surveys were carried out by Odette Robson, Anthony Owers BSc (Hons) and Daniel Anderson BSc (Hons) – all experienced ecologists with over 5 years of reptile survey and handling/translocation experience.





2.2 Desk Study and Biodiversity Information Search





A 2km radius search for statutory designated sites was conducted using "MAGIC", the Multi-Agency Geographic Information system for the Countryside. The search radius was extended to the Zone of Impact associated with individual European designated sites: Special Areas of Conservation (SACs), Special Protection Areas (SPAs) and Ramsar sites, where the potential risk of impact to the qualifying features (species or habitats) of these sites may extend over a wider area (up to 22km).





Suffolk Biodiversity Information Service (SBIS) was consulted for records of protected and locally rare species within a 2km radius of the site (data provided on 25th January 2023) to determine whether protected and priority species have been recorded within the vicinity of the development. The site is covered by the Local BAP for Suffolk.

4 Results and Discussion





2.1 Target Notes (Photos: O. Robson – 30.01.23 and 26.05.23)

Target note	Habitat Description	Photo
1	<p>Mature Copper Beech <i>Fagus sylvatica purpurea</i>: Low pollard. Intact tree with unconstrained growth form, no aerial deadwood, crevices, cracks or other potential roost features.</p> <p>Negligible bat roosting potential.</p>	
2	<p>Hawthorn <i>Crataegus monogyna</i> hedge well-managed at approximately 1m height. Continuous with occasional gaps towards the east. Abundant Alexanders <i>Smyrniololus atrum</i> at base, and occasional Elder <i>Sambucus nigra</i>, Bramble <i>Rubus fruticosus</i>, and Holly <i>Ilex aquifolium</i>.</p> <p>An adjacent Leyland cypress <i>Cupressus x leylandii</i> hedge behind (off-site) was managed at approximately 3m height.</p>	
3	<p>Short-mown amenity lawn/grassland, with occasional shrubs (<i>Hebe</i> spp., Rose <i>Rosa</i> spp., Pampas Grass <i>Cortaderia selloana</i> and <i>Hydrangea</i>)</p> <p>Full plant species list in Table 4.6.</p>	
4	<p>Mature Oak <i>Quercus robur</i>. Intact tree with unconstrained growth form, no notable cracks, crevices or other potential roost features.</p> <p>Negligible bat roosting potential.</p>	

<p>5</p>	<p>Low, well-managed Elm <i>Ulmus</i> spp., hedge: Approximately 0.5m height. Sparse in places but mostly continuous. Abundant Alexanders and Bracken <i>Pteridium aquilinum</i> at base - growing taller than the hedge by May.</p>	
<p>6</p>	<p>Cherry Laurel <i>Prunus laurocerasus</i>: Minimally managed, tall bushy growth.</p>	
<p>7</p>	<p>Hedge managed at approximately 2-3m height: Hawthorn, Holly, Elm, Birch <i>Betula pendula</i>, <i>Forsythia</i> spp., Leyland Cypress, Privet <i>Ligustrum ovalifolium</i>. Separated from a track/footpath (Marsh Lane) to the south by narrow verge (1m width) dominated by Comfrey <i>Symphytum officinale</i> and Alexanders. Unmanaged tree line on opposite side of track.</p>	
<p>8</p>	<p>Mature Silver Birch tree. No significant roosting features noted from the ground level assessment.</p>	

<p>9</p>	<p>Garden Shed/workshop: Metal and weatherboard walls – all intact and sealed. Negligible bat roosting potential due to construction materials and lack of crevices, dark voids, and potential roost features.</p>	
<p>10</p>	<p>Mature Norway Maple <i>Acer platanoides</i> with asymmetric growth form. Intact tree with no notable potential roost features. Schwegler bat box attached to north-east side of tree.</p>	
<p>11</p>	<p>Static caravan, small garden shed and greenhouse – negligible bat roosting potential.</p>	
<p>12</p>	<p>Mature Norway Maple: Multi-stemmed. Former branch tear wound at 1m height, with compression fork and included bark/unions. No cavity formation, or other notable potential roost features: Negligible bat roosting potential.</p>	



13	Mature, unmanaged Leyland cypress and Western red cedar <i>Thuja sp.</i> Bare ground beneath.	
14	Area of less frequently mown grass around shed/caravan, bonfire, compost heap and boat. Typical lawn-grass and coarse grass species, with frequent ruderal and amenity grass forbs. Full plant species list in Table 4.6.	
15	Mixed sub-mature fruit trees and bee hives.	
16	Raised bed and chicken enclosure/bare ground.	

2.2 Desk Study

MAGIC was accessed (23rd May 2023), to identify the presence of statutory designated sites and habitats.

The site lies within an Impact Risk Zone (IRZ), for addressing likely impacts on statutory designated sites. Consultation with Natural England is required for:

- *All planning applications (except householder) outside or extending outside existing settlements/urban areas affecting greenspace, farmland, semi natural habitats or landscape features such as trees, hedges, streams, rural buildings/structures.*
- *Residential development of 50 units or more.*
- *Any residential developments outside of existing settlements/urban areas with a total net gain in residential units.*

Two UK statutory designated sites are located within 2km of the site (Table 4.1). The site lies within the Zone of Influence of European designated sites (Table 4.2). Two non-statutory County Wildlife Sites (CWS) lie within 2km of the site (Table 4.3).

Table 4.1: Statutory wildlife sites within 2km (MAGiC, 28/05/23)

Site Name	Designation	Distance from Site (approx.)	Description
Stour Estuary	SSSI	600m SW	<i>The Stour Estuary is nationally important for 13 species of wintering waterfowl and three species on autumn passage. The estuary is also of national importance for coastal saltmarsh, sheltered muddy shores, two scarce marine invertebrates and a vascular scarce plant assemblage.</i>
Orwell Estuary	SSSI	360m E	<i>The Orwell Estuary is of national importance for breeding avocet <i>Recurvirostra avosetta</i>, its breeding bird assemblage of open waters and their margins, nine species of wintering waterfowl (including black-tailed godwit <i>Limosa limosa islandica</i>), an assemblage of vascular plants, and intertidal mud habitats.</i>

Table 4.2: European designated wildlife sites (MAGiC, 28/05/23)

Site Name	Designation	Distance from Site (approx.)	Description
Deben	SPA/ Ramsar	8km NE	<i>The Deben Estuary is relatively narrow and sheltered and has limited amounts of freshwater input. The saltmarsh and intertidal mud-flats that occupy the majority of the site, however, display the most complete range of saltmarsh community types in Suffolk. The estuary holds a range of swamp communities that fringe the estuary, and occasionally form larger stands. In general, these are dominated by Common Reed <i>Phragmites australis</i>. The estuary is of importance for its wintering water birds, especially Avocet <i>Recurvirostra avosetta</i>.</i>
Stour and Orwell	SPA/ Ramsar	360m E	<i>The Stour and Orwell Estuaries is a wetland of international importance, comprising extensive mudflats, low cliffs, saltmarsh and small areas of vegetated shingle on the lower reaches. It provides habitats for an important assemblage of wetland birds in the non-breeding season and supports internationally important numbers of wintering and passage wildfowl and waders. The site also holds several nationally scarce plants and British Red Data Book invertebrates.</i>

Site Name	Designation	Distance from Site (approx.)	Description
Hamford Water		4.4km S	<p>The SAC is designated for Fisher's estuarine moth <i>Gortyna borellii lunata</i>. Hamford Water supports the majority of the Essex population and is the most important UK site for this species, supporting approximately 70% of the population. Hamford Water is a large, shallow estuarine basin comprising tidal creeks, islands, intertidal mud, sand flats and saltmarshes. Above the saltmarsh there is unimproved and improved grassland (including grazing marsh), scrub, woodland, hedges, ditches, ponds and reedbeds.</p> <p>It is a large, shallow estuarine basin comprising tidal creeks and islands, intertidal mud- and sand-flats, and saltmarsh. The rich invertebrate fauna and sheltered nature of the site results in its importance for internationally important numbers of waterbirds during the passage and winter periods, as well as for breeding terns in summer.</p>
Colne Estuary (Mid-Essex Coast Phase 2)	SPA and Ramsar	21km SW	<p>The Colne Estuary has a narrow intertidal zone predominantly composed of flats of fine silt with mud-flat communities typical of south-eastern English estuaries. The estuary is of importance for a range of wintering wildfowl and waders, in addition to breeding Little Tern <i>Sterna albifrons</i> which nest on shell, sand and shingle spits. There is a wide variety of coastal habitats which include mud-flat, saltmarsh, grazing marsh, sand and shingle spits, disused gravel pits and reedbeds which provide feeding and roosting opportunities for the large numbers of waterbirds that use the site.</p>
Alde-Ore Estuary (Orfordness-Shingle Street SAC)	SPA, SAC, Ramsar	12.5 NW	<p>The Alde-Ore Estuary is located on the Suffolk coast. There is a variety of habitats including intertidal mud-flats, saltmarsh, vegetated shingle (including the second-largest and best-preserved area in Britain at Orfordness), saline lagoons and semi-intensified grazing marsh. The Orfordness/Shingle Street land form is geomorphologically unique within the UK in combining a shingle spit with a cusped foreland. The diversity of wetland habitat types present is of particular significance to the birds occurring on the site as these provide a range of opportunities for feeding, roosting and nesting within the site complex. At different times of the year, the site supports notable assemblages of wetland birds including seabirds, wildfowl and waders. As well as being an important wintering area for waterbirds, the Alde-Ore Estuary provides important breeding habitat for several species of seabird, wader and raptor. During the breeding season, gulls and terns feed substantially outside the SPA.</p>

Table 4.3: Non-statutory wildlife sites within 2km (SBIS, 25/01/23)

Site Name	Designation	Distance from Site (approx.)	Description
Oldhall Grove	County Wildlife Site	1.4km NW	<p>Oldhall Grove is listed in Natural England's Ancient Woodland Inventory. It is situated on a north-facing slope, to the north east of Shotley. A large proportion of the northern half of the wood has been cleared and replanted with deciduous trees; mainly oak, ash, sweet chestnut, wild cherry, beech and a small number of pines. The more steeply sloping land to the south comprises sweet chestnut and oak. A shrub layer of maple, elder, hazel, elm</p>

Site Name	Designation	Distance from Site (approx.)	Description
			and blackthorn around the margins of the wood is particularly dense and provides habitat opportunities for a range of wildlife including woodland birds. Nightingale, on the Birds of Conservation Concern red list, has previously been recorded here. Many wildflower species have been recorded in this wood, including some associated with ancient woodlands such as bluebell, yellow archangel, moschatel and wood speedwell. The presence of dead wood adds to the structural diversity of the site and provides habitat for a range of invertebrates, including Priority species stag beetle. Several species of bat (Priority species) are also recorded here.
Kiln Queach	County Wildlife Site	1.7km NW	This ancient woodland is listed in English Nature's Ancient Woodland Inventory. It is one of a number of small medieval woodlands on the Shotley peninsula. The tree canopy is composed mainly of mature ash coppice with occasional ash standards. There are also small amounts of oak and sweet chestnut coppice present. The shrub layer consists of elder and is dense in parts of the wood. Elm which occurs along the eastern and southern margins has been affected by Dutch elm disease, although some regeneration is now taking place. As a result of the disease there are large amounts of fallen dead wood which provides habitat for many woodland invertebrates. The ground flora is dominated by nettle and dense bramble with occasional patches of bluebell scattered throughout the wood. Kiln Queach, which is set amidst arable fields, is not only an important wildlife habitat but also a significant feature in the landscape.

Within 3km of the site, only one known European Protected Species Mitigation Licence has been granted (MAGIC, June 2023), as detailed in Table 4.4. The nearest pond with a positive record of great crested newts held on the MAGIC database from pond survey data, is over 7km from the site and separated by the estuary – there are no records from Shotley Peninsula (MAGIC, 4th June 2023).

Table 4.4: European Protected Species licence applications within 3km (MAGIC, 3rd June 2023).

EPS Reference number	Species	Distance from Site (approx.)	Description
2019-39515-EPS-MIT	Common pipistrelle & Brown long-eared	2.7km NW	Destruction of a breeding and resting place

4.3 Environmental Records Centre Consultation

Suffolk Biodiversity Information Service (SBIS) provided records of protected and locally rare species within a 2km radius of the site on 25th January 2023. Full lists of SPIE (formally UK BAP) and protected, amphibians, reptiles, and mammals are shown below in Table 4.5. Reduced lists of UK BAP and protected birds, invertebrates and plants are shown: These have been selected based on their likelihood of being recorded at the site, given the habitat types present.

Table 4.5: Protected, SPIE and locally scarce species records (SBIS – 25/01/23).

Species	Protection	Records: Date and distance to the site
Bats		
Common pipistrelle <i>Pipistrellus pipistrellus</i>	CHSR 2017; WCA; SBAP.	Nine records from HMS Ganges (2011 – 2020)
Soprano pipistrelle <i>Pipistrellus pygmaeus</i>	CHSR 2017; WCA; SPIE & SBAP.	Two records from HMS Ganges (2013)
Brown long-eared <i>Plecotus auritus</i>	CHSR 2017; WCA; SPIE & SBAP.	Eight records from HMS Ganges (2006 – 2021) – some hibernating and some summer-roosting.
Noctule <i>Nyctalus noctula</i>	CHSR 2017; WCA; SPIE & SBAP.	Single record approximately 380m south (2011)
Daubenton's Bat <i>Myotis daubentonii</i>	CHSR 2017; WCA; SBAP.	Seven hibernation records (2009 – 2021) from HMS Ganges site
Natterers Bat <i>Myotis nattereri</i>	CHSR 2017; WCA; SBAP.	Eight records (2011 – 2021) – mostly hibernation records from HMS Ganges.
Amphibians and Reptiles		
Common Toad <i>Bufo bufo</i>	SPIE & SBAP	Single record (2016) - 220m S
Common lizard <i>Zootoca vivipara</i>	WCA and SPIE	Six records (2016 – 2020) from HMS Ganges and Trimley St Mary.
Grass snake <i>Natrix helvetica</i>	WCA and SPIE.	Ten records (2004 – 2020) from HMS Ganges and Trimley St Mary.
Slow worm <i>Anguis fragilis</i>	WCA and SPIE.	Seven records (2007 – 2020) from HMS Ganges and Trimley St Mary.
Amphibians and Reptiles		
Hedgehog <i>Erinaceus europaeus</i>	SPIE & SBAP	Over 50 records (2004 – 2021) – all from Shotley.
Water vole <i>Arvicola amphibius</i>	WCA; SPIE & SBAP.	Four records (2007 – 2021) from Trimly and Shotley Marshes.
Brown hare <i>Lepus europaeus</i>	SPIE & SBAP	Twelve records (2003 – 2022) – mainly from Trimley Marshes.
Nesting and protected, WCA, SPIE bird		
<p>SPIE/BAP or Schedule 1 bird species recorded locally which could use habitats on, or adjacent to, the site for either nesting or foraging:</p> <p>SPIE/BAP and Red-listed Birds of Conservation Concern (BoCC):, turtle dove, cuckoo, yellowhammer, skylark, house sparrow, linnet, spotted flycatcher, starling, lapwing, lesser redpoll, corn bunting, yellow wagtail.</p> <p>Red-listed but not SPIE/BAP: Nightingale, greenfinch, mistle thrush, swift, house martin.</p> <p>SPIE/BAP and Amber-listed Birds of Conservation Concern (BoCC): Dunnock, song thrush, reed bunting, bullfinch.</p> <p>Schedule 1 (WCA) species: Redwing, fieldfare, brambling, barn owl.</p>		

Species	Protection	Records: Date and distance to the site
Protected and SPIE plants		
The majority of plant species records provided were from Trimley Marshes, including numerous saltmarsh/coastal species.		
Protected and SPIE invertebrates		
Lepidoptera, Coleoptera, Hymenoptera, Odonata, Neuroptera.	BAP/SPIE/RDB/SBAP	Moth and a butterfly species (small heath, grayling, wall and white-admiral and swallowtail). Stag Beetle <i>Lucanus cervus</i> - Over 100 records (2002 – 2021) from Shotley/Shotly Gate. Black Oil-beetle <i>Meloe proscarabaeus</i> . Norfolk Hawker and several Bee species.

SBAP = Suffolk Biodiversity Action Plan species; SPIE = Species of Principal Importance in England (formally National BAP); CHSR = Conservation of Habitats and Species Regulations 2017; WCA = Wildlife and Countryside Act 1981.

2.3 Potential for Protected Species and Habitats

The site was assessed to identify whether the proposals could potentially impact on protected or locally rare species or habitats, either during the construction, or operational phase.

4.3.1 Habitats and Flora

The initial survey was carried out in January, with the species list supplemented by a second survey in May, within the botanical survey season. Broad species assemblages and habitat types were recorded, and visible plants were identified to species level where possible.

4.3.1.1 Modified Grassland (TN1)

The site was well-managed, short-mown grassland dominated by typical lawn species (Table 4.6), with frequent forbs and a higher incidence of ruderals in longer grass towards the site boundary and at TN14 which is managed under a reduced mowing regime.

Forbs were predominantly typical semi-improved and amenity grass species. There was no indication of a species-rich grassland, or of species which would indicate priority lowland meadow habitat.

Table 4.6: Plant Species Lists

Latin name	English name	TN3	TN14
<i>Achillea millefolium</i>	Yarrow		
<i>Anthriscus sylvestris</i>	Cow parsley		
<i>Asparagus prostratus</i>	Wild Asparagus		
<i>Bellis perennis</i>	Daisy		
<i>Borago officinalis</i>	Borage		
<i>Bromus hordeaceus</i>	Soft brome		
<i>Bromus sterilis</i>	Sterile brome		
<i>Cerastium fontanum</i>	Common mouse-ear		
<i>Cirsium arvensis</i>	Creeping thistle		
<i>Cirsium vulgare</i>	Spear thistle		
<i>Dactylis glomerata</i>	Cock's-foot		
<i>Festuca rubra</i>	Red fescue		
<i>Galium aparine</i>	Cleavers		

Latin name	English name	TN3	TN14
<i>Geranium dissectum</i>	Cut-leaved crane's-bill		
<i>Geranium molle</i>	Dove's-foot crane's-bill		
<i>Lamium purpurea</i>	Red Dead-Nettle		
<i>Lamium album</i>	White Dead-Nettle		
<i>Leontodon hispidus</i>	Rough hawkbit		
<i>Lolium perenne</i>	Perennial Rye Grass		
<i>Poa annua</i>	Annual Meadow Grass		
<i>Poa pratensis</i>	Smooth Meadow Grass		
<i>Poa trivialis</i>	Rough Meadow Grass		
<i>Pteridium aquilinum</i>	Bracken		
<i>Rubus fruticosus</i>	Bramble		
<i>Rumex acetosa</i>	Common sorrel		
<i>Senecio jacobaea</i>	Ragwort		
<i>Senecio vulgaris</i>	Groundsel		
<i>Sisymbrium officinale</i>	Hedge Mustard		
<i>Smyrniium olusatrum</i>	Alexanders		
<i>Soleirolia soleirolii</i>	Mind-your-own-business		
<i>Sonchus oleraceus</i>	Smooth Sow-Thistle		
<i>Stellaria media</i>	Common chickweed		
<i>Symphytum officinale</i>	Common Comfrey		
<i>Taraxacum officinale</i> agg.	Dandelion		
<i>Urtica dioica</i>	Common Nettle		
<i>Veronica chamaedrys</i>	Germander speedwell		
<i>Veronica serpyllifolia</i>	Thyme-leaved Speedwell		

4.3.1.2 Hedgerow (TN2, TN5, TN7)

The hedge forming the northern site boundary was a Hawthorn dominated hedge, managed at 2-3m height. On the eastern boundary was a sparse predominantly Elm hedge, managed at 1m high. Outside the construction zone, to the southern garden boundary (TN7) was a mixed hedge with native and non-native species which was managed at approximately 3m height and separated the site from a track/footpath (Marsh Lane) which links the Village with the Stour Estuary to the east.

Ground flora beneath the hedges was sparse with occasional rough grasses, Alexanders, Ivy and ruderals. None of the hedges had mature tree standards, ditches, banks or other associated features.

It is likely that the hedges can be retained within the proposals. Removal of a narrow section of TN7 may be necessary to facilitate a footpath/pedestrian access to Marsh Lane.

The hedges would not be classified as 'Important' under the ecological criteria of the Hedgerow Regulations (1997) due to the low number of qualifying woody species, and lack of associated features (no gaps, banks, tree standards). Hedges that form the curtilage of residential gardens are not covered by the Hedgerow Regulations. All hedges would be classified as 'Hedgerow Priority Habitat' under BAP criteria:

'A hedgerow is defined as any boundary line of trees or shrubs over 20m long and less than 5m wide, and where any gaps between the trees or shrub species are less than 20m wide.' (Bickmore, 2002).

Hedges form ecologically important linear features, linking habitats in the wider landscape, and should be retained and enhanced, where possible, by infill planting of gaps, and diversifying species-poor hedges. New hedge-planting on the western boundary, which is currently not marked by vegetation, would enhance connectivity around the site. All new and infill hedgerow planting should be native, mixed hedgerow species (Section 5), and an appropriate hedgerow management plan should be implemented, including a rotational, incremental cutting regime which would benefit wildlife.

4.3.1.3 Rare Flora

A number of plant species have been recorded within 2km of the site (SBIS, 2023), some of which are species of habitats associated with grassland sites, though these are mainly from the local nature reserves and saltmarsh habitats which are not ecologically connected to the site.

No rare species were recorded during the course of the surveys, which covered the optimal botanical survey season. There was no indication of species-rich grassland, and no species recorded which would indicate a priority habitat, such as lowland meadow habitat. The species recorded indicate managed lawn/modified grassland with low species-diversity and low conservation value.

4.3.1.4 Invasive Flora and WCA Schedule 9 Species

No non-native invasive species listed on Schedule 9 of the Wildlife and Countryside Act, were recorded within the site.

4.3.2 Bats

All UK species of bats are protected under the Wildlife and Countryside Act 1981 and the Conservation of Habitat and Species Regulations, 2017. Six species of bats have been recorded within 2km of the site (SBIS, 2023): The records are mostly from the former HMS Ganges site which is now an active construction site (residential development). The site covers a large part of the land to the east of Shotley Gate and is within 30m of the southern site boundary at its nearest point. Most of the bat records are from buildings, approximately 200m to the south-east. Records of two *Myotis* species are mainly hibernation records, and the other species are predominantly foraging/commuting records from surveys carried out to inform the Ganges planning consent.

4.3.2.1 Roosting Bats in Buildings/Structures

There were no buildings or structures within the zone of impact/construction zone. The chicken shed, garden shed and workshop (TN9; TN14) are all outside the red-line boundary and have negligible bat roosting potential.

No further surveys or precautions are necessary.

4.3.2.2 Roosting Bats in Trees

It is likely that mature trees within the site and on the southern boundary can be retained within the scheme and none of the trees that would be impacted indirectly by proposals (e.g., tree works or increased lighting/disturbance) had potential roost features, though a bat box was located on the tree at TN10.

No further surveys or precautions are necessary; however, all external lighting must ensure that the boundaries are maintained as dark corridors. Lighting must not be directed towards

mature trees and hedges on the site boundaries (further lighting advice in Section 5.2.8). The bat box (TN10) can only be moved/relocated by an appropriately licensed ecologist.

4.3.2.3 *Commuting and Foraging Bats*

The clearance zone (mown grassland) is unlikely to support a high number of invertebrates, and therefore, foraging potential over the main body of the site was sub-optimal. However, bats could use the mature trees for foraging.

The garden boundaries could be used by bats commuting between the buildings/village and wooded area 300m to the south-west (between the Ganges site and Marina). Marsh Lane, to the south of the site, is a wooded green lane which could be used by foraging and commuting bats. Boundary hedges at TN2 and TN5 are unlikely to be well-used as commuting corridors due to being managed at very low height, though it is possible that bats could use the tall tree-line to the south of the site, which would provide shelter from prevailing winds.

A sensitive lighting scheme should be implemented to ensure that bats using trees or boundary hedges would not be impacted by development of the site.

Any new external lighting must be appropriately directed to reduce light-spill and directed away from all retained trees and boundary vegetation. The southern boundary must be retained as a dark corridor. Further lighting precautions are detailed in Section 5.2.6.

4.3.3 *Reptiles*

All UK reptile species are protected under the Wildlife and Countryside Act 1981, with two species afforded higher levels of protection under the European Habitat Regulations (CHSR, 2017). Suffolk Biodiversity Information Service provided records of three widespread reptile species: Slow worms, grass snakes and common lizards have all been recorded from the former HMS Ganges site to the south, which is within 30m of the site boundary at its nearest point.

The majority of vegetation within the clearance zone was lawn/mown grass with very low suitability for foraging reptiles. Some longer grass at the site boundary, and beyond the construction zone to the south (TN14), could provide habitat for widespread reptiles. Refuge opportunities were limited to the hedgerow bases and garden waste and debris to the south of the site boundary (TN14).

The construction zone is ecologically connected to good quality reptile habitat to the south (garden and Marsh Lane), west (gardens), and east (farmland).

Further surveys for reptiles were carried out to establish if reptiles were using the site, so that mitigation and compensation could be incorporated into the scheme if necessary, depending on species and population size. Results are shown in Table 4.7.

Table 4.7: Reptile Survey Results.

Survey visit	Date	Weather	Reptiles
Refuges laid	23 rd March 2023	n/a	none
Survey 1	3 rd April 2023	14-13.5°C; 25% cloud cover; Beaufort: 3. Mats mostly in full sunshine.	none
Survey 2	16 th April 2023	13.5°C; 25% cloud cover; Beaufort: 2. Dry ground and 90% of mats were warm and in full sunlight	none
Survey 3	30 th April 2023	17-16.5°C; 12.5% cloud cover; Beaufort: 2. Mostly dry ground	none
Survey 4	15 th May 2023	16.5-15°C; 30-80% cloud cover; Beaufort: 3-1. Bright and sunny to partially cloudy	none
Survey 5	17 th May 2023	16-17°C; 50-80% cloud cover; Beaufort: 2-3. Dry and sunny	1x sub adult lizard 2x adult lizard
Survey 6	21 st May 2023	16-17°C; 50% cloud cover; Beaufort: 2-4. Dry and sunny	2x adult lizard
Survey 7	26 th May 2023	13°C; 30% cloud cover; Beaufort 4. Dry underfoot.	1 x juvenile common lizard 2 x adult common lizard
Peak daily count of adults:			2

During the survey, low numbers of common lizards (adult and juvenile) were recorded. Locations are shown in Appendix C.

The surveys were carried out on days with suitable weather conditions for recording reptiles (i.e. dry, sunny spells, when refuges were warm, but not hot). All artificial refuges and natural features (such as brash, compost, debris and bare ground) which could potentially be used by reptiles, were surveyed during each site visit.

Table 4.8: Reptile Population Assessment (from Froglife 1999)

	Low Population	Good Population	Exceptional Population
Slow worm	Less than 5	5-20	Greater than 20
Common lizard	Less than 5	5-20	Greater than 20
Adder	Less than 5	5-10	Greater than 10
Grass snake	Less than 5	5-10	Greater than 10

The figures in Table 4.8 refer to the maximum number of adults seen by one surveyor in one day at a refuge density of approximately 10 per hectare of suitable reptile habitat. As the density of refuges used during this survey was higher, the weather optimal for surveying, and the survey carried out within the optimal reptile survey season, then there is a high level of confidence that the population estimate is accurate.

The proposed development would impact all of the short-mown grass within the site boundary however, the area in which common lizards were recorded will not be impacted.

4.3.4 Amphibians

Great crested newts are protected under the Wildlife and Countryside Act 1981 and the Conservation of Habitat and Species Regulations, 2017. Suffolk Biodiversity Information Service did not hold records of great crested newts.

The nearest pond with a positive record of great crested newts held on the MAGIC database from pond survey data, is over 7km from the site and separated by the estuary – there are no records from Shotley Peninsula (MAGIC, June 2023).

One pond was identified from available maps within 250m of the site (Figure 4.1) – 75m to the north-east of the site boundary: The pond was on private land and not accessible to survey.

Figure 4.1: Location of known water body within 250m of the site



Distance from a potentially suitable water body/terrestrial connectivity is a major factor in reducing the potential suitability of a site to being used by great crested newts during their terrestrial phase. Small numbers of great crested newts have been known to range significant distances (1km) to colonise new ponds. However, research undertaken by English Nature (2006) has shown that it is most common to encounter them within 50m of a breeding pond, with few moving further than 100m unless significant linear features or suitable terrestrial habitat is involved, when great crested newts can be encountered at distances of between 150m – 200m. At distances greater than 200-250m, great crested newts are hardly ever encountered.

The main development area is short-mown grassland with very low potential to be used by protected amphibians, if present locally. Refuge and hibernation opportunities are limited within the site boundary due to lack of fallen deadwood, rabbit burrows or established tree-root systems which could form crevices and hibernation opportunities. Potential shelter opportunities were available off-site within the garden to the south.

The pond 75m to the north-east is separated from the site by a road/hardstanding and mown grass. Terrestrial habitat of similar and higher quality to the site surrounds the pond.

No further great crested newt surveys are recommended, and a European Protected Species licence will not be required for the proposed development to proceed if standard working precautions are implemented during the construction phase.

4.3.5 Birds

4.3.5.1 BAP/SPIE/Red-list Birds

Nesting opportunities were present in mature trees and hedges. The site is not extensive and sub-optimal for ground-nesting birds, such as skylarks, which require expansive fields not surrounded by tall trees, with wide sight-lines, low/moderate vegetation cover, and minimal disturbance. The site grassland is short-mown and does not provide an appropriate level of cover for ground-nesting birds.

Foraging BAP/SPIE species, such as dunnock, yellowhammer, linnet, bullfinch and song thrush, could all use nesting opportunities in the trees and hedges surrounding the site. Mature trees and habitat at the boundaries will mainly be retained however, some management and limited removal may be required (e.g., a new pedestrian access through the hedge at TN7).

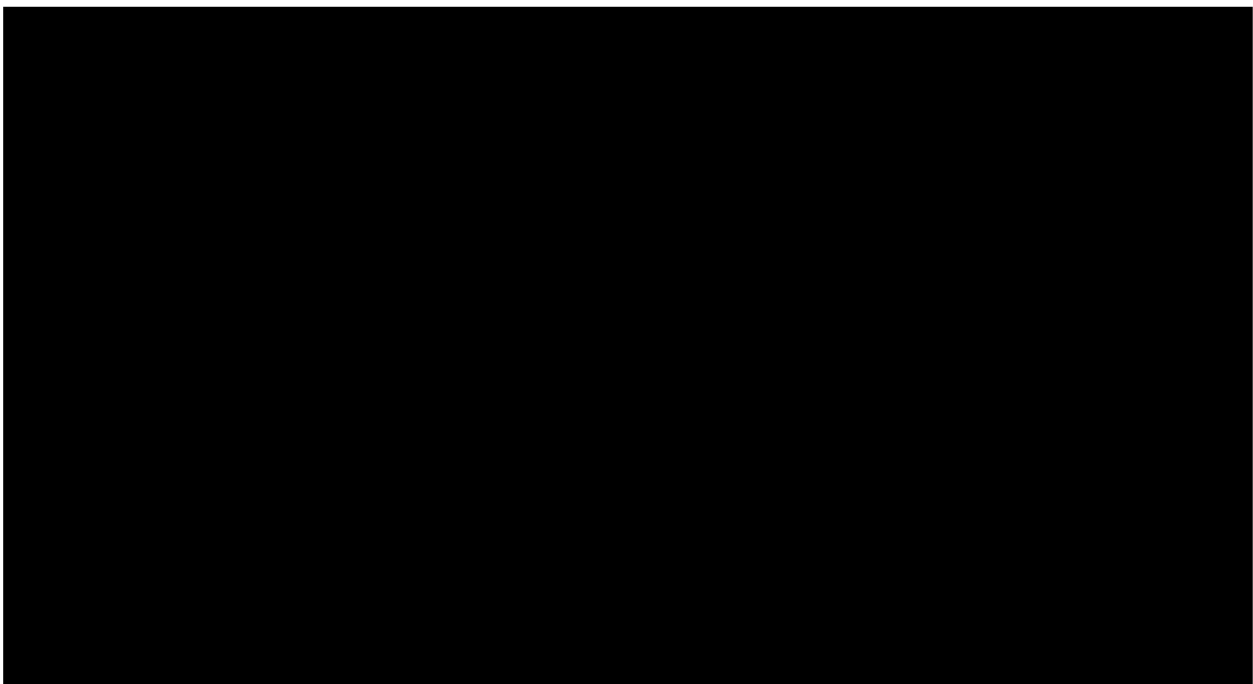
The barn owl (a Suffolk priority species, WCA Schedule 1 species), has been recorded locally, but is unlikely to use the site due to the well-managed nature of the lawn grassland. There is no tussock-forming coarse grassland within the clearance zone could support small mammal prey. No trees or structures suitable to support nesting barn owls would be impacted by proposals.

4.3.5.2 Nesting Birds

All nesting birds and their eggs are protected under the Wildlife & Countryside Act 1981.

Timing of works, or a pre-start precautionary nesting bird survey would ensure compliance with legal obligations with regards nesting birds: The main breeding season is between March and August inclusive. Should any works be proposed (removal of any vegetation or management works to any trees) during the bird breeding season, a nesting bird survey should be undertaken to confirm presence/absence of nests immediately prior to start of works. If nests are identified, there may be a delay to the start of the work until all young birds have fledged.

Between September and February (inclusive), risk of encountering nesting birds is negligible, and works can proceed without a full nesting bird survey, if a cautious approach is adopted by contractors.



4.3.7 Other Mammals

4.3.7.1 Hedgehogs

Hedgehogs (SPIE and Suffolk BAP) have been recorded locally: Over 50 records from within 2km were provided by SBIS – all from Shotley.

Habitat on the site could be used by foraging hedgehogs.

Refuge and cover/shelter opportunities within the clearance zone were limited to sub-optimal managed boundary hedgerows.

Precautionary methods, as detailed in Section 5, would prevent harm to any hedgehogs using the site during the clearance and construction phase.

On completion, the new gardens should be made accessible to wildlife, including hedgehogs, by adapting any new barrier fences (such as close-board) surrounding, and between, gardens. Gaps at the base of new fences would facilitate movement of hedgehogs and other mammals through the local landscape.

4.3.7.2 Hares

Habitat at the site had low suitability for brown hares (SPIE, Suffolk BAP species), which have been recorded locally: Twelve records were provided by SBIS, though these were mainly from Trimley Marshes on the opposite side of the Orwell Estuary.

The site/clearance zone is sub-optimal for hares, with low foraging availability (short-mown grass) and no daytime laying-up cover. Arable land in the wider landscape (beyond the site boundary) provided more suitable habitat, both in terms of foraging and cover.

The proposed development would not fragment hare habitat or obstruct hare movement within the wider landscape. No further surveys or precautions are necessary.

4.3.7.3 Dormice

Dormice are protected under the Wildlife and Countryside Act 1981 and the Conservation of Habitat and Species Regulations, 2017. No records were provided by SBIS.

The hedges at TN2 and TN5 are species-poor would not provide a diversity of foraging resources for dormice. All hedges are well-managed, lacking the structure dormice require, with no tree standards and no direct connectivity to hedges, woodland, or other optimal dormouse habitat in the wider landscape.

Risk of impact to dormice is negligible due to the low impact of proposals (small extent of shrub/tree vegetation removal), sub-optimal habitat in the zone of impact, and the low potential for dormouse presence. No further surveys or precautions are recommended.

4.3.8 Otters and Water Voles

Otters and water voles are protected under the Wildlife and Countryside Act 1981. Otters also receive European-level protection under the Conservation of Habitat and Species Regulations, 2017. Suffolk Biodiversity Information Service (2023) did not provide any otter records from the local area.

Four water vole records were provided from Trimly and Shotley Marshes. There were no suitable ditches, ponds or other water-bodies within impact distance of the proposed construction zone.

Potential for water voles or otters to use habitat on the site is very low and no further surveys or precautions are necessary.

4.3.9 Invertebrates

Habitats on the site were unlikely to support a significant assemblage of invertebrates. The grassland was species-poor and well-managed.

There was no significantly rotting deadwood that could be used by Stag Beetles, or other saproxylic invertebrates, within the clearance zone.

Due to the lack of diverse or good quality habitat within the site boundary, the development is highly unlikely to impact on a significant assemblage of invertebrates and the local conservation status of invertebrates will not be adversely affected by the proposed development. No further surveys or precautions are necessary.

4.3.10 Impact on Statutory and Non-statutory Local, National and European Sites

The nearest statutory designated site is The Orwell Estuary SSSI 360m to the east, designated for wintering and breeding birds and estuarine plant communities. The estuary is separated from the site by farmland, a caravan park and marina. Development of the site would not directly impact the SSSI, as no similar habitats are present within the site boundary, or habitats which could be used by estuarine birds (e.g., high-tide supporting grassland).

Both non-statutory designated CWS's are over 1.4km from the site and no impacts are predicted due to the distance and intervening habitats.

The site is within the Zone of Influence of several European-protected sites, of which the nearest is the River Orwell, 360m to the east, designated primarily for estuarine wetland and wading birds. Some of these species graze on pasture/grassland, but habitat on the site is unlikely to form supporting habitat for wintering estuarine birds due to the site being managed as short-mown lawn, and the regular disturbance of garden land.

No direct impact to the SPA/SAC/Ramsar sites from the proposed development is predicted, however, a contribution to the Recreational disturbance Avoidance and Mitigation Strategy will be required for each new unit, to offset any indirect impacts from increased visitor numbers to sensitive coastal sites.

2.3 Limitations and Assumptions

The baseline conditions reported and assessed in this document represent those identified during the site surveys on the 30th January and 26th May 2023, taking in the optimal survey season for PEA and botanical surveys when most plant species would be present above ground and identifiable to species level.

The survey provides an overview of the likelihood of protected species occurring on the site, based on the habitats recorded and context within the wide countryside: Where no evidence is found, this does not mean that species are not present, or using the site. Further surveys are recommended if there is a significant likelihood that protected species may be present and

impacted by development of the site, based on the suitability of the habitat and any direct evidence.

A number of refuges within the mown lawn area were moved towards the end of the reptile survey: These were all in short mown areas which had low potential for reptiles and unlikely to support reptiles given the low-level of reptile presence at the site.

The only known pond within 250m of the site was on private land and not accessible to survey.

All areas within the site boundary were accessible and no further constraints to the survey were noted.

Constraints were within normal limits, have been taken into consideration within the recommendations given, and did not limit the survey.

The records and historical data provided by SBIS depend on the availability of recorders and survey effort in the area, and do not list all species likely to be present. Data supplement the site visit, but absence of records does not confirm absence of species.

5 Recommendations

2.1 Further Surveys

Further surveys for reptile presence were recommended to inform the planning decision and the design of the proposed scheme. Where impact on reptiles and/or their habitat is unavoidable, mitigation and compensation may be required.

5.1.1 Reptiles

Further survey for reptiles were recommended following the initial PEA survey, to establish if reptiles were using the site: The reptile survey was completed between 23rd March 2023 and 26th May 2023. Seven visits to pre-laid artificial refuges were carried out, following approved guidelines (Froglife, 1999), at an appropriate time of year and under suitable weather conditions.

A small population of common lizards was recorded using the site: A mitigation strategy should be designed to ensure that individual reptiles are not harmed during the site clearance and the construction phase, and to demonstrate that the local conservation status of reptiles will not be impacted. It is likely that the lizard population can be maintained on the site. Relocation or an off-site receptor site will not be needed unless the whole site is cleared. Under current plans, the area in which the lizards were recorded is beyond the construction zone and will only be impacted by minor pedestrian access route provision.

2.2 Precautionary Measures

To ensure compliance with wildlife legislation, avoidance measures and precautionary working methods should be implemented, as detailed below, to enable development of the site without impacting any protected species or habitats. These should be included within the site induction process and communicated to all contractors.

5.2.1 Precautionary Method Statement – Reptiles and Hedgehogs

When the longer grass is cleared and/or height reduced, a *Precautionary Method Statement* should be followed to reduce the risk of harm to any reptiles or hedgehogs that might use habitat within the clearance zone.

No vehicles, machinery or storage of topsoil, debris or materials within **any part of the site** until the precautionary clearance, supervised by an ecologist, has been implemented.

Ground clearance in the working zone must be undertaken between March and October (inclusive – depending on weather) when hedgehogs and reptiles are active and not hibernating. The following precautions must be implemented during initial ground clearance:

- Precautionary clearance should be carried out under ecological supervision during weather when hedgehogs and reptiles are active.
- The area beyond the southern site boundary (shown by a dashed red-line – Appendix B and C) is outside the clearance zone and will be retained as a garden. The construction of a reptile exclusion fence along this boundary will prevent any incidental access into the zone in which reptiles were recorded. Any works within this area (e.g., the construction of a pedestrian access link between the site and Marsh Lane footpath to the south) should be supervised by an ecologist and detailed in the Method Statement.
- Hand strimming should be used to sequentially reduce the longer grass/vegetation within the clearance zone to approximately 10cm, to reduce the quality of the habitat. Arisings should be removed from the clearance zone, and the area then left for 24 hours to allow any animals present to leave the area before ground clearance starts.
- Clearance should start on the north-western boundary, working towards the south-east, so that any animals can disperse to appropriate adjacent habitat.
- Piles of brash, garden waste and other potential refuge opportunities within the clearance zone should be dismantled by hand under ecological supervision.
- Log piles and hibernacula should be constructed at the site boundaries to provide compensatory refuge and hibernation opportunities. These should be located on the eastern or southern boundaries which will be minimally disturbed and retained as a wildlife corridor outside of the curtilage of the new dwellings. These must be constructed before the quality of the habitat is reduced by strimming.

5.2.2 Protection of Trees During Construction

There are a number of mature trees on the site which should be protected by temporarily fencing (e.g., Heras-fencing) for the duration of the construction phase, in line with BS5837 and the advice of an Arboriculturist. This will avoid any incidental access or other adverse encroachment into the sensitive root protection areas by vehicles, construction personnel, storage of materials, site compound/parking, or other damage to the trees.

5.2.3 Storage of Materials and Ground Works

During the construction phase, any temporarily stored materials (bricks, paving slabs, debris piles) should be kept above the ground on pallets to avoid forming refuge opportunities for hedgehogs, reptiles or amphibians.

Rubble and spoil should be removed directly from site, or stored in skips (located on hardstanding surface), to avoid forming hibernation sites.

Any deep holes, trenches, footings or foundations should be covered overnight or have an escape ramp (secured scaffold board), to enable any nocturnal animals that become trapped to escape.

Pools of standing water should not be allowed to collect within the construction zone.

Caustic materials (cement, lime plaster etc) should be mixed on boards, hardstanding or tarpaulin and covered overnight so that animals cannot come into contact with these substances.

If protected species are discovered during the construction works, work should stop immediately and advice should be sought from the project ecologist.

5.2.4 Hedgehog links

On completion, any new solid fences (such as close-board or chain-link) surrounding the site or between the plots should include 'hedgehog links' to maintain connectivity through the local landscape and facilitate movement of wildlife. A single gap at the base of each length of fence, approximately 13cm x 13cm, is sufficient to allow hedgehogs to move between the individual plots, and between the new gardens and adjacent habitat.

5.2.5 Nesting Birds.

Any work to trees or scrub removal should be undertaken outside the nesting bird season. If this is not feasible, a precautionary survey of the impact zone prior to start of works, should be carried out to check for active bird nests and avoid infringing legislation which protects all nesting birds (WCA 1981). If an active nest is recorded, vegetation clearance in that part of the site (including a buffer zone, as indicated by the ecologist), will be postponed until all young birds have fledged and left the area.

5.2.6 Sensitive Lighting Scheme

Lighting at the site should be minimized to encourage bats to use the site, both during the construction works, and on completion. Guidance from the Institute of Lighting Professionals and the Bat Conservation Trust (IPL 2018; ILE 2012, BCT 2009) has been used to inform the following considerations:

- No lighting should be directed towards the site boundaries which should be maintained as dark corridors.
- LED luminaires should be used where possible (No UV elements: Metal halide, fluorescent sources should not be used).
- A warm white spectrum (ideally <2700Kelvin) should be used to reduce the blue light component.
- Peak wavelengths higher than 550nm should be used to avoid the component of light most disturbing to bats (Stone, 2012).
- Internal luminaires can be recessed where installed in proximity to windows to reduce glare and light spill.
- The use of specialist bollard or low-level downward directional luminaires to retain darkness above can be considered (where this is feasible and meets safety standards).
- Column heights should be as low as functionally feasible to minimise light spill.
- Only luminaires with an upward light ratio of 0% and with good optical control should be used (See ILP 2011).
- Luminaires should be mounted on the horizontal to avoid upward tilt.
- Any external security lighting should be set on motion-sensors sensitive to large moving objects only, and short (<1 minute) timers.

- All external lighting should be kept to the minimal feasible level and be directed downward: Baffles, hoods or louvres can be used to reduce light spill and direct it only to where needed.
- Lighting should be appropriately directed to avoid illuminating any mature trees, the boundary vegetation/hedge/scrub, mitigation/enhancement habitat boxes, and new tree/hedge-planting that could develop into a wildlife corridor in the future.
- Construction works should only be undertaken during daylight hours and task lighting should not be directed towards any boundary vegetation.

2.2 Enhancement Recommendations and Net Gain for Biodiversity

These additional recommendations would enhance the value of the site for wildlife, a requirement of the NPPF, and to help achieve Suffolk biodiversity targets and net gain for biodiversity.

5.3.1 Hedgerow and Trees: New Planting and Infill

New hedge-planting on the boundary which is currently un-marked (western boundary), or where there are gaps in the existing hedge-lines would strengthen these as wildlife corridors. The following native fruit and berry bearing species could be used: Dog Rose *Rosa canina*, Hazel, Guelder Rose *Viburnum opulus*, Crab Apple *Malus sylvestris*, Hawthorn and Spindle *Euonymus europaeus*. As well as enhancing ecological connectivity around the site, this would also provide foraging and refuge opportunities for birds, small mammals and other wildlife.

Management of established hedges should include rotational cutting and allowing growth to four or more meters in height (where safe to do so, depending on visibility splay), with mature tree standards of Oak and Field Maple. When hedges are cut, this should be done sequentially leaving 10cm extra grown at each cut (to maximize berry and fruit/nut production on the new growth).

5.3.2 Bat Boxes

Bat boxes could be installed on suitable mature retained trees at the site boundaries. Woodcrete boxes, such as Schwegler 2F and 2FN, would be appropriate (these boxes are more durable and long-lasting than wooden alternatives). Groups of three boxes should be located together facing south, south-east and south-west, on a single tree. Alternatively, bat boxes could be sited on the new buildings, facing east or west. External or built-in integral boxes can be sourced for buildings, to match the construction materials. Wooden alternatives, such as the Kent bat box (Cederwood) could also be considered, either on trees or buildings, though additional waterproofing should be added to increase longevity. The bat box at TN10 should be moved to a more appropriate orientation following assessment by a licensed ecologist.

5.3.3 Bird Boxes

The provision of bird boxes in retained trees or on new buildings would provide nesting opportunities for species such as the BoCC red-listed house sparrow and spotted flycatcher, or the amber-listed song thrush – all three species are SPIE/Suffolk BAP species, have been recorded locally and will readily use nesting boxes. The following bird boxes would be suitable for species of conservation concern:

House Sparrow Boxes

Three nest boxes with 32mm holes for house sparrow (e.g., Schwegler 1B bird box - 32mm hole) could be used - located close together on boundary trees for this colonial-nesting species, in a sheltered, minimally disturbed part of the site. Alternatively, sparrow terraces/boxes suitable for buildings could be used (e.g., the *Schwegler 1SP*, open fronted *Vivara Pro WoodStone House Sparrow*, or *WoodStone Build-in House Sparrow Nest Box*). These should be installed at eaves-height close to the vegetated site boundary. Boxes should be installed at least 3m above the ground (just below the eaves) and should avoid direct sunlight (not directly south-facing), prevailing wind, and out of reach of cats and other predators. There should be easy flight access from the nest-boxes to boundary vegetation.

Open-Fronted Bird Box

Song thrushes and spotted flycatcher use open-fronted nest-boxes: The Schwegler 2H open-fronted nest boxes, or other boxes to approved BTO-standards, can be installed in retained boundary trees.

5.3.4 Hibernacula and Habitat Piles

Log piles and/or hibernacula, could be created by filling a hole (approximately 2m by 1m in extent and up to 50cm deep) with rubble and wood from native hardwood species to provide reptile and amphibian refuge and hibernation opportunities. These should be located on the southern site boundary, outside the curtilage of the proposed new dwellings and in an area that should be minimally disturbed in the operational phase.

6 Conclusion

The reptile survey identified a low population of common lizards using garden habitat to the south of the construction zone which will be retained. Survey results have been used to inform mitigation requirements and details of how the design and working methods of the proposed development can be modified to avoid impact to protected species:

- **A Mitigation Method Statement/Strategy** must be designed and implemented to ensure that the population of common lizards using land to the south of the site is not impacted by the development, and the boundary habitat retained, managed and protected.
- **Design Considerations:** A sensitive lighting strategy must be designed to avoid impact to commuting/foraging bats.
- **Precautionary Working Methods** are required during site clearance for: Reptiles, hedgehogs, and nesting birds.
- **Protection Measures:** for mature retained trees during the construction phase.

For the development to proceed with minimal impact on protected or locally rare species, additional precautionary clearance and protection methods (Section 5.2) must be implemented during site clearance and throughout the construction phase to avoid any impact on reptiles, nesting birds, nocturnal animals and hedgehogs.

Any residual adverse effects during the operational phase can be avoided if a sensitive lighting strategy is implemented to avoid impact to any commuting bats or other nocturnal mammals, and a management plan for the new and established boundary hedges.

There is scope to further enhance the site through native tree and hedge planting at the site boundary to enhance connectivity and habitat availability. Additional biodiversity enhancement measures recommended in Section 5.3 should be implemented to add ecological value to the completed development.

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8 Appendix A – Legislation & Planning Policy

2.1 Habitat Regulations

The Conservation of Habitats and Species Regulations (2017) transpose Council Directive 92/43/EEC on the Conservation of Natural Habitats and Wild Flora and Fauna (Habitats Directive) into English law, making it an offence to deliberately capture, kill or disturb wild animals listed under Schedule 2 of the Regulations. It is also an offence to damage or destroy a breeding site or resting place of such an animal (even if the animal is not present at the time).

The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019

The 2019 Regulations were introduced following the departure of the United Kingdom from the European Union, amending the Habitats Directive and the Birds Directive by transferring functions from the European Commission to the appropriate authorities in England and Wales. All other processes and terms in the 2017 Regulations remain unchanged and existing guidance is still applicable.

2.2 Wildlife & Countryside Act

The Wildlife and Countryside Act 1981, as amended by the Countryside and Rights of Way Act (CROW) 2000 and the Natural Environment and Rural Communities Act (NERC) 2006, consolidates and amends existing national legislation to implement the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention) and Council Directive 79/409/EEC on the Conservation of Wild Birds (Birds Directive), making it an offence to:

Intentionally kill, injure or take any wild bird or their eggs or nests (with certain exceptions) and disturb any bird species listed under Schedule 1 to the Act, or its dependent young while it is nesting;

Intentionally kill, injure or take any wild animal listed under Schedule 5 to the Act; intentionally or recklessly damage, destroy or obstruct any place used for shelter or protection by any wild animal listed under Schedule 5 to the Act; intentionally or recklessly disturb certain Schedule 5 animal species while they occupy a place used for shelter or protection;

Pick or uproot any wild plant listed under Schedule 8 of the Act.

Sites of Special Scientific Interest (SSSI) are designated under this Act.

Special Protection Areas (SPA) are strictly protected sites, designated under the Birds Directive, for rare and vulnerable birds and for regularly occurring migratory species.

2.2 Natural Environment & Rural Communities Act

The NERC 2006 places a duty on authorities to have due regard for biodiversity and nature conservation during the course of their operations.

2.3 National Planning Policy Framework (NPPF)

The NPPF, updated in February 2019, replaced PPS9 in April 2012, and works in conjunction with Government Circular 06/2005 *Biodiversity and Geological Conservation - Statutory Obligations and Their Impact within the Planning System*.

NPPF sets out current government policy on biodiversity and nature conservation and places a duty on planners to make material consideration to the effect of a development on legally protected species when considering planning applications. NPPF also promotes sustainable development by ensuring that developments take account of the role and value of biodiversity and that it is conserved and enhanced within a development.

2.2 Biodiversity Action Plans

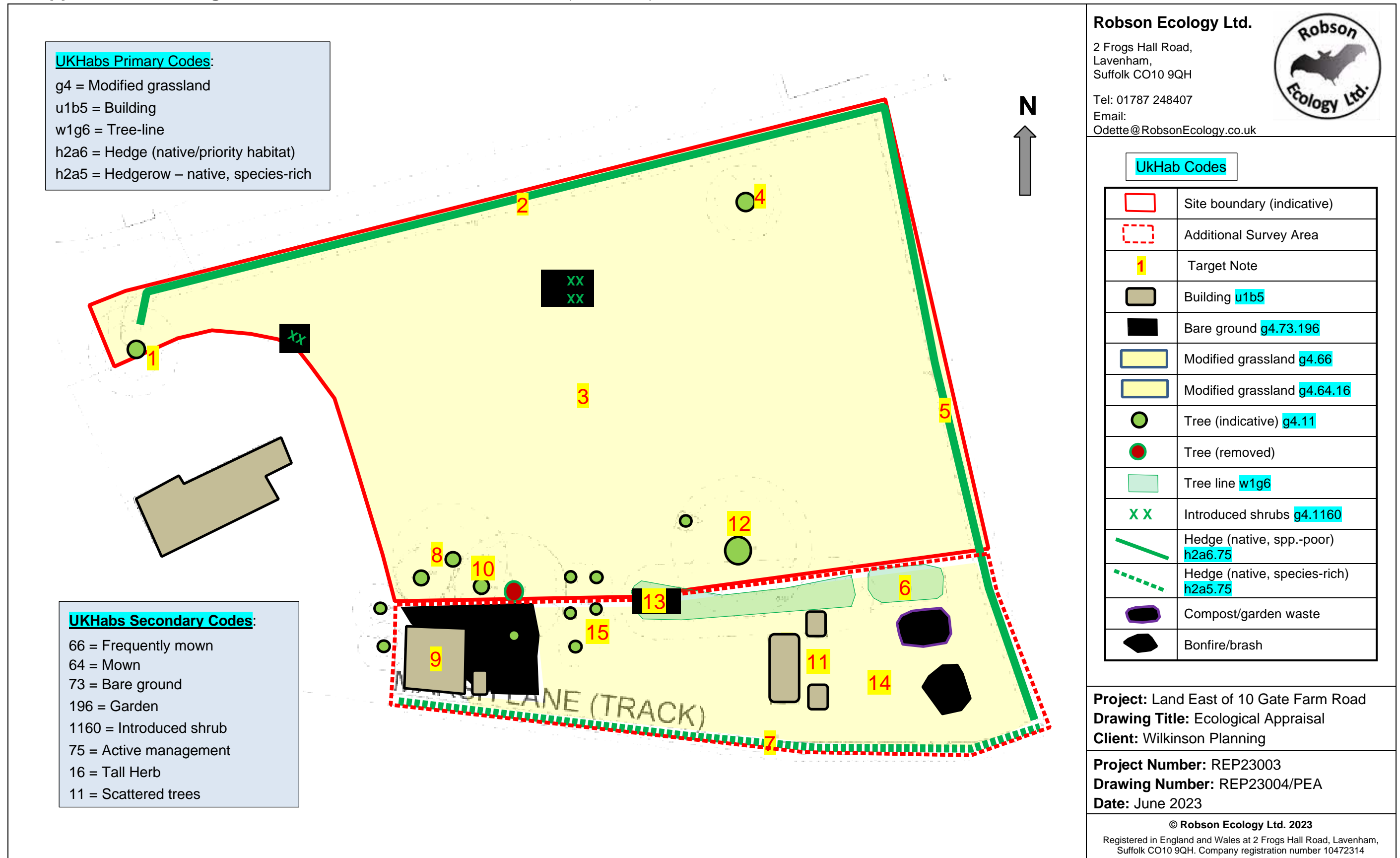
The UK Biodiversity Action Plan (UKBAP) was organised to fulfil the Rio Convention on Biological Diversity in 1992, to which the UK is a signatory.

There is no longer a UK Biodiversity Action Plan; this has been replaced by the UK Post-2010 Biodiversity Framework (2012). The England Biodiversity Strategy has been replaced by Biodiversity 2020: A strategy for England’s wildlife and ecosystem services (2011). As a result, the BAP process has been devolved to local level with each county deciding its own way forward.

2.2 Relevant Protected Species Legislation

Species	Relevant Legislation	Level of Protection
Widespread reptiles	Partially protected under Schedule 5 of the Wildlife and Countryside Act (1981) as amended.	Under the WCA (1981), it is an offence to: intentionally kill or injure these animals; sell, offer for sale, advertise for sale, possess or transport for the purposes of selling any live or dead animals or part of these animals.
Birds	Nesting birds are protected under the Wildlife and Countryside Act (1981) as amended with the exception of some species listed in Schedule 2 of the Act.	Under the WCA (1981) it is an offence to: <ul style="list-style-type: none"> • Intentionally kill, injure or take any wild bird • Intentionally take, damage or destroy nests in use or being built (including ground nesting birds) • Intentionally take, damage or destroy eggs Species listed on Schedule 1 of the WCA or their dependant young are afforded additional protection from disturbance whilst they are at their nests

9 Appendix B – Ecological Features Plan with UKHabs Codes (indicative)



10 Appendix C – Reptile Survey

