Ecological Scoping Survey

of

Land at Codham Hall,

Brentwood, Essex

on behalf of

S&J Padfield and Partners

September 2013

Rev A

Revision	Purpose	Originated	Checked	Authorised	Date
		JBo / PA	OR	OR	**09/2013**
A	**Client Amendments**	**RMH**	MD	MD	**09/2013**
Job Number: JBA 13/238		**Title:** Ecological scoping survey of land at Codham Hall, Brentwood, Essex			

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Non-technical Summary

Site:	Codham Hall, Brentwood, Essex
Grid Reference (from the centre of the site)	TQ 589 884
Report Commissioned by:	Strutt and Parker, on behalf of S & J Padfield & Partners
Date of Survey:	6th September 2013

Considerations	**Description**	**Timings and potential impacts**
Statutory and non-statutory sites within 2km:	There are four non-statutory sites within 2km of the site, these include1 LNR and 3 CWS.	No impacts to any non-statutory sites are predicted
SPA, SAC and Ramsar sites within 7km:	There are no SPAs, SACs or Ramsar sites within 7km of the site.	N/a
Phase 2 survey which may be needed (only if these species would be impacted by the development once final layout determined):	Reptile surveys	Mid-March to September
	Badger surveys	At any time when badgers active (optimally spring)
	Surveys of trees with bat roost potential if these trees will be impacted	Activity surveys – May to September. Or climb and inspect survey at any time (optimally April – September)
Precautionary measures:	Removal of grassland, ruderal vegetation, mature trees or hedgerows	Outside of the nesting bird season (March to September) or following a nesting bird survey.
Habitat types:	Mostly bare ground with rough grass and ruderal vegetation and tree planted buffers; shallow stream/drain; few hedgerows and part of an arable field.	

1 Introduction

Background

1.1 JBA Consultancy Services Ltd were commissioned by Strutt and Parker, on behalf of S & J Padfield & Partners to undertake an Ecological Scoping Survey of land at Codham Hall, Brentwood, Essex (grid ref TQ 589 884, taken from the centre of the site).

1.2 The assessment was required to accompany a planning application to develop the site for industrial use.

1.3 For the purposes of this report, protected species are taken to be those which are protected under European Legislation (Conservation of Habitats and Species Regulations 2010, as amended) and UK legislation (Wildlife and Countryside Act 1981; Protection of Badgers Act 1992); and other priority species and habitats which are a consideration under the National Planning Policy Framework (NPPF) 2012, placing responsibility on Local Planning Authorities to aim to conserve and enhance biodiversity and to encourage biodiversity in and around developments. There is a general biodiversity duty in the NERC Act (Section 40) which requires every public body in the exercising of its functions to 'have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity'. Biodiversity, as covered by the Section 40 duty, includes all biodiversity, not just the habitats and species of principal importance. However, there is an expectation that public bodies would refer to the S41 list when complying with the Section 40 duty.

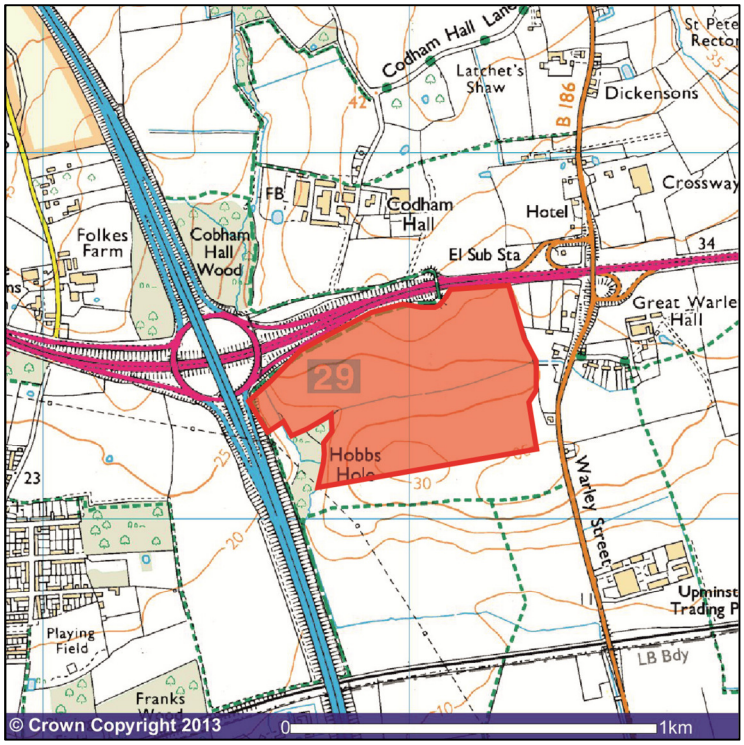
Site Description

1.4 The site was located to the south of Arterial Road (A127) approximately 2.5km south of Brentwood in Essex. Adjacent to the western boundary was the M25 motorway and woodland. To the south were arable fields and the eastern boundary was adjacent to grassland fields, beyond which was Warley Street (B186). The wider landscape was dominated by arable fields, hedgerows and patches of woodland. To the west, was Hobbs Hole Wood. The residential suburb of Cranham lay further to the west (see Figure 1 below).

1.5 The majority of the site consisted of areas of hard standing, with containers and caravans, bare ground, landscaped buffers and part of an arable field to the south. Hedgerows, tree buffers and areas of ruderal vegetation were also present within the site boundary. A lagoon was present at the western boundary. A shallow stream with

vegetated corridor ran east to west through the centre of the site.

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;
- assess the potential impact of the proposed works on any protected or notable species and/or habitats present including nature conservation sites on, or adjacent to, the site;
- make recommendations for further surveys and/or mitigation following the survey (if necessary) and provide suggestions to enhance the wildlife value of the site post-development.

2 Methods

Desk study

2.1 A 2km radius search for statutory designated sites, excluding Special Areas of Conservation (SACs), Special Protection Areas (SPAs) and Ramsar sites, either on the proposed development site or in the surrounding area, was conducted using "MAGIC", the Multi-Agency Geographic Information system for the Countryside.

2.2 A 7km search for SACs, SPAs and Ramsar sites was also conducted using MAGIC.

2.3 The site is covered by the Local Biodiversity Action Plan (BAP) for Essex (http://www.essexbiodiversity.org.uk/biodiversity-action-plan).

Phase 1 Habitat Survey

2.4 The survey was undertaken by Odette Robson BSc (Hons) PhD MCIEEM (great crested newt class licence WML-CL09; bat class licence WML-CL18). During the survey, the temperature was 22°C; there was a light breeze (Beaufort scale 2), 10% cloud cover and good visibility.

2.5 The survey methodology followed JNCC (Joint Nature Conservation Committee) Guidelines (JNCC, 2010) and included mapping habitat types and identifying all plant species observed on the site, including Wildlife and Countryside Act Schedule 9 invasive plant species such as Japanese knotweed *Fallopia japonica* and giant hogweed *Heracleum mantegazzianum.*

2.6 The site was also assessed for signs and evidence of protected, priority and rare species in accordance with approved guidelines, as follows:

2.7 **Amphibians**: Six ponds were identified within 500m of the site; all of these were ecologically separated from the site by the M25. A lagoon on the western boundary was assessed for potential to support breeding protected amphibians, such as great crested newts.

2.8 **Bats**: Mature trees within the site boundary, and adjacent to the site boundary, were surveyed externally, from the ground, for their potential to support roosting bats, under the following criteria.

Table 1: Bat survey protocol for trees: (potential bat roosting features were identified in order to categorise trees, as below):

Bat Roost Potential	Field signs
Roost **Confirmed**	Confirmed bat roost in tree: field evidence of the past or current presence of bats, e.g. droppings, staining.
High roost potential	Splits or cracks in major limbs which develop upwards, smooth surface around entry point, dense ivy-covering, woodpecker/rot holes, significant lifting bark, artificial bird or bat boxes. Ancient or over mature trees where the canopy cannot be fully inspected from the ground.
Medium roost potential	Splits in branches, dense ivy-covering, small cavities, dense epicormic growth, flies around entry point.
Low roost potential	Splits in minor branches, sparse ivy, limited loose bark. Young, healthy tree with good visibility to the top of the canopy.
No roost potential	Trees with a negligible potential to support bat roosts (not supporting any of the above features).

Bat Survey Protocol for buildings

The only buildings on site were semi-permanent, single storey, pre-fabricated buildings; these were externally assessed for signs or evidence of past or present usage by roosting bats. Binoculars were used to check for entry points such as cracks or holes, plus evidence of bat activity such as staining, droppings or feeding remains (such as butterfly or moth wings) that could indicate past presence of bats.

2.9 **Dormice**: A visual survey for the presence of suitable habitat (woodland/suitable hedges with good under-storey/shrub layer and a range of food plant species, such as hazel, bramble and honeysuckle) was carried out, to assess if dormice were likely to be present.

2.10 **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).

2.11 **Otters and water voles**: a visual appraisal of all water bodies was carried out, to assess suitability to support these species, including: size and flow of water course; shape and vegetation cover/structure of the banks.

2.12 **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. Any water bodies were assessed for potential to support white-clawed crayfish.

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

2.14 **Badgers:** A visual survey for setts, hair, latrines, prints, snuffle marks or other signs of badgers was undertaken within the site boundary.

2.15 **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, Birds of Conservation Concern or other common and widespread nesting birds.

2.16 **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.

3 Results

Desk Study

Statutory Nature Conservation Sites within 2km of the site, excluding Special Areas of Conservation (SACs), Special Protection Areas (SPAs) and Ramsar sites

3.1 There were no statutory designated sites within 2km of the site.

Special Areas of Conservation (SACs), Special Protection Areas (SPAs) and Ramsar sites within 7km of the site.

3.2 There were no SPAs, SACs and Ramsar sites within 7km of the site.

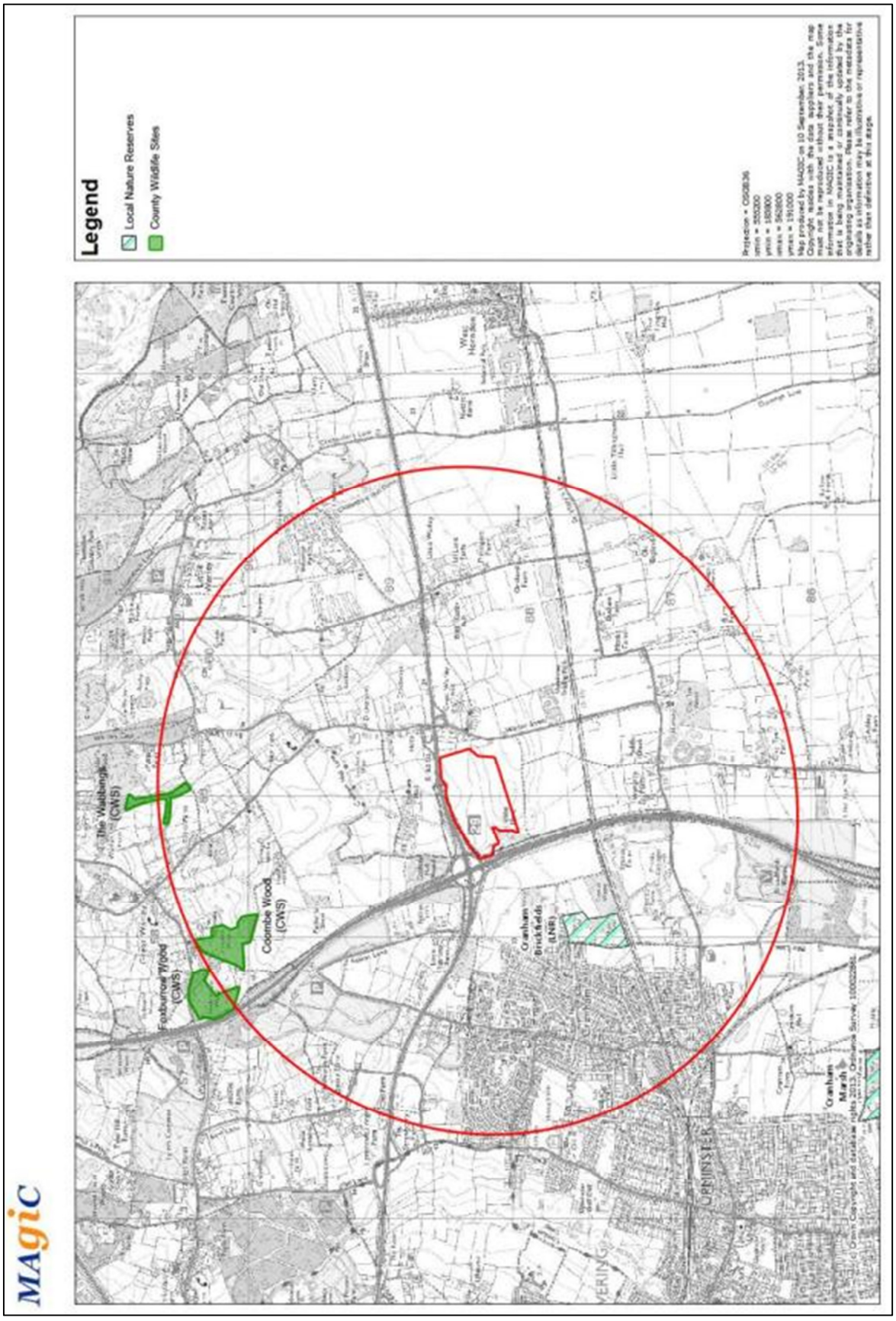
Non-Statutory Nature Conservation Sites

3.3 There were four non-statutory conservation sites within 2km of the site: one local nature reserve (LNR) and three county wildlife sites (CWS). These are listed in Table 2 and shown in Figure 2.

Table 2: Non-statutory conservation sites within 2km of the site

Site Name	Designation	Distance from Site	Description
Cranham Brickfields	LNR	700m south-west	Mixture of habitats, including semi-improved grassland, pond, scrub and woodland. There are records of bullfinch, great crested newt, slow worm, common lizard and green hairstreak butterfly. Plants records on site include dyers greenweed.
Coombe Wood	CWS	1.7km north-west	Mixed broadleaved woodland extensively replanted with silver birch and sweet chestnut. Only the eastern part is retained as semi-natural ancient woodland and here there is much sycamore mixed with small pockets of Hornbeam coppice. Ground flora includes dog's mercury and bluebell.
Foxburrow Wood	CWS	1.9km north-west	Ancient woodland containing a small remnant of original Hornbeam coppice along the northern boundary with the remainder comprising Silver Birch over a dense undercover of bracken.
The Wabbings	CWS	1.85km north	Mixed broadleaved woodland containing pedunculate oak and ash, mixed with birch, willow and Hornbeam. Ancient woodland indicators in the ground flora include bluebell and Yellow Archangel.

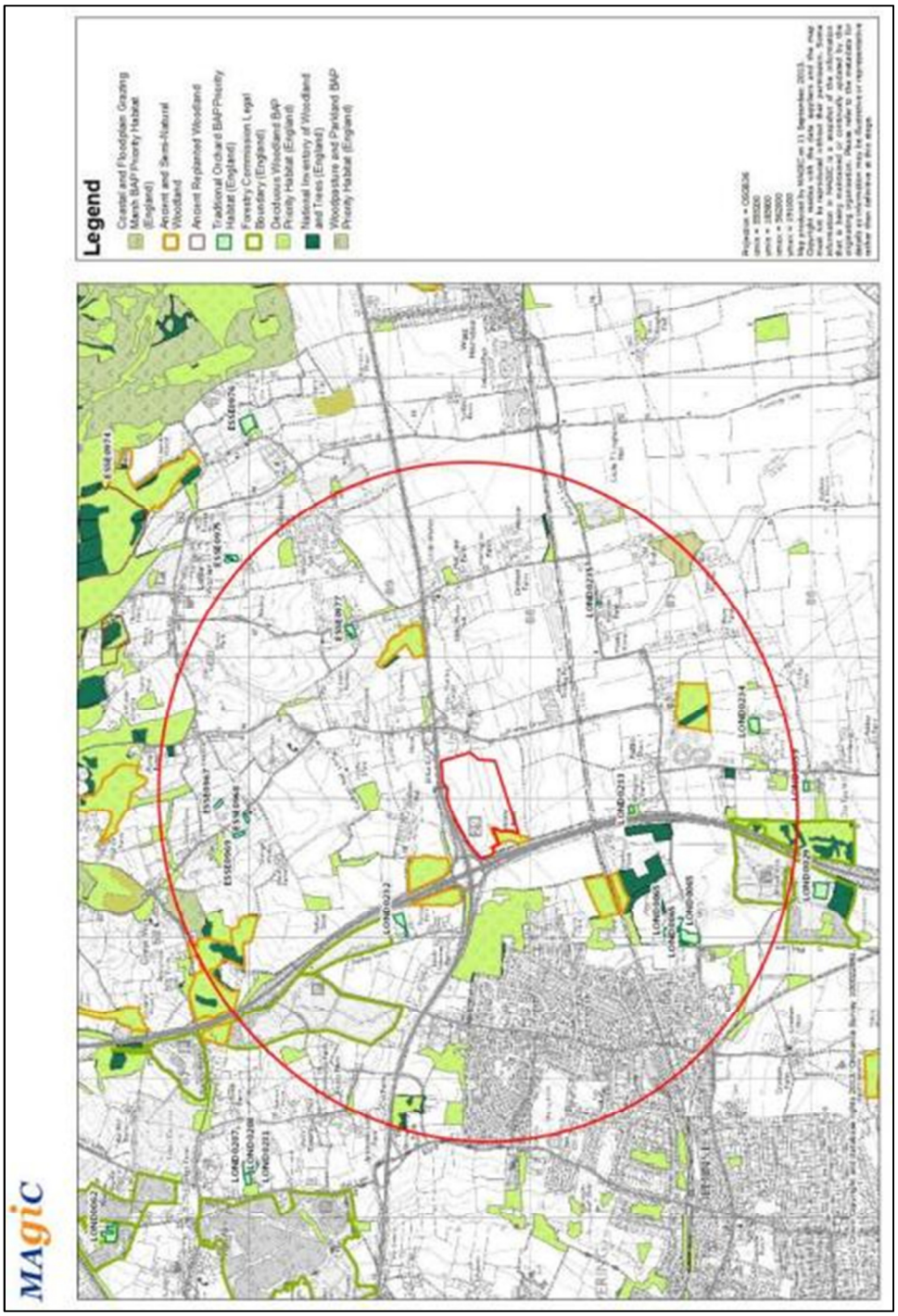
Figure 2: Non-statutory sites within 2km



Habitat Types within 2km

3.4 Habitat types within the area included areas of ancient woodlands, deciduous woodland, coastal and floodplain grazing marsh, wood pasture and parkland, and traditional orchards. An area of ancient woodland lies adjacent to the site on the western boundary, and two further areas of Ancient woodland are approximately 200m north-west of the site. The remaining habitat types are interspersed throughout the wider landscape, shown in Figure 3.

Figure 3: Habitat types within 2km



Protected, priority and rare species

3.5 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 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.

3.6 A reduced list of UK priority and protected birds, mammals, amphibians and reptiles is shown; these have been selected based on their likelihood of being recorded at the site given the habitats types present.

Birds	Protection	Approximate distance from site	Year of Record
Skylark	BoCC red list, UKBAP, Local BAP	Within same 10km square	2009

Mammals	Protection	Approximate distance from site	Year of Record
Badger	Protection of Badgers Act 1992	Within same 10km square	1993
Brown hare	UK& local BAP	Within same 10km square	1993
Hedgehog	UK BAP	Within same 10km square	2006
Water vole	WCA Schedule 5 & Local BAP	Within same 10km square	1993
Natterer's bat	European protected	Within same 10km square	1993

Amphibians	Protection	Approximate distance from site	Year of Record
Great crested newt	European protected, UKBAP; LBAP	Within the same 10km square	1985

Reptiles	Protection	Approximate distance from site	Year of Record
Common lizard	Partially protected under the WCA Schedule 5	Within the same 10km square	1983

WCA = Wildlife and Countryside Act 1981 as amended; UK BAP = UK Biodiversity Action Plan; LBAP = Local Biodiversity Action Plan; BoCC = Birds of Conservation Concern.

Phase 1 Habitat Survey

3.7 Appendix A shows a Phase 1 habitat map of the site, with Target Notes. A list of plant species identified on the site is included in Appendix B.

Limitations and Assumptions

3.8 The baseline conditions reported and assessed in this document represent those identified at the time of the survey on the 6th September 2013. Although a reasonable assessment of habitats present can be made during a single walkover survey, seasonal variations are not observed. The full plant species list (Appendix B) was based on the current site visit. The survey was conducted in September, which is just inside the optimal season for Phase 1 habitat surveys (April – September). All areas of the site were accessible on the day of the survey.

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

Target Notes

Target Note	Habitat description	Photo
1	Road bank. Creeping thistle (*Cirsium arvense*), stinging nettle (*Urtica dioica*), hemlock (*Conium maculatum*) and bramble (*Rubus fruticosus*) were dominant. Occasional species included teasel (*Dipsacus fullonum*), apple (*Malus sp.*), willow (*Salix sp.*), and blackthorn (*Prunus spinosa*). There was a metal palisade fence to the south and next to the road. There was also evidence of rabbit activity.	

2	Bank with planted trees (<10years), ruderal and rough grass. Species included field maple (*Acer campestre*), pine (*Pinus sp.*), cherry (*Prunus sp.*), hazel (*Corylus avellana)*, oak (*Quercus robur*), ash (*Fraxinus excelsior*), laurel (*Laurus nobilis*) and elm (*Ulmus glabra*).	
3	Planted trees (<20years) and ruderal vegetation buffer adjacent to the M25 beyond the northern site boundary.	
4	Hedge planted (<10years), predominantly hawthorn (*Crataegus monogyna*) with occasional cherry.	
5	Area of bare ground used for car parking.	
6	Dry stream/ditch on eastern boundary of site.	

7	Stream corridor running through the middle of the site. Flowing from east to west, with shallow, rippled flow. <5cm deep in places – maximum 10cm. Heavily overgrown with species including great willowherb (*Epilobium hirsutum*), nettle, field bindweed *(convolvulus arvensis*) and woody nightshade (*Solunum dulcamara*).	
8	Several mature oak trees in the stream corridor with moderate bat roost potential (some flaking bark cavities and knot holes).	
9	Bare ground bounded by banks dominated by bristly ox-tongue (*Picris echioides*) hemlock and rough grasses.	

10	Unmanaged hedge running along stream corridor. Approximately 3-4m tall on northern side of ditch. Predominantly hawthorn and dense bramble with nettle understory. Occasional apple, elder (*Sambucus nigra*) and dog rose (*Rosa canina*).	
11	Recently harvested arable field (cereal crop) and harrowed. Three meter wide grass and ruderal margin on the field's northern boundary. Dominant species included false oat grass (*Arrhenatherum elatius*), cock's foot (*Dactylus glomerata*), Timothy (*Phleum pratense*) and hemlock. Cropped area was relatively weed free.	
12	Unmanaged woodland (Hobbs Hole Wood) adjacent to the site on the western boundary. Mature trees included oak, ash, crack willow (*Salix fagilis*), goat willow (*Salix caprea*) and grey willow (*Salix Cinerea*). Some mature trees had high bat roost potential (many damaged, split limbs and aerial deadwood). Understory and ground flora of mainly ivy (*Hedera helix*), dogwood (*Cornus sp.*), elder, blackthorn, ground ivy (*Glechoma hederacea)*. Shallow stream along eastern boundary. Open fronted owl box, had been used by unknown species. Other species recorded included jay (*Garrulus glandarius*) and holly blue butterfly (*Celastrina argiolus*).	 

13	Man-made lagoon with steep plastic sheet sides and no great crested newt potential. Semi-mature alder (*Betula pendula*) and willow around margins.	
14	Inside of roundabout. Ruderal vegetation on sloping sides to culverted stream at bottom of slopes. Dominant species included bristly ox-tongue, spear thistle (*Cirsium vulgaris*), teasel and rough grasses.	
15	Semi-permanent, single storey, prefabricated buildings with negligible bat roost potential.	
16	Fallow/set-a-side land previously sown with wheat. Abundant arable weeds and ruderals species.	

4 Protected Species – Results and Evaluation

Flora and habitats

4.1 The majority of the site was bare ground, used to store various shipping containers and caravans. Rough grass and ruderal vegetation with planted trees formed banks bordering the bare ground throughout the site, and a shallow stream flowed through the middle, with occasional mature oaks along the length. The south east corner of the site was part of a well- managed arable field.

4.2 The UK BAP habitats 'hedgerows' were present within the site. However, these were dominated by hawthorn and most were recently planted, therefore, unlikely to be classified as 'important' under the Hedgerow Regulations 1997.

4.3 No rare, BAP or protected plant species were recorded at the site during the survey, therefore, no further survey is necessary.

Bats

4.4 There were a number of mature oak trees along the stream (Target Note 8) which provided moderate to good roosting opportunities for bats. Hobbs Hole Wood (Target Note 12) adjacent to the western boundary of the site contained numerous mature trees with high bat roost potential. There were no other suitable trees or buildings for roosting bats within the site boundary.

4.5 The site was dominated by bare ground, rough grass and ruderal vegetation which provided limited foraging habitat for bats. The stream flowing through the middle of the site was very shallow, with mature oak trees, and could provide a commuting/foraging corridor for bats between Hobbs Hole Wood to the west and buildings/habitat off-site to the east.

4.6 There are records of Natterer's bat (*Myotis nattereri*) within the same 10km square of the proposed development site, although most recent records are from 1983.

4.7 Given the poor quality of habitat within the site, and the general lack of roosting opportunities, it was considered unlikely that bats would be impacted by the proposed development.

4.8 Further survey is recommended if the oak trees at Target Note 8 will be impacted by the proposed development. These surveys should follow BCT best practice guidelines (2012), and can be carried out between the end of April and September. Outside this season, it may be possible for a bat-licenced tree-climber to assess the

roost status of the trees.

Reptiles

4.9 The majority of the site (bare ground) provided poor quality habitat for reptiles. Rough grass and ruderal vegetation forming banks and margins throughout the site offered potential habitat, but was limited in extent and connectivity to further reptile habitat.

4.10 There are records of common lizard (*Zootoca vivipara*) within the same 10km square of the proposed development site (non location-specific record).

4.11 If the existing banks of grassland and ruderal vegetation are to be retained as part of the development, then, it is unlikely that reptiles will be impacted and no further surveys are necessary. However, if small areas of grassland and ruderal vegetation are to be cleared as part of the development, it is recommended that precautionary measures are implemented (e.g. sequential strimming), and a method statement prepared. If large areas of the rough grass and ruderal vegetation will be cleared then it is recommended that reptile surveys are undertaken to assess the presence or likely absence of these species.

4.12 Reptile surveys can be undertaken between mid March and September (dependant on weather), and involve seven visits to the site to survey previously laid artificial refuges. Surveys should follow current best practice guidelines (Froglife 1999).

Birds

4.13 Mature trees and hedgerows within the site provided potential nesting and foraging opportunities for birds. The arable crop provided potential shelter and nesting opportunities for ground nesting birds such as skylark and grey partridge. Habitats within the site such as arable fields and scattered trees are abundant locally. Therefore, it was considered unlikely that protected, BAP or rare birds would be significantly impacted by the proposed development.

4.14 Bird species observed during the field survey included dunnock, goldfinch, linnet, pied wagtail, red-legged partridge and buzzard.

4.15 The site provided potential habitat for a range of nesting widespread and common species. BAP and red-listed species such as skylark could use habitats such as those within the site boundary.

4.16 Any trees/ hedgerows proposed for retention should be suitably protected from harm during the construction works following British Standard: BS5837 (2012).

4.17 Works proposed to any trees, hedges or arable ground should be conducted outside the main bird breeding season (which is March until September). If vegetation removal is necessary between these dates, an ecologist should survey the site for active bird nests immediately prior to works. If nests are identified, there may be a delay in the clearance of some vegetation until all young birds have fledged.

Amphibians

4.18 A stream was flowed through the middle of the site (Target Note 7) which is unlikely to be used by breeding amphibians, but may be utilised as a corridor to facilitate movement through the landscape.

2.17 Six ponds were present within 500m of the site boundary. However, all of these were ecologically separated from the site by the M25. A lagoon (Target Note 13) on the western boundary had steep plastic sheet sides, and negligible potential to support great crested newts.

4.19 Considering the large amount of bare ground, the majority of the site comprised poor quality habitat for amphibians, such as toads and great crested newts, during their terrestrial phase.

4.20 There are records of great crested newts within the same 10km square of the site (location not specific).

4.21 Given the poor quality of the terrestrial habitat within the site and the poor suitability of the lagoon on site, it was considered unlikely that amphibians would be present within the site, or would be impacted by the development. Therefore, further survey is not necessary.

Invertebrates

4.22 The arable field was unlikely to support a large number of invertebrates due to the likely use of insecticides, and negligible weed flora. However, the hedgerows and small areas of rough grassland and ruderal vegetation provided potential habitat for common invertebrates. These habitats were of limited extent and therefore unlikely to support a significant assemblage of BAP or rare invertebrates. The stream flowing through the centre of site provided better quality habitat for invertebrates, and should be retained where possible.

4.23 The data search did not highlight any records of local BAP invertebrate species within the same 10km square of the site. Invertebrate species observed during the field survey included holly blue butterfly, however, this was in Hobbs Hole Wood beyond the site boundary and is not a species of conservation concern. Also, due to the abundance of similar habitats within the surrounding area, it was not considered that the local conservation status of invertebrates would be significantly affected by the proposed development

4.24 No further survey is necessary.

Hedgehogs and badgers

4.25 No signs of badger or hedgehog activity were recorded on the site; however, a full badger survey of the adjacent woodland to the west was not carried out. The site was not considered suitable for sett creation due to the lack of suitable cover and likely regular disturbance.

4.26 There are records of badgers and hedgehogs within the surrounding area from 1993 and 2006, respectively.

4.27 If the development is likely to require ground works within 30m of the woodland on the western boundary of the site, it is recommended that a full badger survey is undertaken to confirm the presence/absence of setts within disturbance distance. If the developed area can be confined to the bare ground and arable field (not impacting on the hedgerows or grass/ruderal margins) it was considered unlikely that badgers or hedgehogs would be impacted by the development.

Dormice

4.28 The site was not considered to be suitable for dormice: Hedgerows were infrequent, species poor and contained few mature trees. The woodland adjacent to the western boundary provided potential habitat for dormice with a mature canopy structure, and a very dense understory allowing dormice to gain access into the canopy. If construction works do not affect the woodland boundary to the west of the site, then no impact on dormice is likely. A buffer of at least 10m from the western boundary should be retained, to ensure no impact on any dormice, should they be using this woodland. If this is possible, then no further survey is necessary.

Other Protected, BAP or Rare Species

4.29 The stream flowing through the centre of the site provided sub-optimal habitat for both otters and water voles. The banks were overgrown with rough grass ruderal vegetation and the water was very shallow.

4.30 There are records of water voles within the surrounding area from 1993. However, no evidence of water voles was recorded during the field survey, and the stream was sub-optimal with negligible water flow. It was considered that there was only a low possibility that water voles would use the stream, therefore, no further survey is necessary unless the stream corridor will be diverted or impacted by development of the site. There are existing vehicular crossing points, and if these are used, then further impact on any species using the stream is unlikely.

4.31 Measures should be undertaken during and post-construction to avoid pollution to the stream and to monitor and control run-off and discharge rates.

4.32 Although the arable field on site provided potential habitat for brown hare (a UK and local BAP species) and there records of brown hare in the local area from 1993. It was considered unlikely that this species would be significantly impacted as arable land dominated the wider countryside.

4.33 Development of the site was considered unlikely to impact on any other protected, BAP or rare species.

5 Key Recommendations, Further Surveys and Precautionary Methods

5.1. Further surveys for reptiles, bats (in trees) and badgers, as detailed in Section 3 may be required depending on the scope of the development. However, a sensitive layout could avoid impact on these species – should they be present.

5.2. Precautionary clearance trees or hedges will be necessary, as detailed in Section 4, to avoid infringing legislation which protects all nesting birds. There may be timing constraints or ecological supervision at other times of year.

5.3. The stream that flows through the centre of the site should be protected from pollution before, during and after construction. Surface water run-off rates and discharge of surface water should be limited through Conditions. Levels of these can be reduced through use of Sustainable Urban Drainage Systems (SUDS).

5.4. If recommendations following further surveys (if necessary) are implemented, and the precautionary measures for birds are followed, it was considered that the development could proceed with minimal impact on the local conservation status of any protected, BAP or rare species within the area.

6 Enhancement Recommendations

6.1 The following suggestions will enhance the value of the site for wildlife. However, it could be noted that these are not legally required for compensation of habitats or mitigation, but may be revised depending on the outcome of the further surveys for reptiles, bats and badgers (should these be required).

6.2 The addition of bat boxes on the mature trees along the stream, if retained, would provide additional roosting opportunities. Schwegler bat boxes are recognised as being suitable for roosting bats and long lasting. Bat boxes should ideally be located south facing (between south east and south west) and above 5m. Boxes such as Schwegler 2F boxes, suitable for pipistrelles, would be appropriate.

6.3 The addition of two house sparrow boxes on any new buildings on site will provide additional nesting opportunities for this BoCC red listed species. Also, the addition of standard bird nesting boxes on retained trees and new buildings would provide additional nesting opportunities for local bird species. Using bird boxes with a variety of entrance holes will attract a greater diversity of nesting birds. Boxes should be located appropriately, out of direct sunlight, close to vegetation and not facing the prevailing wind direction.

6.4 Connectivity in a landscape context could be considered at all stages of the design process. Native tree and hedgerow plantings on the south and western boundaries of the site should be considered, to create and maintain dispersal corridors and biodiversity linkages with Hobbs Hole Wood adjacent to the site on the western boundary.

6.5 Landscaping could 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. The landscape design should incorporate vegetative cover along the banks of the stream flowing through the centre of the site to maintain and enhance this wildlife corridor.

7 Conclusion

7.1 The site was predominantly bare ground, pre-fabricated buildings and assorted storage containers – of low ecological value. Rough grass and ruderal vegetation with planted trees bordered the bare ground throughout the site, providing potential habitat for reptiles and birds. A shallow stream flowed through the middle of the site, lined with mature oak trees, that provided potential foraging and roosting opportunities for bats. The south east corner of the site was part of an arable field with unmanaged mature woodland adjacent to the western boundary which provided potential habitat for badgers, birds and bats.

7.2 Depending on the scope of the development, further survey is recommended to determine if reptiles, bats and badgers would be impacted by development of the site. If any mitigation or compensation recommended following these further surveys is carried out, and if the precautionary measures for birds detailed in this report are followed, it was considered that the development could proceed with minimal impact on the local conservation status of any protected, BAP or rare species within the area.

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

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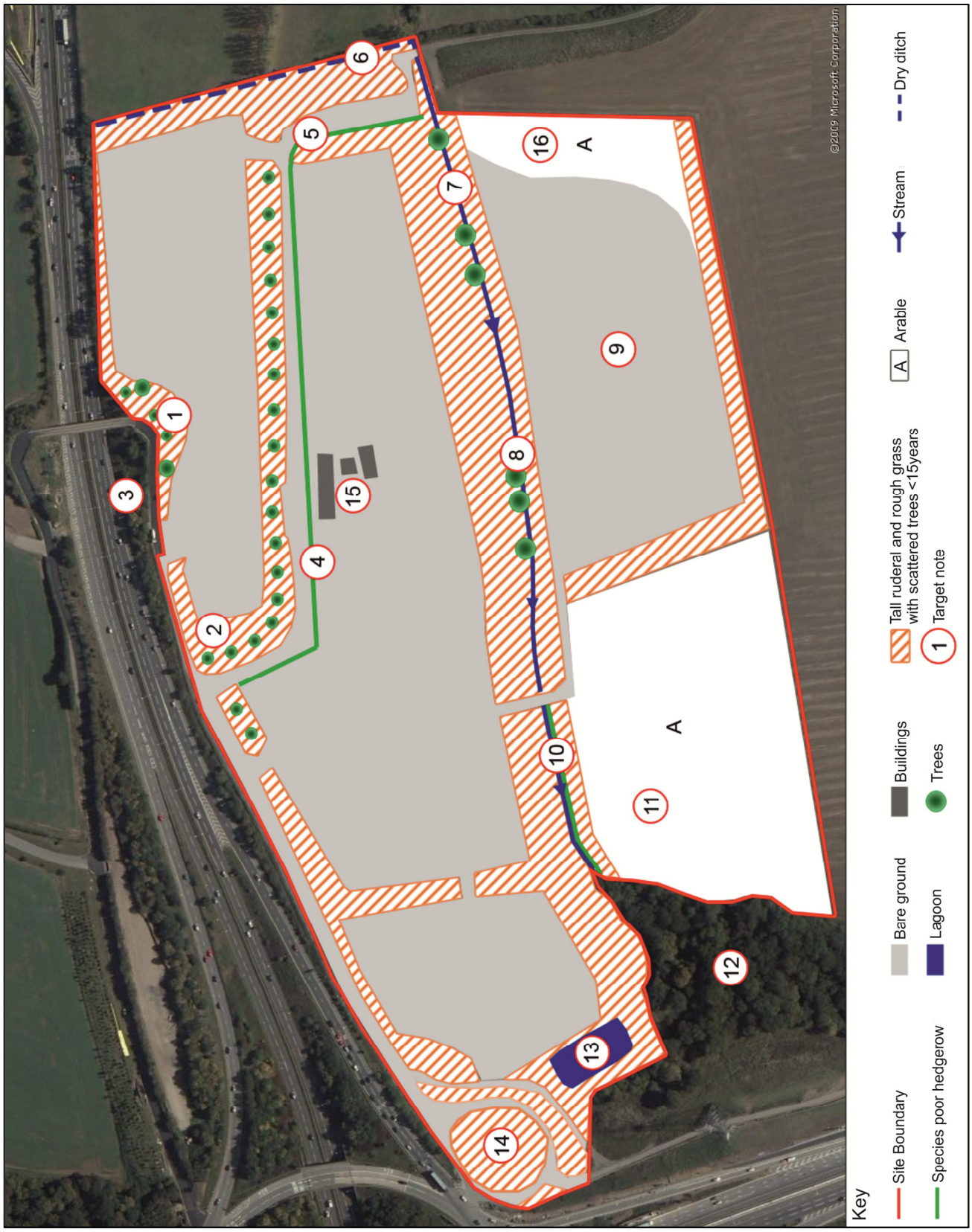
9 Appendices

Appendix A: Phase 1 habitat map



Appendix B: Plant species list

Forbs

Scientific Name	Common Name
Arctium spp.	Burdock
Artemisia vulgaris	Mugwort
Calystegia sepium	Hedge bindweed
Cirsium arvense	Creeping thistle
Cirsium vulgare	Spear thistle
Conium maculatum	Hemlock
Convolvulus arvensis	Field bindweed
Daucus carota	Wild carrot
Dipsacus sylvestris	Teasel
Epilobium hirsutum	Great willowherb
Foeniculum vulgare	Fennel
Geranium molle	Dove's foot crane's bill
Glechoma hederacea	Ground ivy
Lamium purpureum	Red dead nettle
Picris echioides	Bristly oxtongue
Potentilla reptans	Creeping cinqufoil
Pulicaria dysenterica	Common fleabane
Sisymbrium officinale	Hedge mustard
Senecio jacobaea	Common ragwort
Solanum dulcamara	Woody nightshade
Tripleurospermum inodorum	Scentless mayweed
Urtica dioica	Nettle

Trees and shrubs

Scientific Name	Common Name
Acer campestre	Field maple
Alnus glutinosa	Alder
Buddleja daviddii	Buddleia
Cornus sp.	Dog wood
Crataegus monogyna	Hawthorn
Fraxinus excelsior	Ash
Hedera helix	Ivy
Laurus nobilis	Laurel
Malus sp.	Apple
Pinus sp.	Pine
Prunus sp.	Cherry
Prunus spinosa	Blackthorn
Quercus robur	Oak
Rosa canina	dog rose
Rubus fruticosa	Bramble
Salix caprea	Goat willow
S. cinerea	Grey willow
S. fagilis	Crack willow
Sambucus nigra	Elder
Ulmus glabra	Elm

Grasses, sedges, rushes and ferns

Scientific Name	Common Name
Arrhenatherum elatius	False oat grass
Dactylus glomerata	Cocksfoot
Elymus repens	Couch grass
Phalaris arundinacea	Reed canary grass
Phleum pratense	Timothy

Appendix C: Relevant protected species legislation

Species	Relevant Legislation	Level of Protection
Badgers	○ Protection of Badgers Act 1992 ○ Badgers are also protected by the Wild Mammals (Protection) Act 1996	The Protection of Badgers Act (1992) makes it an offence to intentionally or recklessly: • Damage a badger sett or any part of it • Destroy a badger sett • Obstruct access to, or any entrance of a badger sett • Disturb a badger whilst it is occupying a badger sett
Bats	○ Full protection under the Wildlife and Countryside Act (WCA) (1981) (Listed on Schedule 5) - as amended ○ Classified as European protected species under Conservation of Habitats and Species Regulations 2010, as amended ○ Also protected by the Wild Mammals (Protection) Act 1996	Under the WCA (1981), it is an offence to: • intentionally kill, injure, or take any species of bat • intentionally or recklessly disturb bats • intentionally or recklessly damage destroy or obstruct access to bat roosts
Birds	○ Protection under the Wildlife and Countryside Act (1981) as amended	Under the WCA (1981), it is an offence to: (with exceptions for certain species): • 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 nesting
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