



Moat Farm, Wilby

Preliminary Ecological Appraisal
Report

On Behalf of

Rebecca Regis

Version 1 | August 2022



View of the Site from the North with Grazed Grassland within a Fenced Area

Document Control

Version	Date	Produced by	Reviewed by	Notes
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This report does not purport to provide legal advice. This report provides baseline ecological conditions for the aforementioned site and is considered relevant for a period of no more than 12 months from the date of the Site Visit.




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Ecological Risk Assessment


The following Ecological Risk Assessment provides an infographic summary of the Preliminary Ecological Appraisal of Moat Farm, Wilby. This includes the requirements, including further surveys or mitigation, necessary to comply with relevant legislation and policy. Enhancement measures are also provided in line with the National Planning Policy Framework¹. An assessment of potential impacts has been made based on the proposals for the Site, which include the development of new one-bedroom annexe dwelling. PEA Version 1 is based on the site plan (Proposed Block Plan 6754 02/C Rev C) included in Appendix 1

This Eco RA is not intended as a substitute for reading the full report as set out in the proceeding pages.

Risk Code Key		
	High Risk	Ecological issue(s) requiring further survey work and/or mitigation prior to planning application
	Moderate Risk	Ecological issue(s) requiring mitigation without requiring further survey
	Low Risk	No significant ecological issues identified. No further action required.

Risk Code	Factor	Comments and Actions Required	Timings
	Habitats	<p>The Site consist of a grazed grassland area within a horse corral. This habitat has low ecological value on its own right.</p> <p>Areas surrounding the Site are an extension of the habitats onsite. To the south and east, it's in the form of graze fenced grassland, while to the north and west is in the form of unglazed tall sward with additional species.</p> <p>The habitat to be removed to allowed for the development is common and ubiquitous, and the loss of these small area would not be considered significant in ecological terms. Indirect impacts over the surrounding grassland may occur during the construction phase. This could be in the form of dust generation and smothering of plants.</p> <p>Requirements: To mitigate the effect of possible indirect impacts over the surrounding grassland, works should be restricted to the marked redline boundary, soil strip is not to be undertaken on dry windy days and resulting soil is to be exported from site i.e., not to be stored on grassland around the Site.</p> <p>To mitigate for the loss of the small area included within the Site, a formal management plan will be produced to enhance the surrounding hay meadow.</p> <p>Enhancements: Tree planting of five broad-leaved native species or fruit trees such as apple, plum or cherry, or pear that can be carried out within the wider landholding boundary.</p>	<p>Pre and during construction</p> <p>Design Stage</p> <p>Design Stage</p>

Risk Code	Factor	Comments and Actions Required	Timings
	Great Crested Newts	<div style="background-color: black; width: 100%; height: 100%;"></div>	<p>Design Stage</p> <p>Design Stage</p> <p>Design Stage</p>
	Bats		<p>Design Stage</p> <p>Design Stage</p>
	Statutory and Non-Statutory Designated Sites Birds Priority Species (Fauna and Flora)		Discussed but no further action required.

Risk Code	Factor	Comments and Actions Required	Timings
	Reptiles Badgers Hazel Dormice Otter Water Vole White-clawed Crayfish	Considered but screened out due to a lack of suitable, connecting, or linked habitat combined with a lack of evidence onsite. No action required	

1 Introduction

1.1 Background

Practical Ecology Ltd were commissioned by Rebecca Regis to undertake a Preliminary Ecological Appraisal (PEA) of Moat Farm, Wilby, herein referred to as the 'Site'.

This report presents ecological information gathered during a desk study and an ecological walkover survey of the Site undertaken on 13th June 2022.

The purpose of this report is to provide baseline ecological information pertaining to the Site, alongside the rationale for required further surveys and mitigation as deemed appropriate to ensure compliance with legislation and policy, and recommend enhancement measures to achieve biodiversity net-gain in line with the NPPF.

Ecological baseline information for the Site is crucial to ensure potential effects of the development upon flora and fauna can be suitably managed. Furthermore, any constraints upon the proposed development of the Site, imposed by site ecology, can be assessed. Enhancement measures are presented which allow site biodiversity to be improved, whilst considering the legal requirements and best practice regarding protected species and/or habitats.

1.2 The Site

The Site is approximately 0.2 ha (central OS grid reference TM 25975 71856, postcode IP21 5LU) and is located to the east of the village Wilby, Suffolk, c.8.5 km north of Framlingham. The Site comprises of a fenced grazed grassland. The Site itself consists of a grazed horse corral area and sits within the landholdings of Moat Farm which include a farmhouse, converted barn, agricultural barns and other outbuildings to the west, ponds, hedgerows and further grassland fields to the north, east and south. A Site boundary and existing access track (red line) and associated wider landholdings (blue line) are shown/provided in Figure 1 below.

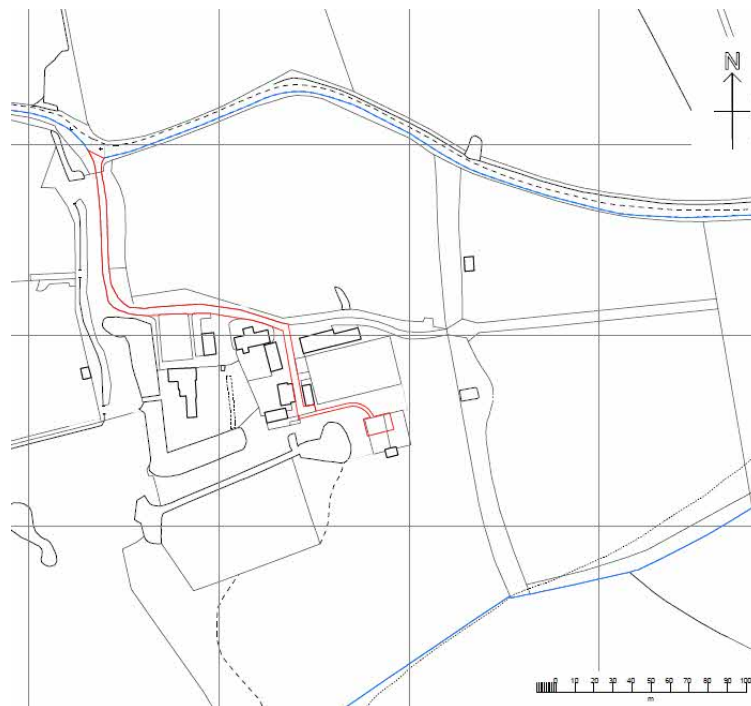


Figure 1: Site Boundary and Existing Access Track (red line) and Wider Landholdings (blue line)

1.3 Proposed Development

The proposals include the development of new one-bedroom annexe dwelling. Areas allocated as access tracks, and parking will use existing hardstanding within the farmyard and no new garden will be created. Service connections will be done within the redline Site boundary under an existing footpath. A proposal plan has been included in Appendix 1 (Proposed Block Plan 6754 02/C Rev C).

2 Methods of Assessment

2.1 Desk Study

A search for Statutory Sites of Nature Conservation Importance and Priority Habitats² within 1km of the Site was undertaken using the Multi Agency Geographical Information for the Countryside (MAGIC)³.

Ordnance Survey maps and satellite imagery from online sources were consulted to identify the presence of any water bodies within 500m of the Site. Historic OS maps and satellite imagery was also used to assess any changes to the onsite habitats.

Records of protected species, notable species, invasive species, and non-statutory sites from within 1 km of the Site were procured from Suffolk Biological Information Service⁴ as part of this desk-based study and are presented in this report. Records provided by the record centre that are more than ten years old are only reported on if they are deemed to still be relevant.

The relevant Local Biodiversity Action Plan, Suffolk Local BAP⁵, was consulted to determine whether species and habitats identified (by both the desk study and the field survey) on and around the Site are subject to specific action plans. The list of UK Biodiversity Action Plan (UK BAP) species⁶ was also consulted as this remains an important reference source, despite being succeeded by the UK Post-2010 Biodiversity Framework⁷.

2.2 Preliminary Ecological Appraisal Site Survey

A Preliminary Ecological Appraisal survey of the Site was undertaken on 13th June 2022 by Principal Ecologist Cyrise Weaire BSc (Hons), M:CIEEM, who has over 18 years' experience, and Ecologist Ana Pino-Blanco BSc (Hons) MSc with over three years' experience.

This survey assessed the value of onsite and adjacent habitats and their potential to support protected or notable species and habitats following the Guidelines for Preliminary Ecological Appraisal⁸ published by the Chartered Institute for Ecological and Environmental Management (CIEEM).

Habitats

Habitats were classified as per the criteria set out in the Handbook for The UK Habitat Classification⁹ with the prescribed habitat primary and relevant secondary habitat codes included. Habitats were checked against the definitions for Priority Habitats. Priority Habitats are those which are identified as a Habitat of Principal Importance in England under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006².

European Protected Species

Following the UK exit from the European Union (EU), species formerly protected under the Habitat Regulations are now considered to be protected under The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019¹⁰ and will continue to be referred to as European Protected Species (EPS). Further legislative details regarding protected species are included in Appendix 33.

Great Crested Newt (*Triturus cristatus*)

Great crested newts use both terrestrial and aquatic habitat within their lifecycle, with all habitat used being legally protected. The terrestrial and, if present, aquatic habitats onsite were assessed for their value and suitability for great crested newts. The proximity of ponds within 500 m and any habitat linking such ponds to the Site was also assessed as an important factor determining the likelihood of the species being present onsite. Any ponds present onsite or accessible during the survey were assessed using the Habitat Suitability Index (HSI) Assessment¹¹ where appropriate.

Bats

Any trees or buildings present onsite were assessed for their suitability for roosting bats using the protocol set out in Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd ed)¹². Where necessary this included the use of binoculars to allow for a ground level assessment to search for signs such as staining and/or droppings sometimes found around roost entrances. Internal inspections of buildings or loft voids were undertaken where possible, using ladders and crawling boards if appropriate. It is noted that a lack of evidence of roosting bats, such as presence of bats, droppings, or staining, does not correlate to a lack or presence or a lack of suitability.

Habitats were assessed for their suitability for foraging and commuting bats, as set out in Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd ed)¹².

Hazel Dormice (*Muscardinus avellanarius*)

The Dormouse Conservation Handbook (2nd Ed.)¹³ provides a level of guidance on assessing a site where the status of hazel dormice is unknown. This assessment is made based upon historical records as well as the habitat and plant species present on and adjacent to the Site. As hazel dormice have a large range, a lack of evidence does not correlate to a lack of presence.

Otter (*Lutra lutra*) | White Clawed Crayfish (*Austropotamobius pallipes*)

Suitable waterbodies (if present) on or adjacent to the Site were assessed for their suitability to support these species, where access was possible. Any incidental evidence of the presence of these species on site (e.g. holts, spraints, foraging signs) was also recorded.

Other Species

Protected under the Wildlife and Countryside Act 1981¹⁴ or further specific legislation, further detailed within Appendix 3.

Birds

Habitats on site were assessed for their potential to support nesting birds as well as important numbers of breeding and wintering birds.

Reptiles

Terrestrial habitats on site were assessed for their potential to support common reptile species, based on factors including vegetation structure and composition, and the availability of shelter and foraging resources. All UK reptiles are protected, with rare species (smooth snake (*Coronella austriaca*) and sand lizard (*Lacerta agilis*) also given EPS status.

Water Vole (*Arvicola amphibius*)

Suitable waterbodies (if present) on or adjacent to the Site were assessed for their suitability to support these species, where access was possible. Any incidental evidence of the presence of these species on site (e.g. burrows, latrines, foraging signs) was also recorded.

Badger (*Meles meles*)

Habitats on site were assessed for their suitability for badger foraging and sett building. Any incidental evidence of the presence of badgers on site (e.g. setts, paths, prints, foraging signs, and latrines) was recorded.

Priority Species

Habitats on site were assessed for their suitability for Priority Species. Priority Species are those listed as of Principal Importance in England under Section 41 of the NERC Act 2006¹⁵, those listed as Local Priority Species, or those that feature on the relevant Local Biodiversity Action Plan. Any incidental evidence of the presence of these species on site was also recorded. The presence of rare or notable plant species, such as red data list species¹⁶, was also noted.

Invasive Species

A search was made for evidence of the presence of invasive plant species listed in Schedule 9 of the Wildlife and Countryside Act 1981 as they are subject to strict legal control.

2.3 Enhancements for Biodiversity Net Gain

In accordance with policy set out in the National Planning Policy Framework (NPPF)¹ all new developments are required to deliver a net gain in biodiversity. Specifically, NPPF notes an environmental objective to protect and enhance the natural environment and to improve biodiversity (S2. p. 8c) and that all development should be ‘...providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures’ (S15. p.174d).

This report therefore seeks to provide suitable Site-specific habitat and species enhancements which will provide the biodiversity net gain required as part of the NPPF.

2.4 Limitations to Survey

Due to the seasonal behaviour of animals and the seasonal growth patterns of plants, ecological surveys may be limited by the time of year in which they are undertaken. Many animals in the UK have variable detectability throughout the year due to seasonal behaviour, including hibernation and migration. Therefore, this survey may not provide a complete list of the plants and animals present, or which may utilise the Site throughout the year.

Ponds 1, 2 and 4 were visited. Pond 1 and Pond 4 are part of a larger moat that runs to the back of the farm buildings and the farmhouse. This were viewed from the area adjacent to the Site (Pond 1) and the access track (Pond 4). Pond 2 was located within a hedgerow and could be viewed from the west margin only.

As part of standard practice, a data search has been undertaken from the local biological record centre. This is not considered to be a complete list of species present and is better considered to be a list of species recorded, with many species known to be under recorded.

However, these limitations are not considered to have affected the accuracy of the assessment or the recommendations provided in this report and, where considered necessary, recommendations for further survey have been made to overcome these limitations.

This report presents conditions and recommendations for the Site based on the state of the Site during the survey visit. Any changes to the Site prior to development, including changes in the management of the Site habitats will therefore potentially invalidate this report and its recommendations.

3 Existing Conditions and Assessment of Effects

3.1 Summary

The following sites, species or ecological features have the potential to be affected by the development, or their presence has been detected during the desk study or data search. As such, they are discussed further in this report and action points, mitigation and compensation measures are recommended as necessary:

Habitats

Statutory and Non-statutory Sites of Nature Conservation Value

Great Crested Newts

Bats

Birds

Priority & Notable Species (Fauna and Flora)

The following species are very unlikely to occur on the Site, in adjacent habitats either due to a lack of suitable habitat or as they have localised distributions in the UK. As such, the proposed development does not pose a threat to the following species and they are not discussed further as no further survey or mitigation is considered necessary:

Badgers

Reptiles

White-Clawed Crayfish

Hazel Dormice

Water Vole

Otter

Invasive Species

Site photos are included in Appendix 2. Refer to Appendix 3 for details of the legislation and guidance relevant to each protected species.

3.2 Site Description and Habitats

3.2.1 Desk Study

The desk study returned the following records of parcels of notable habitats within 1 km of the Site:

Table 1: Notable Habitats within 1 km of the Site

Habitat	Areas	Parcels	Closest to Site
Deciduous Woodland (Priority Habitat Inventory)	3	10	670 m
Woodpasture and Parkland (BAP Priority Habitat)	1	1	720 m

The habitats listed in Table 1 bare no similarity to those occurring within the Site, detailed below.

3.2.2 Field Survey

The habitat noted on the Site was assessed using the Handbook for The UK Habitat Classification¹⁷ and were recorded as grassland. Primary and secondary habitat codes are included for ease of reference.

Onsite Habitats

Lowland meadows, Grazed, Fence (g3a, 58, 69)

The Site consist of a grazed grassland area within a horse corral. The species composition is not indicative of a priority habitat, as the active grazing pressure would have suppressed the growth and reduce the species diversity, but the seed bank present within the soil will most likely correspond to the species found surrounding the Site.

Species present are dominated by a mix of cocksfoot (*Dactylus glomerata*), Yorkshire fog (*Holcus lanatus*), smooth meadow grass (*Poa pratensis*), perennial ryegrass (*Lolium perenne*), and false oat grass (*Argenteum elatius*). Forb species include lesser trefoil (*Trifolium dubium*), meadow buttercup (*Ranunculus acris*), silverweed (*Potentilla anserina*), common nettle (*Urtica dioica*), lesser stitchwort (*Stellaria graminea*), and spear thistle (*Cirsium vulgare*).

This habitat has low ecological value on its own right.

Surrounding Habitats

Surrounding the Site were:

Lowland meadows (g3a) that meet the definition of priority habitat, extending from the Site boundary to the south and east, it's in the form of graze fenced grassland, while to the north and west is in the form of unglazed tall sward. Beyond the existing fence, without grazing, the grass sward is taller and the species composition broader. Additional species of grasses included meadow foxtail (*Alopecurus pratensis*), crested dog's-tail (*Cynosurus cristatus*), greater quaking-grass (*Briza maxima*), and meadow barley (*Hordeum brachyantherum*). Additional species of forbs noted include creeping cinquefoil (*Potentilla reptans*), black medick (*Medicago lupulina*), cut-leaved crane's-bill (*Geranium dissectum*), vetch (*Vicia sp.*), field thistle (*Cirsium arvense*), ox-eye daisy (*Leucanthemum vulgare*) and ribwort plantain (*Plantago lanceolata*).

3.2.3 Assessment of Effects

The Site area will be clear to allow for the development of a one-bedroom annexe dwelling.

The habitat to be removed is common and ubiquitous, and the loss of these small area would not be considered significant in ecological terms. Indirect impacts over the surrounding grassland may occur during the construction phase. This could be in the form of dust generation and smothering of plants.

3.2.4 Requirements

To mitigate the effect of possible indirect impacts over the surrounding grassland, works should be restricted to the marked redline boundary, soil strip is not to be undertaken on dry windy days and resulting soil is to be exported from site i.e., not to be stored on grassland around the Site.

To mitigate for the loss of the small area included within the Site, a formal management plan will be produced to enhance the surrounding hay meadow.

3.2.5 Enhancements for Biodiversity Net Gain

Design Stage

Tree planting of five broad-leaved native species or fruit trees such as apple (*Malus domestica* or *M. sylvestris*), plum or cherry (*Prunus* spp.), or pear (*Pyrus domestica*) that can be carried out within the wider landholding boundary.

3.3 Statutory and Non-statutory Sites of Nature Conservation Value

3.3.1 Desk Study

The desk study returned no records for statutory or non-statutory sites within 1 km of the Site. The Site lies in an Impact Risk Zone (IRZ), which are used by local authorities to assess whether developments are likely to impact statutory sites, including internationally designated sites¹⁸ as well as Sites of Special Scientific Interest (SSSIs). Information regarding the relevant Statutory Site, is noted in Table 2.

Table 2: Statutory and Non-statutory Site Descriptions

Name	Designation	Distance (m)	Direction	Notable Features
IRZ – Statutory Sites				
Chippenhall Green SSSI	Site of Special Scientific Interest (SSSI)	4.4 km	NE	This unimproved grassland on calcareous clay soil has grasses including meadow foxtail, sweet vernal grass and red fescue. Diverse flowering plants include cuckoo flowers and a large population of green-winged orchids.

3.3.2 Assessment of Effects

The Site does not bare any similarity to non-statutory sites identified in Table 2. Along with this, the distance separating them from the Site and the scale of the development, no direct impacts are anticipated.

While the Site lies in the impact risk zone for the Chippenhall Green SSSI, it does not meet the criteria for the LPA to consult with Natural England or suggest that could be impacted by the proposals

3.3.3 Requirements

No further requirements.

3.4 Great Crested Newts

3.4.1 Desk Study

The desk study returned one record of great crested newts within 1 km of the Site. This record was dated 2010 and was 576 m northwest of the Site.

A total of 13 ponds were identified within 500 m of the proposed development. Figure 2 shows the pond locations in relation to the Site, with the 500 m search area highlighted by a pink dotted line and the ponds numbered by distance from the Site. Details of each pond are provided in Table 3, overleaf.

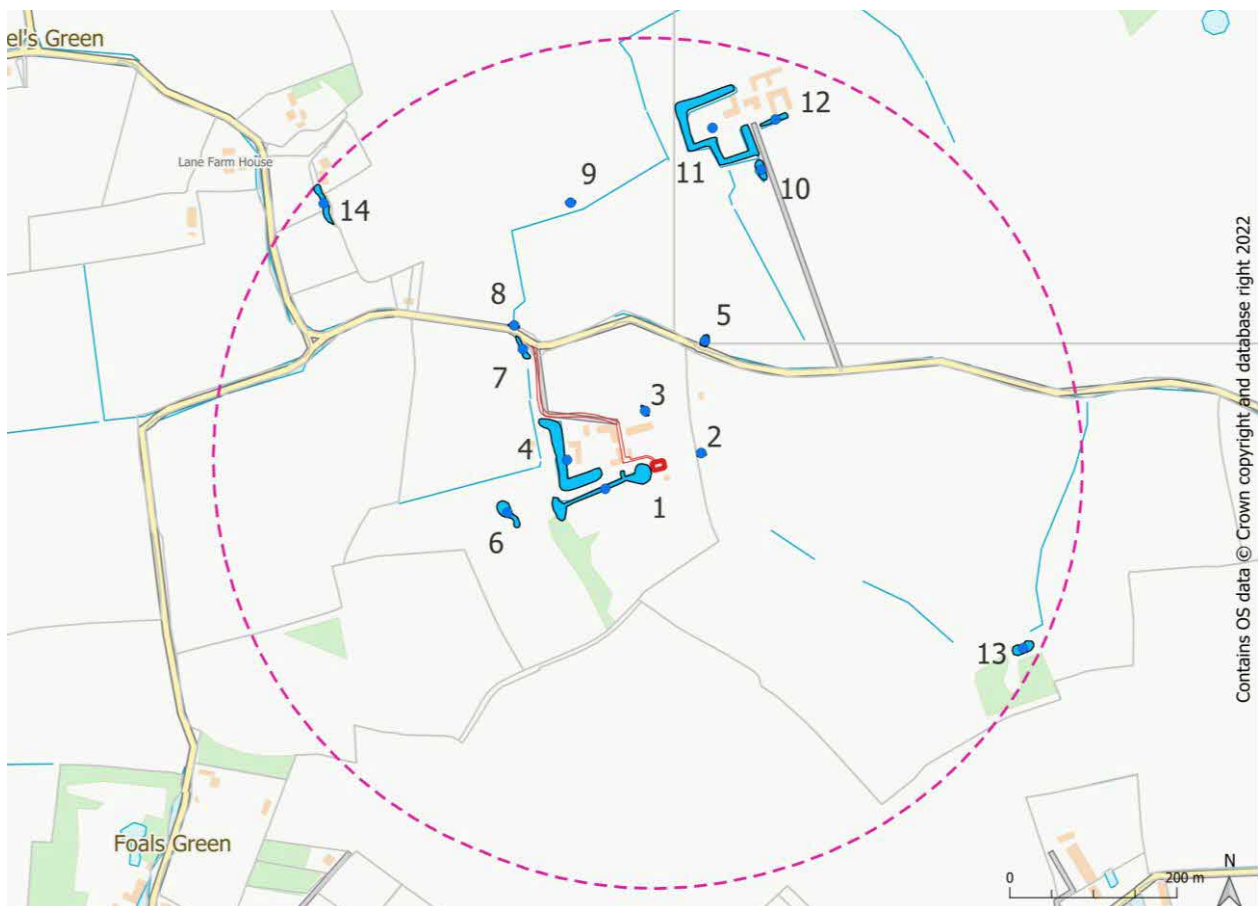


Figure 2: Ponds within 500m of the Proposed Development

3.4.2 Field Survey

No suitable breeding habitat is present onsite. The grassland onsite offers negligible suitability for foraging great crested newts being very heavily grazed, but the surrounding grassland habitat offers excellent foraging potential within taller sward. Good quality habitat is also present within the wider landscape with a network of ponds ecologically connected by ditches and hedgerows.

Habitat Suitability Index (HSI)¹¹ scores were calculated for Ponds 1, 2 and 4 that were visited or viewed at the time of the visit and the results are included in Table 3.

Table 3: Pond Details

Pond #	Distance (m)	Direction	Visited	HSI Score	Dispersal Barriers to the Site
1	5 m	W	Yes	0.84-excellent	None
2	40 m	E	Yes	0.84-excellent	None
3	55 m	N	No	-	Partial barrier in the form of access track and a horse paddock.
4	60 m	W	Viewed	0.76 – good*	None
5	140 m	NE	No	-	Partial - distance
6	170 m	SW	No	-	Partial - distance
7	190 m	NW	No	-	Partial – distance and farm buildings
8	225 m	NW	No	-	Partial – distance and minor road
9	325 m	N	No	-	Significant – distance and minor road
10	350 m	NE	No	-	Significant – distance and minor road
11	360 m	NE	No	-	Significant – distance and minor road
12	410 m	NE	No	-	Significant – distance and minor road
13	460 m	SE	No	-	Significant – distance and agricultural fields
14	475 m	NW	No	-	Significant – distance and minor road

*Based on most likely outcome

Pond 1 is a large, elongated pond and part of the original moat. The area surveyed is the most easterly part of the moat that presents a circular area with gently sloped margins and abundant emerging vegetation. Species particularly favoured by great crested newts for egg laying are present, such as water mint (*Mentha aquatica*), and water forget-me-not (*Myosotis scorpioides*). The HSI for this pond was calculated as (0.84 - excellent). According to the table of significance for HSI,¹⁹ 98% of ponds with this score were occupied by great crested newts. An egg search was carried out on this pond, but no great crested newt eggs were seen.

Pond 2 is situated within the hedgerow that runs along the grassland field to the west of the Site. This pond is small and seem to be deeper than Pond 1 with steeper banks. Marginal and emergent vegetation is present within the pond and includes yellow flag iris (*Iris pseudacorus*) and water mint (*Mentha aquatica*) along the margins, and bloodleaved pondweed (*Potamogeton natans*) on the surface of the pond. The calculated HSI score for this pond is also excellent. As pond banks were steep and the pond is surrounded by scrub, only the western bank was accessible. An egg search was not possible for this pond.

Pond 4 is located to the west of the farmhouse and corresponds to a second moat. This pond is large, and “L” shaped with marginal vegetation dominated by yellow flag iris (*Iris pseudacorus*). A family of mallards was noted using the pond and fish were observed in the water at the time of the visit. The HSI score for this pond was calculated as 0.76 good.

3.4.3 Assessment of Effects

Although the habitats within the footprint of the Site aren't suitable for great crested newts, 14 ponds are present within 500 m, with due to the proximity of Ponds 1, 2, 3 and 4 being within 100 m (5 m, 40 m, 55 m and 60 m away respectively) presenting excellent and good HSI scores, and the suitability of the surrounding terrestrial habitat,

Habitats on Site offer negligible suitability for great crested newts with surrounding habitats being of much better quality for this species. 14 ponds are present within 500 m of the Site boundary and Ponds 1, 2, 3 and 4 are found within 100 m. Due to the proximity of these ponds (5, 40, 55 and 60 meters away respectively) that presented good and excellent HSI scores, and the suitability of the surrounding terrestrial habitat if great crested newts are present in any of Ponds 1-4 then they could be transiently present onsite, and may cross the Site as part of population movements. Creation of artificial refuges during pre-construction or construction phases as well as excavation of foundations could pose a risk to great crested newts (if present in Ponds 1-4) through killing or injuring and/or entrapment. To mitigate these impacts mitigation is proposed below.

3.4.4 Requirements

A non-licence method statement and installation of temporary amphibian fencing around the works area is recommended to reduce the risk to great crested newts during pre-construction and construction phases.

Creation of 3 hibernaculum adjacent to Pond 1 is recommended to provide additional potential refuge habitat for newts.

3.4.5 Enhancements for Biodiversity Net Gain

Pond and surrounding habitat management for amphibians of existing ponds within the wider landholding boundary. More information is provided within the Amphibian Habitat Management Handbook²⁰ and can include:

Cutting back shading shrubs and trees, particularly from southern banks of the pond, will allowed more sun light to reach the water and avoid hedgerows or other tall vegetation to encroach over the pond. A belt of trees can be left to the immediate north of the pond to act as a windbreak, creating a warm microclimate and to provide good quality terrestrial habitat. Cut timber and brash should be left on site to provide cover and refugia for great crested newt and other amphibians.

Pond works should be planned and timed accordingly to avoid potential harm to protected species and should normally be carried out in late autumn through winter, typically between early November to late January.²¹

3.5 Bats

3.5.1 Desk Study

The following species of bat were noted within the 1 km data search occurring within last 10 years:

Common pipistrelle (*Pipistrellus pipistrellus*)

Soprano pipistrelle (*Pipistrellus pygmaeus*)

Brown long-eared (*Plecotus auritus*)

No records of roosts, granted mitigation licenses, or relevant records pertaining to the Site were returned.

3.5.2 Field Survey

Foraging and Commuting

The Site has low suitability for commuting and foraging bats. Surrounding habitats including the grassland and ponds offer moderate suitability for foraging bats.

3.5.3 Assessment of Effects

Changes to lighting onsite could impact nearby foraging and commuting habitat, as well as reducing the value of any bat boxes provided.

3.5.4 Requirements

Design Stage

If any new external lighting is to be installed during and post-construction, it should be bat friendly and must be designed to prevent unnecessary light spill onto the nearby Pond 1, the grassland surrounding the Site, and any bat boxes installed during the development. The following guidance^{22,23} must be followed:

Minimise light spill by eliminating any bare bulbs and upward pointing light fixtures. The spread of light must be kept near to or below the horizontal plane, by using as steep a downward angle as possible and/or shield hood. Flat, cut-off lanterns are best.

Luminaires must feature peak wavelengths higher than 550 nm to avoid the component of light most disturbing to bats²⁴.

A warm white spectrum (ideally <2700 Kelvin) must be adopted to reduce blue light component.

All luminaires must lack UV elements when manufactured. Metal halide, fluorescent sources must not be used.

Limiting the height of lighting columns to eight metres and increase the spacing of lighting columns²⁵ will reduce the spill of light into unwanted areas such as the aforementioned habitats.

Artificial lighting proposals must not directly illuminate the nearby Pond 1, the grassland surrounding the Site, and any bat box locations.

With these lighting measures implemented, it is considered that any potential adverse effects from lighting upon bats will be minimised.

3.5.5 Enhancements for Biodiversity Net Gain

The following are considered to be suitable enhancements for bats:

Two Kent bat boxes that could be mounted on the new building or on a mature tree within the wither blue line landholding boundary. This should be mounted facing NE, S or NW, and at least 4 m high, away from windows or branches to allow a clear line of flight

Measure to improve ponds for amphibians will benefit bats as well, by providing better habitat for aquatic insects

3.6 Birds

3.6.1 Desk Study

Records of species returned by the data search included a range of species typical of the landscape surrounding the Site and included notable²⁶ species listed in Table 4, below.

Table 4: Notable Birds within Data Search

Species		Protection			
Scientific Name	Common Name	Schedule 1 WCA	BoCC Status	National Priority	Local Priority
<i>Alauda arvensis</i>	Skylark		Red	✓	✓
<i>Emberiza citinella</i>	Yellowhammer		Red	✓	✓
<i>Turdus philomelus</i>	Song Thrush		Red	✓	✓
<i>Turdus visivorus</i>	Mistle Thrush		Red		
<i>Passer domesticus</i>	House Sparrow		Red	✓	✓
<i>Accipiter nisus</i>	Sparrowhawk		Amber		
<i>Falco tinnunculus</i>	Kestrel		Amber		
<i>Tyto alba</i>	Barn owl	✓	Green		✓

3.6.2 Field Survey

The field survey noted the following species on the Site, seen in Table 5:

Table 5: Birds Recorded Onsite

Species			Protection			
Scientific Name	Common Name	Breeding?	Schedule 1 WCA	BoCC Status	National Priority	Local Priority
<i>Turdus philomelos</i>	Song thrush	No		Red	✓	✓
<i>Phylloscopus collybita</i>	Common chiffchaff	No		Green		
<i>Hirundo rustica</i>	Barn swallow	No		Green		
<i>Erithacus rubecula</i>	Robin	No		Green		
<i>Fringillia coelebs</i>	Common chaffinch	No		Green		
<i>Columba palumbus</i>	Wood pidgeon	No		Green		

No trees or scrub are present onsite, and the grassland area present on the Site is too small to have suitability for ground nesting birds such as skylark that prefer open grassland areas away from hedges.

3.6.3 Assessment of Effects

The development will only see the clearance of a small area of grassland that won't result in the loss of nesting habitat.

3.6.4 Requirements

No further recommendations.

3.6.5 Enhancements for Biodiversity Net Gain

The installation of a tawny owl nest box on a mature tree within the wide landholding, away from any bat boxes. will provide additional habitat for this amber-listed species.

3.7 Priority & Notable Species

3.7.1 Desk Study

The desk study returned one record for hedgehog (*Erinaceus europaeus*) within 1 km of the Site. This record is dated 2014 and it's located 600 m west of the Site. No records of brown hare (*Lepus europaeus*) were returned.

3.7.2 Field Survey

The Site provides negligible value foraging habitat for hedgehog or brown hare within the fenced area. The wider area provides higher quality foraging and sheltering habitat for this species. Due to the presence of the fence, it is unlikely that the Site is accessed regularly by hedgehogs or brown hare.

3.7.3 Assessment of Effects

The development is unlikely to cause any impacts to the population of any notable or priority species.

3.7.4 Requirements

No further requirements.

4 Enhancements for Biodiversity Net Gain Summary

As per the National Planning Policy Framework¹ all new developments are required to deliver a net gain in biodiversity. In order to achieve this, the mitigation measures described in the preceding sections as well as the biodiversity enhancements should be implemented.

A brief summary of the recommended biodiversity enhancements for the Site is detailed in Table 6, below. For more detail on these enhancements, including recommended specifications, please refer to the species-specific sections of this report. It is considered that these measures, undertaken in conjunction with the Requirements detailed within this report, will ensure that the development achieves a biodiversity net gain.

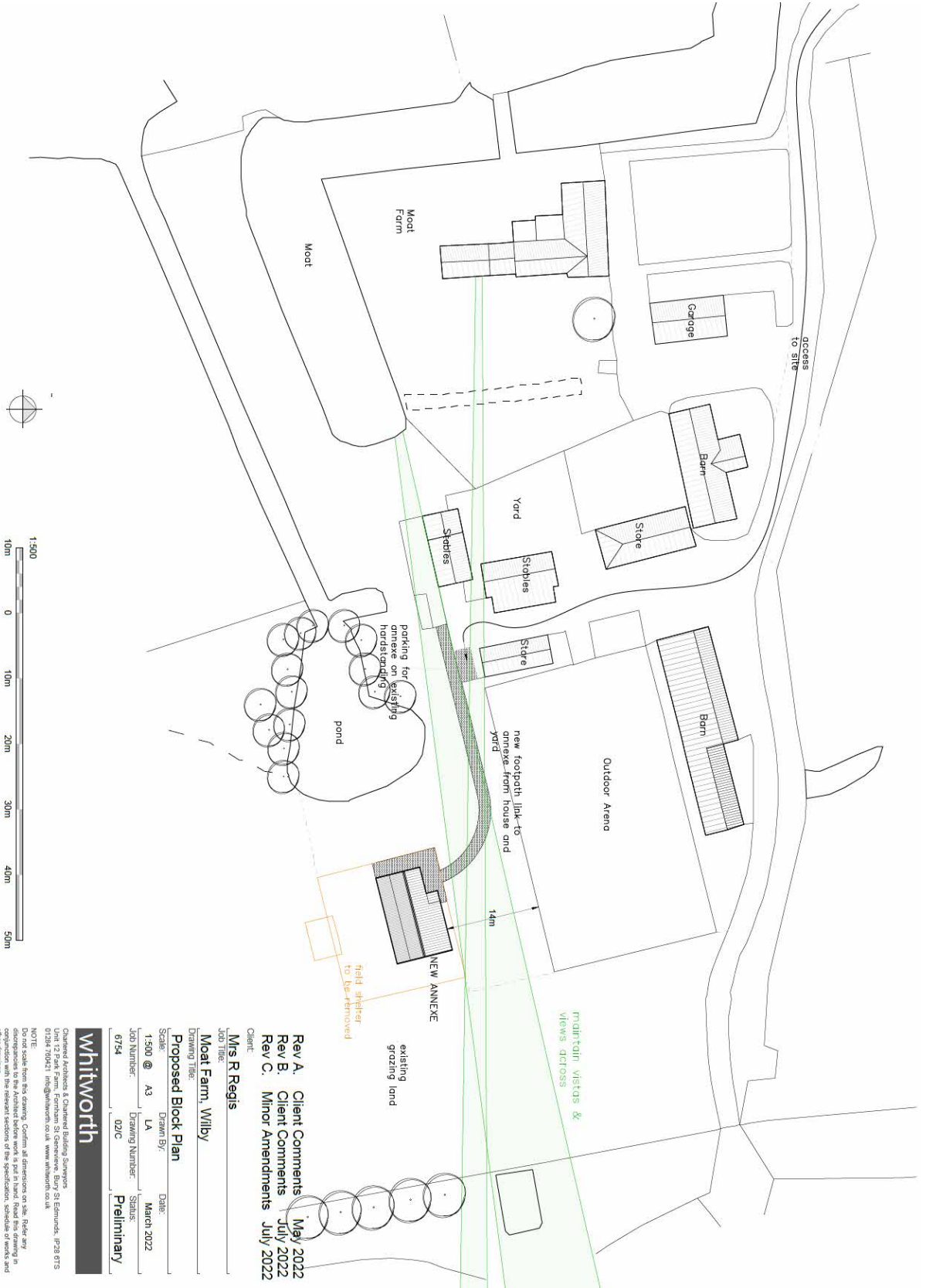
Table 6: Summary of Additional Biodiversity Enhancement Measures

Group or Habitat	Enhancement
General/All	Tree planting of three broad-leaved native species or fruit trees such as apple, plum or cherry, or pear; &
Great Crested Newts	Pond and surrounding habitat management for amphibians of existing ponds within the wither landholding as per recommendations within this report and further referenced guidance.
Bats	Two Kent bat boxes that could be mounted on the new building or on a mature tree within the wither blue line landholding boundary. This should be mounted facing NE, S or NW, and at least 4 m high, away from windows or branches to allow a clear line of flight Measure to improve ponds for amphibians will benefit bats as well, by providing better habitat for aquatic insects.
Birds	A tawny owl nest box on a mature tree within the wide landholding.

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Appendix 1: Proposed Site Plan



Rev A. Client Comments May 2022
 Rev B. Client Comments July 2022
 Rev C. Minor Amendments July 2022

Client: Mrs R Regis

Job Title: Moat Farm, Wilby

Drawing Title: Proposed Block Plan

Scale: 1:500 @ A3
 Drawn By: LA
 Date: March 2022

Job Number: 6754
 Drawing Number: 02/C
 Status: Preliminary

Whitworth

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NOTE:
 Do not scale from this drawing. Confirm all dimensions on site. Refer any discrepancies to the Architect before work is put in hand. Read the drawing in other drawings.
 This drawing is copyright of whitworth.

Appendix 2: Site Photographs



Photo 1: View of the Site from the north boundary.



Photo 2: View of the Site from the east. The Site is contained within the northern area of the fence.



Photo 3: View of the Site from the northwest. The shed doesn't form part of the Site.



Photo 4: Pond 1.



Photo 5: Pond 2 located within the hedgerow.



Photo 6: Pond 4

Appendix 3: Legislation

The following sections outline the legislation protecting each species or group of species where appropriate which have been considered as part of the preceding report.

Important notes:

Practical Ecology Ltd's reports do not purport legal advice.

The outline of legislation provided is not comprehensive and the original texts of the relevant legislation must be referred to for a full list of offences.

European Protected Species

Overview

The Bern Convention (The Convention on the Conservation of European Wildlife and Natural Habitats) was adopted in 1979. To implement the agreement, the European Community adopted the EC Habitats Directive.

The EC Habitats Directive has been written into UK law in the Wildlife and Countryside Act 1981 (as amended) and the Conservation of Habitats and Species Regulations 2017 (as amended). The Conservation of Habitats and Species Regulations 2017 (as amended) provides safeguards for European Protected Sites and Species (as listed in the Habitats Directive). This has recently been amended by the Conservation of Habitats and Species Regulations (amendments) (EU Exit) (2019) which continue the same provision for European protected species, licensing requirements and protected areas after the UK's exit from the European Union. In addition, the Countryside and Rights of Way Act 2000 strengthened the wildlife legislation in the UK. In relation to development, a person commits an offence regarding a species protected under Regulation 41 of The Conservation of Habitats and Species Regulations 2017 (as amended) if they:

Deliberately capture, injure or kill an EPS;

Deliberately or recklessly disturb wild animals of any such species in such a way as to be likely to significantly affect;

- The ability of any significant group of animals to survive, breed or rear or nurture their young;
- The local distribution or abundance of that species.

Damages or destroys a breeding site or resting place (even if unintentional or when the animal is not present);

Intentionally or recklessly obstructs access to a structure or place used for protection or shelter; and

This applies regardless of the life stage (i.e. eggs, young, adult).

The following sections outline the offences that can be committed against each species or group of species which are protected by European law and tranches of UK law which strengthen that protection.

Great Crested Newts (*Triturus cristatus*)

Great crested newts and their breeding sites (ponds) or resting places are protected under Regulation 41 of The Conservation of Habitats and Species Regulations 2017 (as amended) and Section 9 of the Wildlife and Countryside Act 1981.

It is an offence to:

intentionally or recklessly kill, injure or handle a great crested newt;

to possess a great crested newt (whether live or dead);

disturb a great crested newt – this includes in particular:

- Any disturbance or obstruction which is likely to impair their ability to survive, breed or reproduce, or to rear or nurture their young; or
- Any disturbance or obstruction that impairs their ability to hibernate or affecting their local distribution and abundance;

sell or offer a great crested newt for sale without a licence.

It is also an offence to intentionally or recklessly damage, destroy or obstruct access to any place used by great crested newts for shelter, whether they are present or not.

Bats

All species of bat and their breeding sites or resting places (roosts) are protected under Regulation 41 of The Conservation of Habitats and Species Regulations 2017 (as amended) and Section 9 of the Wildlife and Countryside Act 1981.

It is an offence to:

- intentionally kill, injure or handle a bat;
- to possess a bat (whether live or dead);
- disturb a roosting bat; or
- sell or offer a bat for sale without a licence.

It is also an offence to intentionally or recklessly damage, destroy or obstruct access to any place used by bats for shelter, whether they are present or not.

A roost is defined as 'any structure or place which (a bat) uses for shelter or protection'. As bats tend to reuse the same roosts, legal opinion is that a roost is protected whether or not bats are present at the time of the survey.

Otter (*Lutra lutra*)

Otters and their breeding sites (holts) or resting places are protected under Regulation 41 of The Conservation of Habitats and Species Regulations 2017 (as amended) and Section 9 of the Wildlife and Countryside Act 1981.

It is an offence to:

- Deliberately or recklessly capture, kill, disturb or injure otters;
- Deliberately or recklessly damage or destroy a breeding or resting place;
- Deliberately or recklessly obstruct access to their resting or sheltering places; or
- possess, sell, control or transport live or dead otters, or parts of otters.

Common dormouse (*Muscardinus avellanarius*)

Common dormice and their breeding sites or resting places are protected under Regulation 41 of The Conservation of Habitats and Species Regulations 2017 (as amended) and Section 9 of the Wildlife and Countryside Act 1981.

It is an offence to:

- Deliberately or recklessly capture, kill, disturb or injure common dormice;
- Deliberately or recklessly damage or destroy a breeding or resting place;
- Deliberately or recklessly disturb a common dormouse whilst in structure or place of shelter or protection;
- Deliberately or recklessly obstruct access to their resting or sheltering places; or
- possess, sell, control or transport live or dead common dormice, or parts of common dormice.

Other Species

Badgers (*Meles meles*)

Badgers are fully protected in the UK by the Protection of Badgers Act, 1992 and by Schedule 6 of the Wildlife and Countryside Act 1981 as amended. The Protection of Badgers Act 1992 was introduced in recognition of the additional threats that badgers face from illegal badger digging and baiting. Under the Act, it is an offence *inter alia* to:

- Wilfully kill, injure or take a badger, or to attempt to do so;
- Cruelly ill-treat a badger; or
- Intentionally or recklessly interfere with a badger sett by:
 - damaging a sett or any part of one;
 - destroying a sett;
 - obstructing access to or any entrance of a sett;
 - causing a dog to enter a sett; or
 - disturbing a badger when it is occupying a sett.

The purpose of this legislation is to ensure that badgers are humanely treated.

Water Vole (*Arvicola terrestris*)

Water vole and their breeding sites or resting places (burrows) are protected under Schedule 5 of the Wildlife and Countryside Act 1981. It is an offence to:

- Deliberately or recklessly capture, kill, disturb or injure water voles;
- Deliberately or recklessly damage or destroy a breeding or resting place;
- Deliberately or recklessly disturb a water vole whilst in structure or place of shelter or protection;
- Deliberately or recklessly obstruct access to their resting or sheltering places; or
- Possess, sell, control or transport live or dead water voles, or parts of water voles.

NB: In the case of water voles, a place of shelter or breeding or resting place is only likely to constitute an 'active' burrow.

Reptiles

All six of the UK's reptile species are protected under the Wildlife and Countryside Act 1981 (as amended). Of the more common reptiles, it is illegal to intentionally kill or injure common lizard (*Zootoca vivipara*), slow worm (*Anguis fragilis*), an adder (*Vipera berus*) and grass snake (*Natrix helvetica*).

White-Clawed Crayfish (*Austropotomobius pallipes*)

The Wildlife and Countryside Act 1981 (as amended) makes it an offence to:

- Take a white-clawed crayfish from the wild;
- Sell or offer the sale of a whole or any part of a white-clawed crayfish.

This applies to all life stages.

Birds

The Wildlife and Countryside Act 1981 (as amended) makes it an offence to:

- intentionally kill, injure or take any wild bird;
- intentionally take, damage or destroy the nest of any wild bird while that nest is in use or being built;
- intentionally take or destroy the nest or eggs of any wild bird. [Special penalties are liable for these offences involving birds listed on Schedule 1].

Birds listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) have an additional level of protection. With regards to these species, it is an offence to deliberately or recklessly:

- disturb them whilst they are nesting, building a nest, in or near a nest that contains their young;
- disturb their dependent young.

Invasive Species

Certain species of plants and animals that do not naturally occur in Great Britain have become established in the wild and represent a threat to the natural fauna and flora. Section 14 of the Wildlife & Countryside Act 1981 (as amended) prohibits the release of any animal species that are 'not ordinarily resident or is not a regular visitor to Great Britain in a wild state'. Therefore, under Section 14 it is an offence to allow the establishment of plant species listed on Schedule 9 Part 2 in the wild.

Wild Mammals

Mammal species not of primary conservation concern do receive protection from unnecessary suffering through the Wild Mammals Protection Act (1996).