

Land East of Wixams, Bedfordshire

Preliminary Ecological Appraisal

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1 Introduction

1.1 Background and Proposals

1.1.1 Aspect Ecology was commissioned by Wates Developments to undertake a Preliminary Ecological Appraisal in respect of land east of Wixams, Bedfordshire (see Plan 5820/ECO1), hereafter referred to as 'the site'. The site is being promoted for residential development within the northern part, with the southern part of the site to be maintained as open space.

1.2 Site Overview

1.2.1 The site is located to the south of Wixams, and to the west of Wilstead, in the county of Bedfordshire. The site is intersected by the A6 which runs north to south, and is bound to the north by an active development site, to the east by farmland beyond which lies the village of Wilstead, and to the south and west by farmland and open countryside.

1.2.2 The site itself comprises a number of arable fields bound by established hedgerows, with improved grassland associated with existing farm buildings within the southern extent of the site together with a small block of woodland. A single pond is located within the site boundary, whilst a number of ponds are located within 250m of the site boundary. A number of minor watercourses also occur within and adjacent to the site.

1.3 Purpose of the Report

1.3.1 This report documents the methods and findings of the preliminary ecology surveys and desktop study carried out in order to establish the existing ecological interest of the site. The importance of the habitats present is evaluated and potential opportunities for faunal species are identified. On this basis, a discussion of ecological constraints is set out, with identification of further survey or likely mitigation requirements.

2 Methodology

2.1 Desktop Study

- 2.1.1 In order to compile background information on the site and its immediate surroundings, Bedfordshire and Luton Biodiversity Recording and Monitoring Centre (BLBRMC) was contacted, with data requested on the basis of a search radius of 2km. Information received from BLBRMC is referred to within the text and is reproduced on Plan 5820/ECO2, where appropriate. Bedfordshire Bat Group (BBG) were also contacted to source bat records for the area.
- 2.1.2 Information on statutory designations was obtained from the online Multi-Agency Geographic Information for the Countryside (MAGIC) database, which utilises data provided by Natural England, with an extended search radius (25km). In addition, the MAGIC database was searched to identify the known presence of any Priority Habitats within or adjacent the site. Relevant information is reproduced at Appendix 5820/1 and on Plan 5820/ECO2, where appropriate.
- 2.1.3 In addition, the Woodland Trust database was searched for any records of ancient, veteran or notable trees within or adjacent to the site.

2.2 Habitat Survey

- 2.2.1 The site was surveyed in January 2020 in order to ascertain the general ecological value of the land contained within the boundaries of the site and to identify the main habitats and ecological features present.
- 2.2.2 The site was surveyed based on standard Phase 1 Habitat Survey methodology¹, whereby the habitat types present are identified and mapped, together with an assessment of the species composition of each habitat. This technique provides an inventory of the basic habitat types present and allows identification of areas of greater potential which require further survey. Any such areas identified can then be examined in more detail through Phase 2 surveys. This method was extended, in line with the Guidelines for Preliminary Ecological Appraisal² to record details on the actual or potential presence of any notable or protected species or habitats.
- 2.2.3 Using the above method, the site was classified into areas of similar botanical community types, with a representative species list compiled for each habitat identified. The nomenclature used for plant species is based on the Botanical Society for the British Isles (BSBI) Checklist.

2.3 Faunal Surveys

- 2.3.1 General faunal activity, such as mammals or birds observed visually or by call during the course of the surveys was recorded. Specific attention was also paid to the potential presence of any protected, rare or notable species, and particular consideration was given to bats and Badger as described below.

¹ Joint Nature Conservation Committee (2010, as amended) 'Handbook for Phase 1 habitat survey: A technique for environmental audit.'

² Chartered Institute for Ecology and Environmental Management (CIEEM) (2013) 'Guidelines for Preliminary Ecological Appraisal.'

Bats³

2.3.2 Buildings within the site were subject to a preliminary assessment for roosting potential as part of the Phase 1 survey. Particular attention was given to the general structure and construction of the building, presence of enclosed voids and any potential roost features or access points, such as broken or lifted roof tiles, lifted lead flashing, soffit boxes, weatherboarding, hanging tiles, etc. and for any external signs of use by bats such as accumulations of bat droppings or staining. Binoculars were used to inspect any inaccessible areas more closely where appropriate.

2.3.3 Trees were assessed for their suitability to support roosting bats based on the presence of features such as holes, cracks, splits or loose bark. Suitability for roosting bats was rated based on relevant guidance⁴ as:

- Negligible;
- Low;
- Moderate; or
- High.

2.3.4 Any potential roost features identified were also inspected for any signs indicating possible use by bats, e.g. staining, scratch marks, bat droppings, etc.

Badger (*Meles meles*)⁵

2.3.5 A detailed Badger survey was carried out in January 2020. The survey comprised two main elements. The first element involved searching for evidence of Badger setts. For any setts that were encountered, each sett entrance was noted and mapped. The following information was recorded:

- Number and location of well used / active entrances; these are clear from any debris or vegetation and are obviously in regular use and may, or may not, have been excavated recently;
- Number and location of inactive entrances; these are not in regular use and have debris such as leaves and twigs in the entrance or have plants growing in or around the edge of the entrance; and
- Number of disused entrances; these have not been in use for some time, are partly or completely blocked and cannot be used without considerable clearance. If the entrance has been disused for some time all that may be visible is a depression in the ground where the hole used to be and the remains of the spoil heap.

2.3.6 The second element involved searching for signs of Badger activity such as well-worn paths and push-throughs, snagged hair, footprints, latrines and foraging signs, so as to build up a picture of any use of the site by Badger.

2.4 Survey Constraints and Limitations

2.4.1 All of the species that occur in each habitat would not necessarily be detectable during survey work carried out at any given time of the year, since different species are apparent

³ Surveys based on: English Nature (2004) '*Bat Mitigation Guidelines*' and Collins, J. (ed.) (2016) '*Bat Surveys for Professional Ecologists: Good Practice Guidelines* (3rd edn).' Bat Conservation Trust

⁴ Collins, J. (ed.) (2016) '*Bat Surveys for Professional Ecologists: Good Practice Guidelines* (3rd edn).' Bat Conservation Trust

⁵ Based on: Mammal Society (1989) '*Occasional Publication No. 9 – Surveying Badgers*'

during different seasons. The Phase 1 habitat survey was undertaken outside the optimal season, albeit the nature of the habitats within the site allowed for the broad habitat types to be identified and for an adequate assessment of the intrinsic ecological interest of the site to be made.

2.4.2 Attention was paid to the presence of any invasive species listed under Schedule 9 of the Wildlife and Countryside Act 1981 (as amended). However, the detectability of such species varies due to a number of factors, e.g. time of year, site management, etc., and hence the absence of invasive species should not be assumed even if no such species were detected during the Phase 1 survey.

2.4.3 Densely vegetated habitats within the site have the potential to reduce the detectability of field signs for faunal species such as Badger. However, a detailed survey was able to be completed and, whilst dense scrub vegetation is present within the site, it is considered that the survey results do provide an accurate baseline in relation to Badger activity.

2.5 Ecological Evaluation Methodology

2.5.1 The evaluation of ecological features and resources is based on professional judgement whilst also drawing on the latest available industry guidance and research. The approach taken in this report is based on that described by the Chartered Institute of Ecology and Environmental Management (CIEEM, 2018)⁶, which involves identifying 'important ecological features' within a defined geographical context (i.e. international, national, regional, county, district, local or site importance). For full details refer to Appendix 5280/2.

⁶ CIEEM (2018) '*Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine*', ver. 1.1, Chartered Institute of Ecology and Environmental Management, Winchester

3 Ecological Designations

3.1 Statutory Designations

Description

- 3.1.1 The statutory designations of ecological importance that occur within the local area are shown on Plan 5820/ECO2. The nearest statutory ecological designation is Kings Wood and Glebe Meadows, Houghton Conquest Site of Special Scientific Interest (SSSI), which is also designated as a Local Nature Reserve (LNR), located approximately 2.2km to the south of the site. The SSSI supports Ash/Maple woodland, a habitat of increasing scarcity in Bedfordshire and throughout its natural range in lowland England, together with unimproved neutral grassland.
- 3.1.2 The nearest European designation is Upper Nene Valley Gravel Pits Special Protection Area (SPA) located approximately 25km to the north west of the site, whilst Eversden and Wimpole Woods Special Area of Conservation (SAC) is located approximately 28km to the east.
- 3.1.3 Natural England has developed Impact Risk Zones (IRZs) as an initial tool to help assess the risk of developments adversely affecting SSSIs, taking into account the type and scale of developments. The IRZ containing the site does not flag up any issues in relation to residential development.

Evaluation

- 3.1.4 The site itself is not subject to any statutory ecological designations. All statutory ecological designations in the surrounding area are well separated from the site by farmland, open countryside and existing built development, and as such are unlikely to form a constraint. No European designations are located within the surrounds of the site (the closest being Upper Nene Valley Gravel Pits SPA located approximately 25km to the north of the site), whilst a review of Natural England's Site of Special Scientific Interest (SSSI) Impact Risk Zone tool does not highlight any risk associated with residential development at the site. Accordingly, development of the site is considered unlikely to result in an adverse effect in relation to these designations.

3.2 Non-statutory Designations

Description

- 3.2.1 The non-statutory designations of nature conservation interest that occur within the local area are shown on Plan 5820/ECO2. The nearest non-statutory designation is Wilstead Meadows County Wildlife Site (CWS), located approximately 400m to the east of the site. This is designated as a good example of neutral grassland, supporting a range of species typical of MG5-Cynosurus-Centaurea grassland. The next nearest non-statutory designation is Wilstead Wood CWS located approximately 450m to the east of the site. The CWS comprises an ancient woodland site, now largely replanted.

Evaluation

- 3.2.2 The site itself is not subject to any non-statutory nature conservation designations. The nearest such designations are separated from the main part of the site by the A6, a substantial main road, and farmland and existing development. As such, they are unlikely to be affected by development at the site and are not considered to form a constraint.

3.3 **Priority Habitats, Ancient Woodland and Notable Trees**

Description

- 3.3.1 The site supports a small area of woodland identified in MAGIC as the Priority Habitat 'Deciduous Woodland'. This is discussed further within the relevant habitat section in Chapter 4 below. Otherwise, no priority habitats, Ancient Woodland or notable trees are located within or adjacent to the site.

Evaluation

- 3.3.2 A discussion of the woodland is set out below in Chapter 4. Otherwise, it is unlikely that any priority habitats, Ancient Woodland or notable trees will be affected by proposed development of the site.

3.4 **Summary**

- 3.4.1 In summary, the site itself is not subject to any statutory or non-statutory ecological designations and it is unlikely that any such designations in the surrounding area will be significantly affected by proposed development.

4 Habitats and Ecological Features

4.1 Background Records

4.1.1 Records of Priority Species returned from BLBRMC for the desk study area were limited to Corn Buttercup *Ranunculus arvensis*, located approximately 1km to the west of the site. A number of records for other nationally and locally notable plants were returned, although none of these relate to the site or its immediate surrounds. No evidence for the presence of any of these species within the site was recorded during the survey work undertaken.

4.2 Overview

4.2.1 The habitats and ecological features present within the site are described below and evaluated in terms of whether they constitute an important ecological feature and their level of importance, taking into account the status of habitat types and the presence of rare plant communities or individual plant species of elevated interest. The likely effects of the proposals on the habitats and ecological features are then assessed. The value of habitats for the fauna they may support is considered separately in Chapter 5 below.

4.2.2 The following habitats/ecological features were identified within/adjacent to the site:

- Arable;
- Grassland;
- Hedgerows and Scattered Trees;
- Woodland;
- Scrub and Ruderal Vegetation;
- Watercourses;
- Ponds; and
- Buildings, Hardstanding and Bare Ground.

4.2.3 The locations of these habitat types and features are illustrated on Plan 5820/ECO3 and described in detail below.

4.3 Priority Habitats

4.3.1 Section 40 of the Natural Environment and Rural Communities (NERC) Act 2006 places duties on public bodies to have regard to the conservation of biodiversity in the exercise of their normal functions. In particular, Section 41 of the NERC Act requires the Secretary of State to publish a list of habitats which are of principal importance for conservation in England. This list is largely derived from the 'Priority Habitats' listed under the former UK Biodiversity Action Plan (BAP), which continue to be regarded as priority habitats under the subsequent country-level biodiversity strategies.

4.3.2 Of the habitats within the site, hedgerows, woodland and ponds are considered to potentially qualify as Priority Habitats and could therefore constitute important ecological features. This is discussed further in the relevant habitat sections below.

4.4 Arable

Description

- 4.4.1 The site is dominated by a number of intensely managed arable fields, separated by a network of hedgerows, largely recently ploughed and devoid of vegetation at the time of survey. A small number of recolonising grasses were identified, dominated by meadow grasses *Poa sp.*, with ruderal and herb species also recorded to be encroaching the fields from the margins, including species such as Buttercup *Ranunculus sp.*, Creeping Thistle *Cirsium arvense*, Hemlock *Conium maculatum* and Cleavers *Galium aparine*.

Evaluation

- 4.4.2 The arable fields appeared to be under intensive management and support limited field margins, whilst no features such as set aside or conservation headlands were noted to be present. As such, this habitat is not considered to form an important ecological feature and does not form a significant constraint to the proposals.

4.5 Grassland

Description

- 4.5.1 A number of grassland fields were recorded to be present throughout the site, dominated by a large improved grassland field located at the southern extent of the site, associated with a number of active farm buildings. The field appeared to be subject to cattle grazing associated with the current use of the site as farmland, and supported a short, open sward, dominated by grasses including Perennial Rye-grass *Lolium perenne*, Red Fescue *Festuca rubra*, and Crested Dog's-tail *Cynosurus cristatus*, with herbs largely limited to occasional patches of Common Nettle *Urtica dioica* and Thistle *Cirsium sp.*.
- 4.5.2 A small area of semi-improved grassland was also noted at the northern extent of the site, dominated by False Oat-grass *Arrhenatherum elatius*, and supporting a number of ruderal species such as Cleavers, Cow Parsley *Anthriscus sylvestris* and Common Nettle, and within the land parcel located to the east of the A6 (see Plan 5820/ECO3). The eastern parcel was recorded to comprise a longer and tussockier sward, and was considerably less managed than other grasslands within the main site.
- 4.5.3 Two fields within the site, to the northern and southern extents respectively, were recorded to comprise recently sown improved grassland on previously cultivated land. The fields supported a thin sward of common grass species with bare ground clearly visible below.

Evaluation

- 4.5.4 The areas of grassland within the site were all recorded to be relatively species-poor and show evidence of agricultural improvement. The areas of semi-improved grassland in the north and east of the site supported some additional diversity, although they do not support indicator species of higher quality grassland, and do not qualify as a Priority Habitat. Semi-improved grassland is not uncommon in the local area and higher quality areas of grassland are present in the surrounding area, such as Wilstead Meadows CWS to the east. As such, the grassland does not constitute an important ecological feature and does not form a significant constraint to the proposals.

4.6 Hedgerows and Scattered Trees

Description

- 4.6.1 A network of hedgerows is present within the site and forms the field and site boundaries. These are generally intact and dense, with shrubby vegetation dominated by Hawthorn *Crataegus monogyna* and Blackthorn *Prunus spinosa* measuring approximately 4-5m in height, although are species-poor, with few other woody species recorded aside from Elm *Ulmus procera* and Rose *Rosa sp.*. A few standard trees are also present within the hedgerows including species such as Ash *Fraxinus excelsior*, Oak *Quercus robur*, Field Maple *Acer campestre* and Birch *Betula sp.* These were largely young in age, although a number of mature tree specimens are present along the western boundary, towards the southern part of the site, with a single mature Oak tree in the north (see Plan 5820/ECO3). The ground flora associated with the hedgerow network is generally species-poor and dominated by common species such as Bramble *Rubus fruticosus sp.*, Common Nettle and Cleavers, together with occasional Lords-and-ladies *Arum maculatum*, Ground-ivy *Glechoma hederacea* and Garlic Mustard *Alliaria petiolata*. The hedgerows are described in more detail at Appendix 5820/3.

Evaluation

- 4.6.2 Based on a preliminary appraisal, hedgerows within the site are considered unlikely to qualify as 'important' under the wildlife and landscape criteria of the Hedgerows Regulations 1997, largely due to their species-poor nature.
- 4.6.3 However, all of the hedgerows within the site are likely to qualify as a Priority Habitat based on the standard definition⁷, which includes all hedgerows (>20m long and <5m wide) consisting predominantly (≥80%) of at least one native woody species. It has been estimated that approximately 84% of countryside hedgerows in GB qualify as a Priority Habitat under this definition.
- 4.6.4 On this basis, the hedgerows within the site, together with the associated standard trees, are considered to form an important ecological feature within the site, of value at the local level. It is therefore recommended that hedgerows and standard trees are retained as far as practical under the proposals, with any losses compensated for with new tree and hedgerow planting.

4.7 Woodland

Description

- 4.7.1 One area of woodland was recorded within the site boundary at the south of the site (identified as Woodland W1 on Plan 5820/ECO3), whilst an additional woodland block (W2) was identified adjacent to the north west of the site.
- 4.7.2 The southern woodland W1 is identified as the Priority Habitat 'Deciduous Woodland' on the MAGIC database and was recorded to largely comprise young to semi-mature trees including Oak, Ash, Silver Birch *Betula pendula* and Hawthorn, with a few mature Oak and Ash trees also noted. Ground flora diversity was recorded to be fairly limited and dominated by a small number of herb and ruderal species such as Ground-ivy, Common Nettle and Bluebell *Hyacinthoides non-scripta*, albeit the survey was undertaken outside of the

⁷ Based on: Biodiversity Reporting and Information Group (2011) 'UK Biodiversity Action Plan (BAP) Priority Habitat Descriptions', ed. Ant Maddock

optimum period for vegetation survey and as such a comprehensive species list could not be produced. The woodland supported a bank feature to the south west of the woodland, whilst examples of standing and fallen deadwood were scattered throughout the largely open structure of the woodland.

- 4.7.3 The woodland block identified offsite adjacent to the north-western boundary (W2) was recorded to be relatively young in age and comprised the same species as the nearby hedgerows.
- 4.7.4 Small blocks of plantation woodland were also recorded adjacent to the farm buildings at the southern extent of the site, dominated by young Ash and Birch trees with limited ground-flora comprising grass species such as Perennial Rye-grass, Fescue Festuca sp., and Common Nettle.

Evaluation

- 4.7.5 Woodland W1 appears to be of relatively low habitat quality, being dominated by young trees and with a relatively poor ground flora. However, lowland mixed deciduous woodland forms a Priority Habitat and accordingly the woodland is considered to form an important ecological feature at the local level. Accordingly, it should be retained and safeguarded under any proposals.
- 4.7.6 The plantation woodlands within the site are young in age and are not considered to form an important ecological feature. As such, they are not considered to form a significant constraint to the proposals.

4.8 Scrub and Ruderal Vegetation

Description

- 4.8.1 Small areas of scrub and ruderal vegetation were recorded within the main site, largely restricted to the field and woodland margins and dominated by Bramble, Common Nettle and Cleavers. More established areas of scrub and ruderal vegetation were present within the parcel of land located to the east of the A6, which comprised similar species in addition to Ash and Birch scrub.

Evaluation

- 4.8.2 Areas of scrub and ruderal vegetation are limited in extent and comprise only common and widespread species. As such, they are not considered to form an important ecological feature and do not form a significant constraint to the proposals.

4.9 Watercourses

Description

- 4.9.1 Two minor watercourses are present within the site, associated with the site and field boundaries and labelled as WC1 and WC2 on Plan 5820/ECO3.
- 4.9.2 Watercourse WC1 intersects the northern extent of the site and continues along the north boundary forming the boundary with Wixams Greenway, with a slow-flowing current running south to north. The watercourse was recorded to be up to 1m in width and relatively shallow with turbid water at the time of survey and supported steep-sided banks. The watercourse is bounded by hedgerows on its western bank within the site, with the other bank dominated by ruderal vegetation along field margins. To the south of woodland

W2, at which point the watercourse crosses to the western side of the hedgerow, the western bank is formed by short-sward amenity grassland associated with the existing development adjacent to the north.

- 4.9.3 Watercourse WC2 comprises a ditch that flows in a northerly direction along the southern section of the western site boundary, then crosses the central part of the site, before forming the eastern boundary of the land parcel to the east of the A6 (see Plan 5820/ECO3). The ditch was recorded to be similar in character to WC1, up to 1m in width with steep-sided banks. The bankside vegetation was noted to be dominated by ruderal vegetation on the northern and western side including Common Nettles and Bramble, with scrub and woody vegetation associated with the hedgerow recorded on the southern and eastern bank.

Evaluation

- 4.9.4 The watercourses are considered to be of limited intrinsic value, being shallow and largely heavily shaded with limited marginal vegetation. As such, they are not considered to form an important ecological feature. However, they provide some connectivity in association with the hedgerow network, and should be retained and safeguarded where practical under any proposals.

4.10 Ponds

Description

- 4.10.1 A single pond was identified within the site located within the land parcel to the east of the A6 (identified as pond P1 at Plan 5820/ECO3). The pond was recorded to be approximately 30m in width and holding water at the time of survey, with a dense covering of emergent Reedmace *Typha* sp. within the waterbody and at the margins. Dense scrub was recorded at the banks, dominated by Hawthorn. Numerous other ponds were also noted within 250m of the site boundary, with several viewable from within the site, recorded to be holding water and of moderate quality.

Evaluation

- 4.10.2 The ponds within and surrounding the site may qualify as Priority Habitat. As such, ponds are considered to form an important ecological feature of value at the local level, albeit the location of the onsite pond within the eastern land parcel is not affected under the current proposals.

4.11 Buildings, Hardstanding and Bare Ground

Description

- 4.11.1 Five structures associated with the current use of the site as farmland were identified within the southern grassland field, surrounded by hardstanding which comprised concrete and loose gravel. The structures included a number of large barns of brick and wood construction with corrugated metal roofs, and smaller sheds formed by the same materials. Most of the structures were recorded to be enclosed on four sides and have a large, open doorway, and were used for the storage of farming tools and feed, with some used for housing cattle.

- 4.11.2 The field immediately opposite the land parcel to the east of the A6 was in use as a compound area for highways works at the time of survey, and comprised largely bare ground with several large spoil heaps and some temporary structures.

Evaluation

- 4.11.3 The buildings, hardstanding and bare ground support a limited range of common and widespread floral species and are inherently of negligible ecological value. As such, they do not form important ecological features and do not form a constraint to the proposals. Potential for the buildings to support faunal species such as roosting bats and Barn Owl is discussed below in Chapter 5.

4.12 Habitat Evaluation Summary

- 4.12.1 On the basis of the above, the following habitats within and adjacent to the site are considered to form important ecological features:

Table 4.1. Evaluation summary of habitats forming important ecological features.

Habitat	Level of Importance
Hedgerows and Scattered Trees	Local
Woodland W1	Local
Ponds	Local

- 4.12.2 These habitats should be retained where practical under the proposals, with implementation of appropriate safeguarding measures (such as tree protection fencing and engineering safeguards to avoid runoff of pollutants into ponds). Where any losses are proposed, new habitat should be created to provide compensation.
- 4.12.3 Other habitats present within the site include arable, grassland, plantation woodland, scrub and ruderal vegetation, watercourses, buildings, hardstanding and bare ground. However, these habitats do not form important ecological features and are not considered to form a significant constraint to the proposals.

5 Faunal Use of the Site

5.1 Overview

5.1.1 During the survey work, general observations were made of any faunal use of the site with specific attention paid to the potential presence of protected or notable species. Specific survey work was undertaken in respect of Badgers and bats with the results described below.

5.2 Priority Species

5.2.1 Section 40 of the Natural Environment and Rural Communities (NERC) Act 2006 places duties on public bodies to have regard to the conservation of biodiversity in the exercise of their normal functions. In particular, Section 41 of the NERC Act requires the Secretary of State to publish a list of species which are of principal importance for conservation in England. This list is largely derived from the 'Priority Species' listed under the former UK Biodiversity Action Plan (BAP), which continue to be regarded as priority species under the subsequent country-level biodiversity strategies.

5.2.2 During the survey work undertaken, the Priority Species Starling *Sturnus vulgaris* was recorded within the site. This is discussed further below.

5.3 Bats

5.3.1 **Legislation.** All British bats are classed as European Protected Species under the Conservation of Habitats and Species Regulations 2017 (as amended) and are also listed under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). As such, both bats and their roosts (breeding sites and resting places) receive full protection under the legislation (see Appendix 5820/4 for detailed provisions). If proposed development work is likely to result in an offence a licence may need to be obtained from Natural England which would be subject to appropriate measures to safeguard bats. Given all bats are protected species, they are considered to represent important ecological features. A number of bat species are also considered S41 Priority Species.

5.3.2 **Background Records.** Information received from the BBG returned records of Barbastelle *Barbastella barbastellus*, Common Pipistrelle *Pipistrellus pipistrellus*, Soprano Pipistrelle *P. pygmaeus*, Daubenton's *Myotis daubentonii*, Natterer's *M. nattereri* and Noctule *Nyctalus noctula* within 2km of the site, together with other unidentified Pipistrelle, Myotis and other bat species. These include a record of Common Pipistrelle bordering the northern part of the site, dated 2017.

5.3.3 Survey Results and Evaluation

Roosting

Buildings

5.3.4 A preliminary assessment was undertaken of buildings within the site, comprising a number of open barn and shed structures. These are not considered to form particular roosting opportunities, being of a construction type not typically favoured by bats, and generally open sided with a lack of enclosed roosting spaces. As such, they are considered to provide low bat roosting potential, although it is recommended that a more detailed inspection is undertaken if the buildings are to be affected under the proposals.

Trees

5.3.5 A number of semi-mature and mature trees are present on site. The results of the tree assessment work undertaken at the site are illustrated on Plan 5820/ECO3 and summarised in Table 5.1 below:

Table 5.1. Tree inspection results.

Tree No.	Species	Age	Potential Roost Features	Suitability
T1	Oak	Mature	Stag heading on upper limbs with areas of lifted bark, splits and occasional woodpecker holes, another 3-4 dead limbs with potential crevices around collars	Moderate-high
T2	Oak	Semi-mature	Offsite so could not be inspected closely, but of sufficient age that may support features	Low
T3	Field Maple	Young to semi-mature	Knotholes on branches	Low
T4	Ash	Semi-mature	One main stem rotten with multiple woodpecker holes, stag heading in upper crown with further woodpecker holes	Moderate
T5	Ash	Young	Some deadwood in main stem with rot holes	Low
T6	Oak	Semi-mature	Dead limb on southern elevation with peeling bark, knotholes and splits, also minor stag heading	Low
T7	Oak	Semi-mature	Two main limbs broken off leaving large wounds with splits and crevices, dead limb on north-east elevation	Moderate
T8	Field Maple	Young	Old limb scar which potentially extends upwards	Low
T9	Elm	Young	Lateral split in stem resulting from scar tissue	Low
T10	Ash	Semi-mature	Main part of stem broken off at around 3m height, with potential cavities	Low
T11	Ash	Semi-mature	Main part of stem broken off with large open wound with potential cavities	Low
T12	Oak	Mature	Dead limbs with lifted bark, some old collars and slight split on underside of limb	Low-moderate
T13	Oak	Semi-mature	Two small dead limbs with cracks and splits	Low
T14	Oak	Mature	Majority of upper part of tree dying off with peeling bark, knotholes and deep cracks	Moderate
T15	Oak	Mature	Some minor limbs with deadwood	Low
T16	Ash	Semi-mature	Monolith feature completely broken off at around 5m height with significant deadwood in remaining stem, some woodpecker holes	Moderate-high
T17	Oak	Mature	Some minor limbs with deadwood	Low
T18-24	Oak/Ash	Semi-mature	Tightly spaced group of trees supporting features including dead limbs and rot holes	Low-moderate

Tree No.	Species	Age	Potential Roost Features	Suitability
T25	Ash	Semi-mature	Broken off at around 6m height leaving large cavity within main stem, quite exposed to elements	Low
T26	Oak	Semi-mature	Some minor limbs with deadwood	Low
T27	Oak	Semi-mature	Some deadwood and lifted bark	Low-moderate

- 5.3.6 Trees supporting bat roosting potential are mostly located at the site boundaries and as such can be retained under any proposals. Trees elsewhere within the site should be retained where possible. Where trees supporting bat roosting potential are to be affected under the proposals, further surveys are likely to be required in the form of climbing inspections or emergence/re-entry surveys to confirm presence/absence of roosting bats and inform mitigation and licensing requirements.

Foraging and Commuting

- 5.3.7 The habitats within the site are likely to offer some opportunities for foraging and commuting bats, due in part to their connectivity with the wider landscape. However, the low species diversity of the arable and improved grassland fields, and abundant similar habitats in the local area including large areas of woodland to the east, limits the likely value of the main part of the site to foraging bats. The boundary hedgerows provide a linear feature connecting on-site and offsite areas which may be utilised by commuting bats, whilst features such as the on-site woodland and watercourse provide suitable foraging habitat for bats.
- 5.3.8 Further survey work is recommended to determine the extent of use of the site by foraging and commuting bats to inform any planning application.

5.4 Badger

- 5.4.1 **Legislation.** Badger receive legislative protection under the Protection of Badgers Act 1992 (see Appendix 5820/4 for detailed provisions), and as such should be assessed as an important ecological feature. The legislation aims to protect the species from persecution, rather than being a response to an unfavourable conservation status, as the species is in fact common over most of Britain. It is the duty of planning authorities to consider the conservation and welfare impacts of development upon Badger and issue permissions accordingly.
- 5.4.2 Licences can be obtained from Natural England for development activities that would otherwise be unlawful under the legislation. Guidance on the types of activity that should be licensed is laid out in the relevant best practice guidance.^{8,9}
- 5.4.3 **Background Records.** Numerous records of Badger were provided by BLBMRC, the majority relating to the A6 which forms the boundary to the site, likely representing road traffic accidents.
- 5.4.4 **Survey Results and Evaluation.** A number of signs of Badger were recorded within the site during survey work undertaken in January 2020, with four setts identified as shown on Plan 5820/ECO3. A number of likely Badger paths were also recorded within the site.

⁸ English Nature (2002) 'Badgers and Development'

⁹ Natural England (2011) 'Badgers and Development: A Guide to Best Practice and Licensing', Interim Guidance Document

- 5.4.5 Setts S1 is located along the western boundary of the site, in association with the established tree line adjacent to watercourse WC2. It comprises five main groups of entrances along a c.200m length section, all connected by a well-used Badger path along the hedgerow/tree line. There are gaps of 20-40m between the individual groupings of entrances, although given the close proximity of entrances and level of activity, it is possible these are interlinked underground. In total, 13 active entrances and 14 partially used entrances were recorded, although more may be present within the hedgerow vegetation. This is likely to represent a main sett.
- 5.4.6 Setts S2 comprises a single entrance at the southern bank of watercourse WC2. It appeared to be partially active at the time of survey, with a clear path leading to the entrance. This is a likely outlier sett.
- 5.4.7 Setts S3 comprises several partially used entrances a short distance to the south of sett S2. This may form an extension to the main sett, or a separate annex sett.
- 5.4.8 Setts S4 comprises a further single entrance sett in the southern part of the site. This appeared to be active with fresh spoil. This is a likely outlier sett.
- 5.4.9 The presence of Badger would not necessarily obstruct development, nonetheless the potential for impact on the local Badger population may need to be informed by update survey work as Badgers are a dynamic species which readily create, abandon and re-open setts. If any setts are to be affected under the proposals, it is likely they would need to be closed under licence, with implementation of appropriate safeguarding measures.

5.5 Dormouse

- 5.5.1 **Legislation.** Dormouse is fully protected under the Wildlife and Countryside Act 1981 (as amended) and is a European Protected Species under the Conservation of Habitats and Species Regulations 2017 (as amended). Such legislation affords protection to individuals of the species and their breeding sites and places of rest (see Appendix 5820/4 for detailed provisions). Dormouse is also a S41 Priority Species. On this basis, Dormouse is considered to form an important ecological feature.
- 5.5.2 **Background Records.** No records of Dormouse were returned from the desktop study, albeit Bedfordshire is within the known distribution of this species.
- 5.5.3 **Survey Results and Evaluation.** Some opportunities for the species are present within the boundary hedgerows, albeit this is limited by the species-poor nature of the hedgerows, whilst woodland and scrub also provide potential habitat. Subject to specific proposals and extent of habitat affected, further survey work may be required to establish the presence/likely absence of this species, although potential impacts on this species would be minimal due to the limited area of potentially suitable habitat within the site. As such, it is considered that the potential impacts on this species (if present) could be largely avoided should the hedgerows and woodland be retained and enhanced, and the appropriate safeguarding measures implemented.

5.6 Water Vole

- 5.6.1 **Legislation.** Water Vole is fully protected under the Wildlife and Countryside Act 1981 (as amended). Water Vole is also a S41 Priority Species. As such, this species is considered to represent an important ecological feature. The legislation affords protection to individuals of the species and their breeding sites and places of shelter (see Appendix 5820/4 for detailed provisions). There is no provision under the Act for licensing what would otherwise

be offences for the purpose of development. Such activities must be covered by the defence in the Act that permits otherwise illegal actions if they are the incidental result of a lawful operation and could not reasonably be avoided.

5.6.2 If, despite all reasonable efforts, properly authorised development will adversely affect Water Vole and there are no alternative habitats nearby, Natural England may issue a licence to trap and translocate Water Vole for the purpose of conservation. To issue such a licence, Natural England would need to be assured there is no reasonable alternative to the development and that there are no other practical solutions that would allow Water Vole to be retained at the same location. NE would also require assurance that the actions would make a positive contribution to Water Vole conservation.

5.6.3 **Background Records.** No records of Water Vole were returned during the desktop study.

5.6.4 **Survey Results and Evaluation.** The watercourses at the site offer potential habitat for Water Vole, albeit this is suboptimal, with the watercourses generally being over-shaded or with limited vegetation. No evidence of the species was found during the Phase 1 survey undertaken in January 2020, although this is outside of the suitable survey period. As such, it is recommended that further survey work is undertaken during the appropriate season to confirm absence of the species, or provide details regarding any mitigation requirements needed to ensure that this species, if present, is fully safeguarded during development.

5.7 Otter

5.7.1 **Legislation.** Otter is fully protected under the Wildlife and Countryside Act 1981 (as amended) and is a European Protected Species under the Conservation of Habitats and Species Regulations 2017 (as amended). Such legislation affords protection to individuals of the species and their breeding sites and places of rest (see Appendix 5820/4 for detailed provisions). Otter is also a S41 Priority Species. On this basis, Otter is considered to represent an important ecological feature.

5.7.2 **Background Records.** A single record of Otter was provided by BLBMRC, although this relates to a 2km grid square with no specific location provided.

5.7.3 **Survey Results and Evaluation.** The watercourses within the site are considered unlikely to be suitable for Otter, being small in size and lacking connectivity to any more substantial watercourses. As such, this species is unlikely to form a constraint to the proposals.

5.8 Other Mammals

5.8.1 **Legislation.** A number of other UK mammal species do not receive direct legislative protection relevant to development activities but may receive protection against acts of cruelty (e.g. under the Wild Mammals (Protection) Act 1996). In addition, a number of these mammal species are S41 Priority Species and should be assessed as important ecological features.

5.8.2 **Background Records.** A number of records of the Priority Species Polecat *Mustela putorius*, Hedgehog *Erinaceus europaeus*, Brown Hare *Lepus europaeus* and Harvest Mouse *Micromys minutus* were provided for the desktop study area. These included records of Polecat from the A6 at the boundary of the site, likely relating to a road traffic accident.

5.8.3 **Survey Results and Evaluation.** No evidence of any other protected, rare or notable mammal species was recorded within the site. Other mammal species likely to utilise the site, such as Fox *Vulpes vulpes*, remain common in both a local and national context, and as

mentioned above do not receive specific legislative protection in a development context. As such, these species are not a material planning consideration and the loss of potential opportunities for these species to the proposals is of negligible significance.

- 5.8.4 The site may offer some opportunities for Priority Species recorded during the desktop study including Hedgehog and Brown Hare, although given the intensive nature of farming at the site and opportunities available within the surrounding area, the site is unlikely to be of particular significance for such species.

5.9 Amphibians

- 5.9.1 **Legislation.** All British amphibian species receive a degree of protection under the Wildlife and Countryside Act 1981 (as amended). Great Crested Newt is protected under the Act and is also classed as a European Protected Species under the Conservation of Habitats and Species Regulations 2017 (as amended). As such, both Great Crested Newt and habitats utilised by this species are afforded protection (see Appendix 5820/4 for detailed provisions). Great Crested Newt is also a S41 Priority Species, as are Common Toad *Bufo bufo*, Natterjack Toad *Epidalea calamita*, and Pool Frog *Pelophylax lessonae*. As such, these species should be assessed as important ecological features.

- 5.9.2 **Background Records.** A number of records of Great Crested Newt were returned from BLBRMC, the closest of which is located approximately 100m north east of the site. Records of Common Frog *Rana temporaria*, Common Toad and Smooth Newt *Lissotriton vulgaris* were also provided for the desktop study area.

- 5.9.3 **Survey Results and Evaluation.** A single pond was identified within the site, whilst nine ponds were identified within 250m of the site boundary. In addition, the site contains grassland and hedgerows forming potentially suitable terrestrial habitat for Great Crested Newt.

- 5.9.4 Due to the potential suitability of terrestrial habitat, and presence of a pond network within and immediately surrounding the site, it is recommended that presence/absence survey is undertaken to determine the use of the site by Great Crested Newt to inform any planning application. However, given only a single pond is located within the site, whilst the arable land is of low suitability for this species, it is likely that this species could readily be accommodated as part of any proposals.

5.10 Reptiles

- 5.10.1 **Legislation.** All six species of British reptile are listed under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended), which protects individuals against intentional killing or injury. Sand Lizard *Lacerta agilis* and Smooth Snake *Coronella austriaca* receive additional protection under the Conservation of Habitats and Species Regulations 2017 (as amended); refer to Appendix 5820/4 for detailed provisions. All six reptile species are also S41 Priority Species. As such, all reptile species should be assessed as important ecological features.

- 5.10.2 **Background Records.** A small number of records of Grass Snake *Natrix natrix* were returned from BLBRMC, the closest of which was located approximately 480m to the east of the site, albeit no records of any other reptile species were included in the data received.

- 5.10.3 **Survey Results.** Areas of rough grassland and boundary hedgerows provide suitable habitat for common reptile species, and connectivity to offsite habitat in the local area, albeit the extent of suitable is limited and isolated, separated by intensely managed arable land.

5.10.4 Due to the limited suitable habitat present within the site, and disconnection of such habitat within the site as a whole, reptiles are not considered likely to form a constraint to future development. However, subject to areas of habitat affected, specific survey work may be recommended to determine the presence/likely absence of the species from the site prior to submission of planning application. If reptiles are present, additional mitigation strategies, such as habitat manipulation or translocation, would be recommended to ensure the species group is fully safeguarded.

5.11 Birds

5.11.1 **Legislation.** All wild birds and their nests receive protection under Section 1 of the Wildlife and Countryside Act 1981 (as amended) in respect of killing and injury, and their nests, whilst being built or in use, cannot be taken, damaged or destroyed. Species included on Schedule 1 of the Act receive greater protection and are subject to special penalties (see Appendix 5820/4 for detailed provisions).

5.11.2 **Conservation Status.** The conservation importance of British bird species is categorised based on a number of criteria including the level of threat to a species' population status¹⁰. Species are listed as Green, Amber or Red. Red Listed species are considered to be of the highest conservation concern being either globally threatened and or experiencing a high/rapid level of population decline (>50% over the past 25 years). A number of birds are also S41 Priority Species. Red and Amber listed species and priority species should be assessed as important ecological features.

5.11.3 **Background Records.** Information from the data search included records for several Red Listed and Priority bird species for the 1km grid squares containing the site, including Skylark *Alauda arvensis*, Corn Bunting *Emberiza calandra*, Yellowhammer *E. citrinella*, Reed Bunting *E. schoeniclus*, Linnet *Linaria cannabina*, House Sparrow *Passer domesticus*, Tree Sparrow *P. montanus*, Grey Partridge *Perdix perdix*, Starling, Song Thrush *Turdus philomelos*, Lapwing *Vanellus vanellus*, Tree Sparrow and Yellow Wagtail *Motacilla flava*. No specific location information was available for these records.

5.11.4 **Survey Results and Evaluation.** A number of bird species were recorded during the Phase 1 survey, with notable species including large flocks of Redwing *Turdus iliacus* foraging in the arable fields, together with occasional Starling.

5.11.5 The hedgerows, trees, woodland and scrub on-site provide suitable nesting opportunities for a number of common bird species, whilst the site also provides potential suitability for farmland bird species, such as Skylark and Yellowhammer recorded as part of the desktop study. As such, it is recommended that the site is subject to a breeding bird survey (comprising three spaced visits between April and June) to determine the use of the site by farmland birds, prior to the submission of planning application.

5.12 Invertebrates

5.12.1 **Legislation.** A number of invertebrate species are listed under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). In addition, Large Blue Butterfly *Maculinea arion*, Fisher's Estuarine Moth *Gortyna borelii lunata* and Lesser Whirlpool Ram's-horn Snail *Anisus vorticulus* receive protection under the Conservation of Habitats and Species Regulations 2017 (as amended); refer to Appendix 5820/4 for detailed provisions. A number of

¹⁰ Eaton MA, Aebischer NJ, Brown AF, Hearn RD, Lock L, Musgrove AJ, Noble DG, Stroud DA and Gregory RD (2015) 'Birds of Conservation Concern 4: the population status of birds in the United Kingdom, Channel Islands and the Isle of Man' British Birds 108, pp.708-746

invertebrates are also S41 Priority Species. Where such species are present, they should be assessed as important ecological features.

- 5.12.2 **Background Records.** No specific records of invertebrates were returned from within or adjacent to the site, although records of the Priority Species White Admiral *Limenitis camilla* and Priority Species (research only) Cinnabar moth *Tyria jacobaeae* were returned for 1km grid squares containing the site.
- 5.12.3 **Survey Results and Evaluation.** No evidence for the presence of any protected, rare or notable invertebrate species was recorded within the site. The site is dominated by species-poor grassland and intensively managed arable farmland which are likely to support only a limited diversity of invertebrates. The site supports some patches of scrub but otherwise contains relatively few micro-habitats that would typically indicate elevated potential for invertebrates¹¹, such as a variable topography with areas of vertical exposed soil, areas of species-rich semi-natural vegetation; variable vegetation structure with frequent patches of tussocks combined with short turf; free-draining light soils; walls with friable mortar or fibrous dung. Potential exceptions are the more mature trees supporting deadwood habitat, the onsite pond and area of woodland, however these could be readily retained under any proposals. Accordingly, given the habitat composition of the site and lack of adjacent sites designated for significant invertebrate interest, it is considered unlikely that the site supports an important invertebrate assemblage and this species group is not considered to form a significant constraint to development.

5.13 Summary

- 5.13.1 The site is considered to provide potential opportunities for a range of faunal species, including bats, Badger, Dormouse, Water Vole, breeding birds, Great Crested Newt and reptiles, and as such, specific Phase 2 surveys are recommended at the appropriate stage to determine presence/absence of protected and notable species. Nevertheless, habitats are predominantly limited to the field boundaries, with the main field areas likely to be of low value to faunal species. As such, it is considered that faunal constraints could be readily accommodated as part of a sensitively designed masterplan and following implementation of appropriate safeguarding and mitigation measures. Notably, areas currently proposed for development are restricted to the northern extent of the site and avoid main areas of elevated value to faunal species, including bat roosting potential, Badger setts, woodland and ponds. Opportunities for faunal enhancements could be included as part of any future development proposals, including new habitat creation and provision of nesting and roosting features.

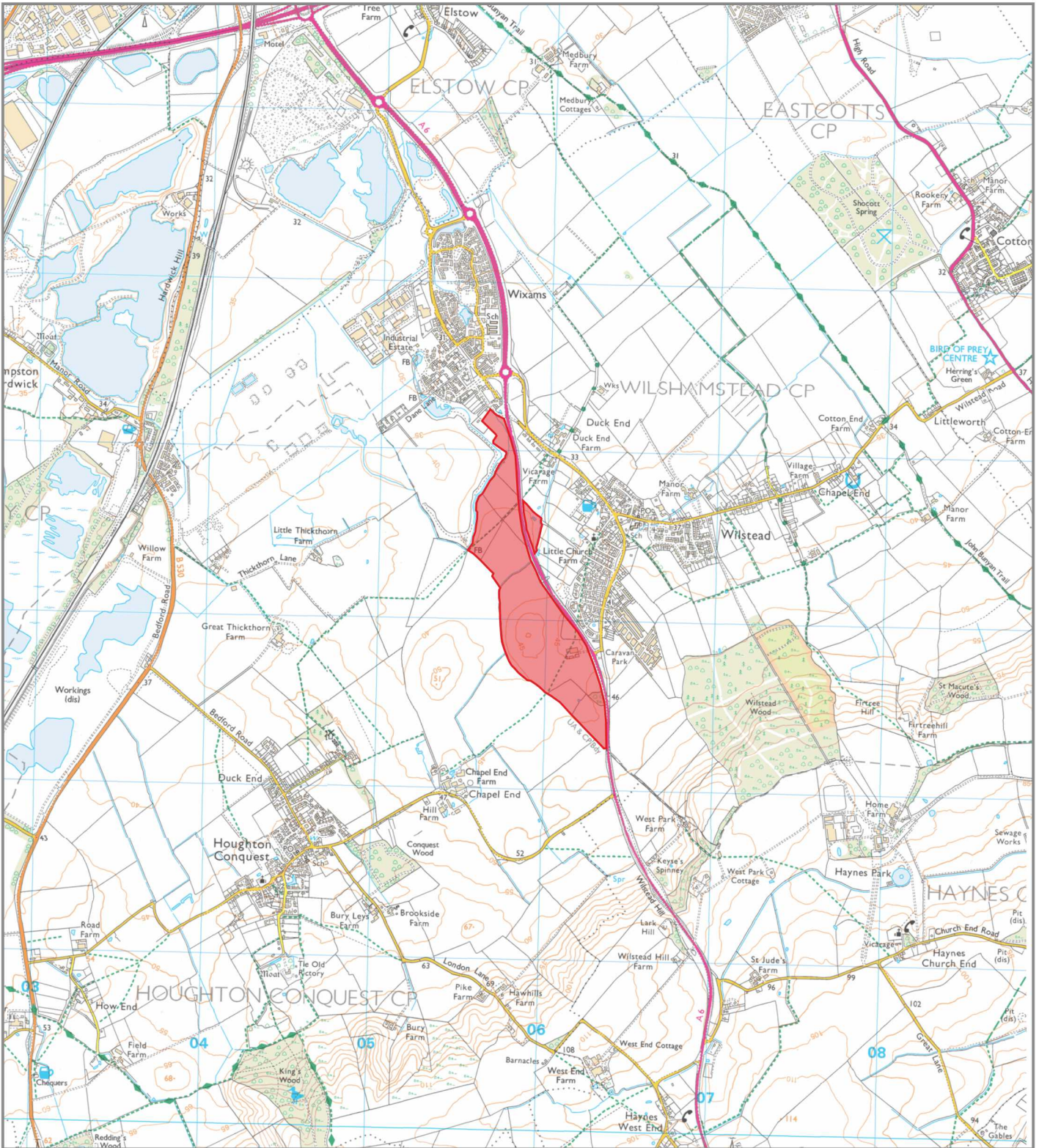
¹¹ Natural England (2010) 'Higher Level Stewardship – Farm Environment Plan (FEP) Manual', 3rd Edition

6 Conclusions

- 6.1 Aspect Ecology has carried out an Preliminary Ecological Appraisal of the site, based on the results of a desktop study and Phase 1 habitat and general faunal survey.
- 6.2 The available information confirms that no statutory or non-statutory nature conservation designations are present within or adjacent to the site, and none of the designations within the surrounding area are likely to be adversely affected by development of the site.
- 6.3 The Phase 1 habitat survey has established that the site is dominated by habitats not considered to be of ecological importance, including arable farmland and species-poor grassland. Habitats of importance include hedgerows and associated standard trees, woodland and ponds.
- 6.4 The site offers potential to support a range of faunal species, including bats, Badger, Dormouse, Water Vole, breeding birds, Great Crested Newt and reptiles, and as such, specific Phase 2 surveys are recommended at the appropriate stage to determine presence/absence of protected and notable species. Nevertheless, habitats are predominantly limited to the field boundaries, with the main field areas likely to be of low value to faunal species. As such, it is considered that faunal constraints could be readily accommodated as part of a sensitively designed masterplan and following implementation of appropriate safeguarding and mitigation measures.
- 6.5 In summary, the majority of the site is considered to be relatively unconstrained in terms of ecology, and following implementation of a sensitively designed masterplan, together with provision of appropriate avoidance and mitigation measures, it is considered that significant impacts in terms of ecology can be avoided. Indeed, there are substantial opportunities for ecological enhancement as part of any development proposals which could deliver an overall net gain in terms of biodiversity.

Plan 5820/ECO1:

Site Location



Key:

 Site Location

aspect ecology

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Land East of Wixams, Bedfordshire PROJECT

Site Location TITLE

5820/ECO1 DRAWING NO.

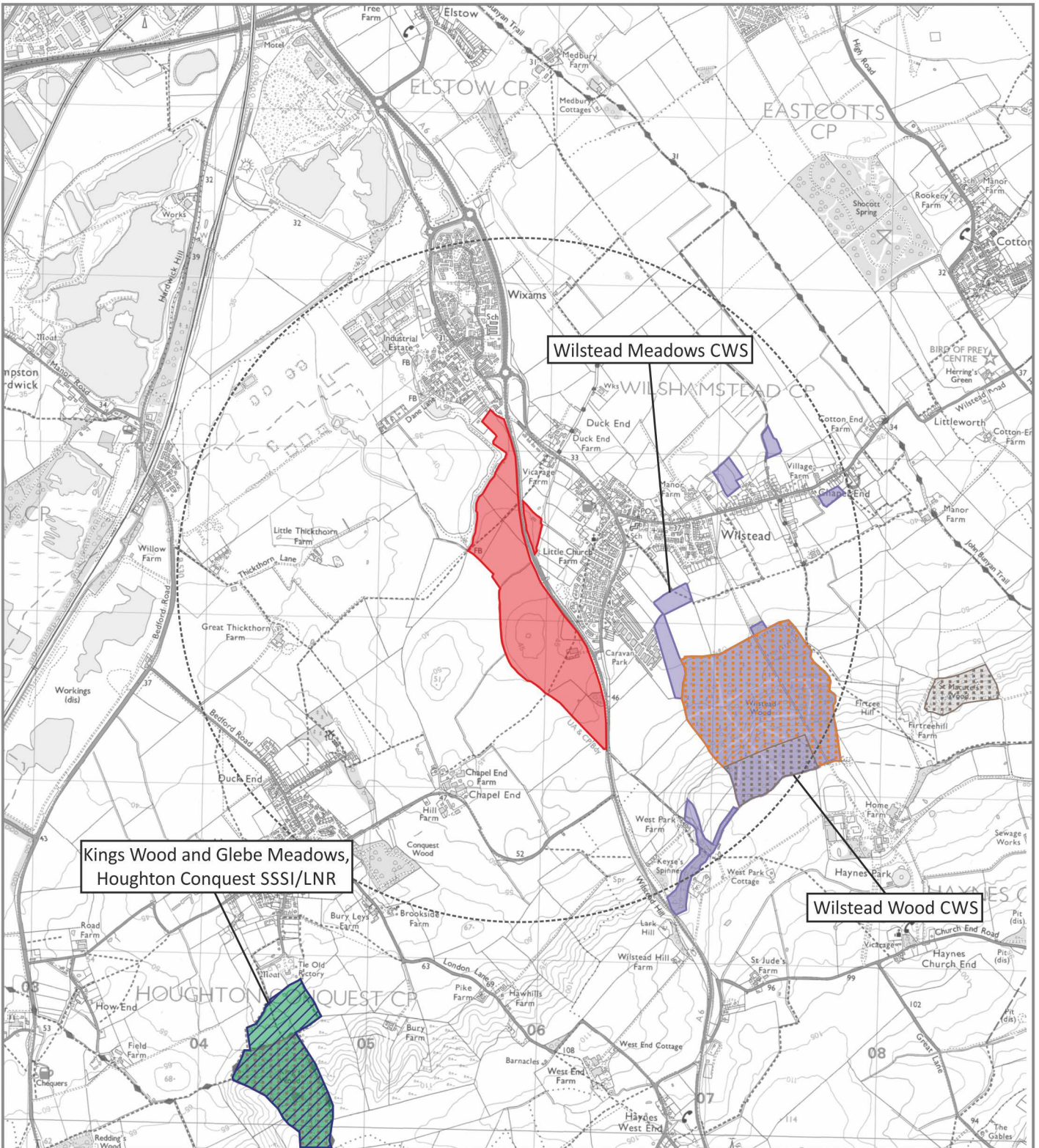
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August 2020 DATE



Plan 5820/ECO2:

Ecological Designations



Key:

- Site Location
- 2km Data Search Area
- Site of Special Scientific Interest (SSSI)
- Local Nature Reserve (LNR)
- County Wildlife Site (CWS)*
- Ancient Semi-Natural Woodland
- Ancient Replanted Woodland

*CWS only shown within 2km data search area



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Ecological Designations TITLE

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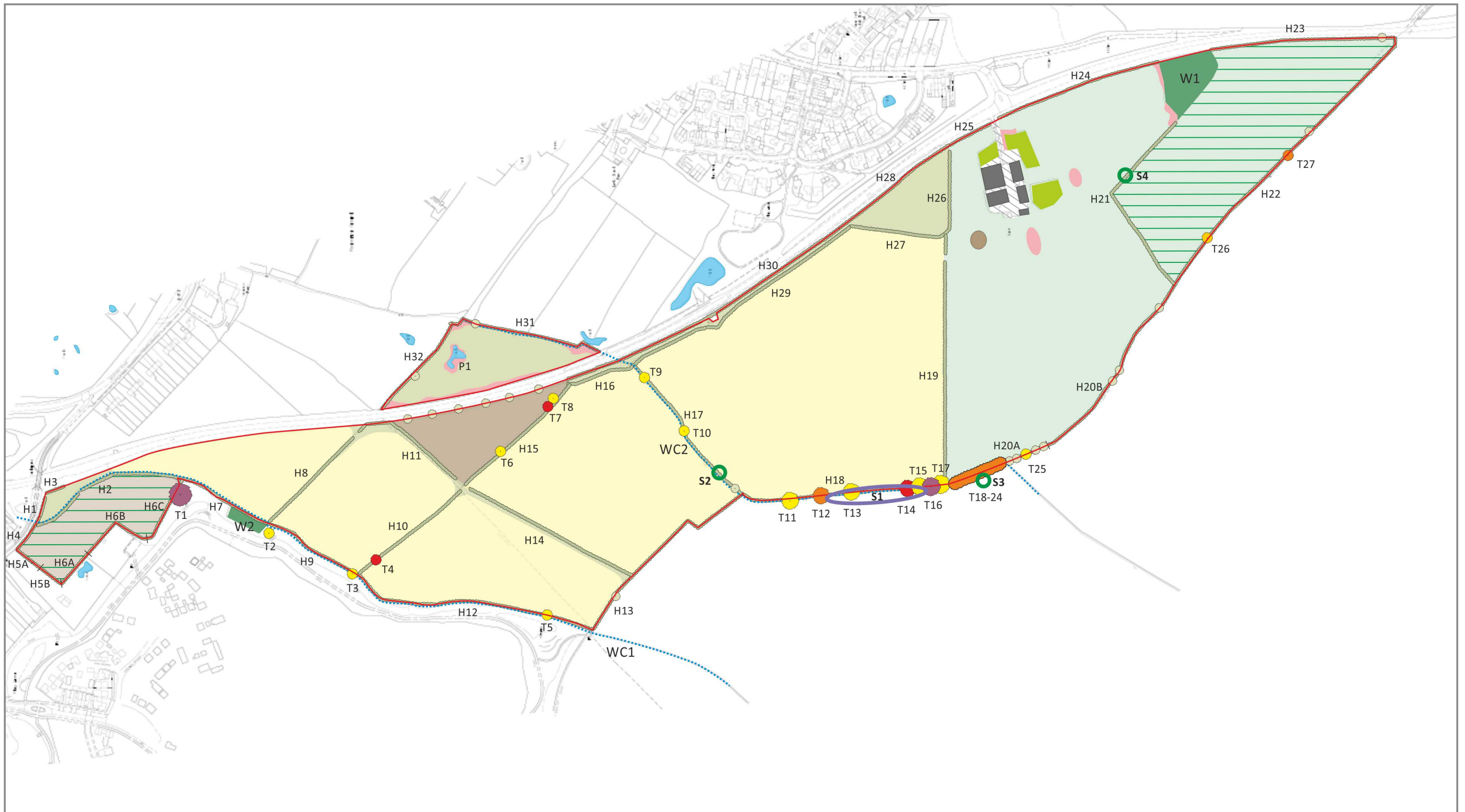
- REV.

August 2020 DATE



Plan 5820/ECO3:

Habitats and Ecological Features



Key:

- | | | | |
|------------------------------------|-----------------------------|--------------------------------------|---|
| Site Boundary | Plantation Woodland | Hedgerow | Low Bat Roosting Potential Tree |
| Semi-improved Grassland | Scrub and Ruderal | Spoil heap | Low-Moderate Bat Roosting Potential Tree |
| Improved Grassland / Recently Sown | Bare Ground / Compound Area | Main Badger Set | Moderate Bat Roosting Potential Tree |
| Arable | Pond | Secondary Badger Set (Outlier/Annex) | Moderate-High Bat Roosting Potential Tree |
| Semi-Natural Woodland | Watercourse | Tree / Mature Tree | |

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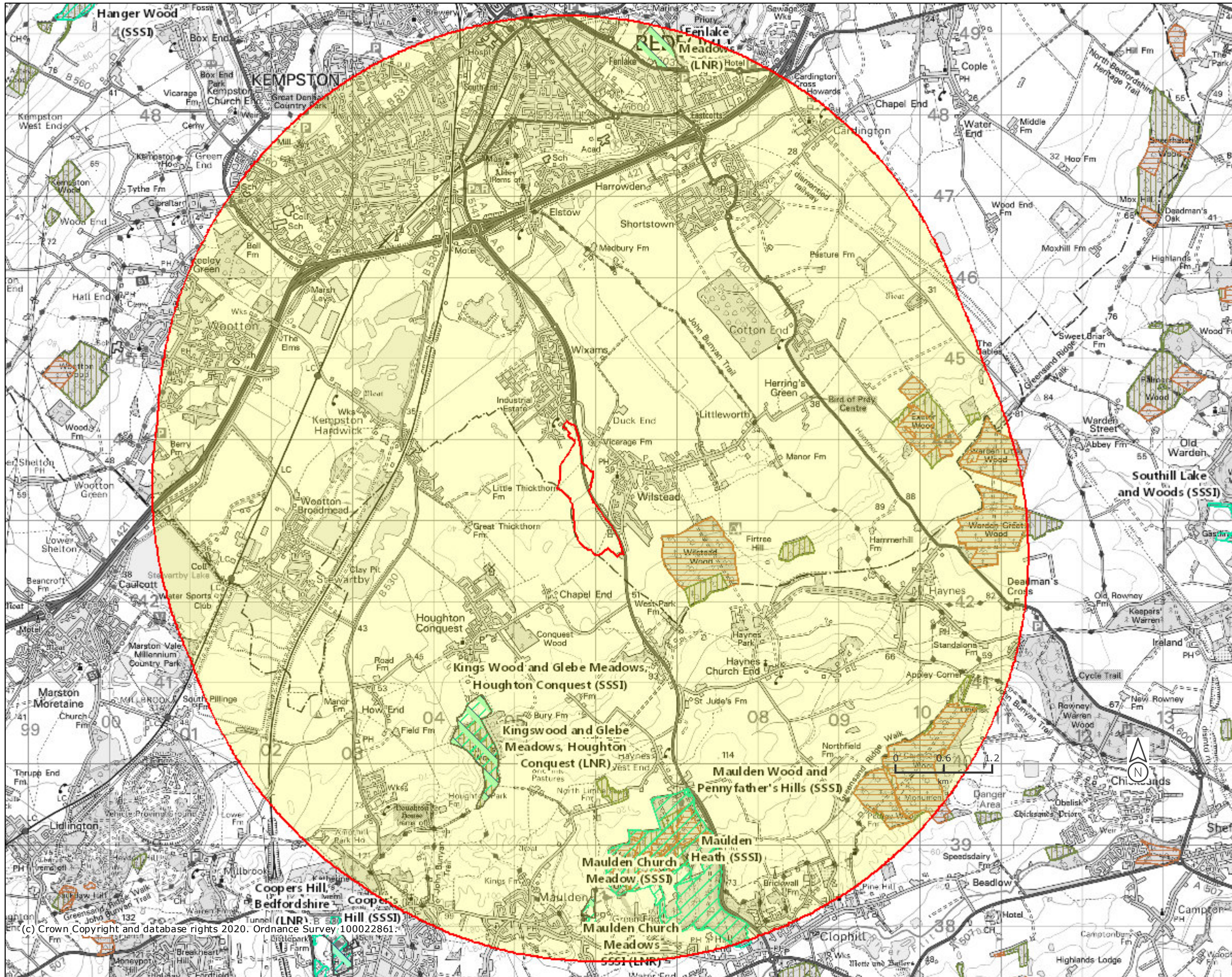
Habitats and Ecological Features TITLE



5820/ECO3 DRAWING NO.
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Appendix 5820/1:

Desktop Study Data



Legend

- Local Nature Reserves (England)
- National Nature Reserves (England)
- Ramsar Sites (England)
- Proposed Ramsar Sites (England)
- Sites of Special Scientific Interest (England)
- Special Areas of Conservation (England)
- Possible Special Areas of Conservation (England)
- Special Protection Areas (England)
- Potential Special Protection Areas (England)
- Ancient Woodland (England)**
- Ancient and Semi-Natural Woodland
- Ancient Replanted Woodland

Projection = OSGB36
 xmin = 494200
 ymin = 237200
 xmax = 518500
 ymax = 249500

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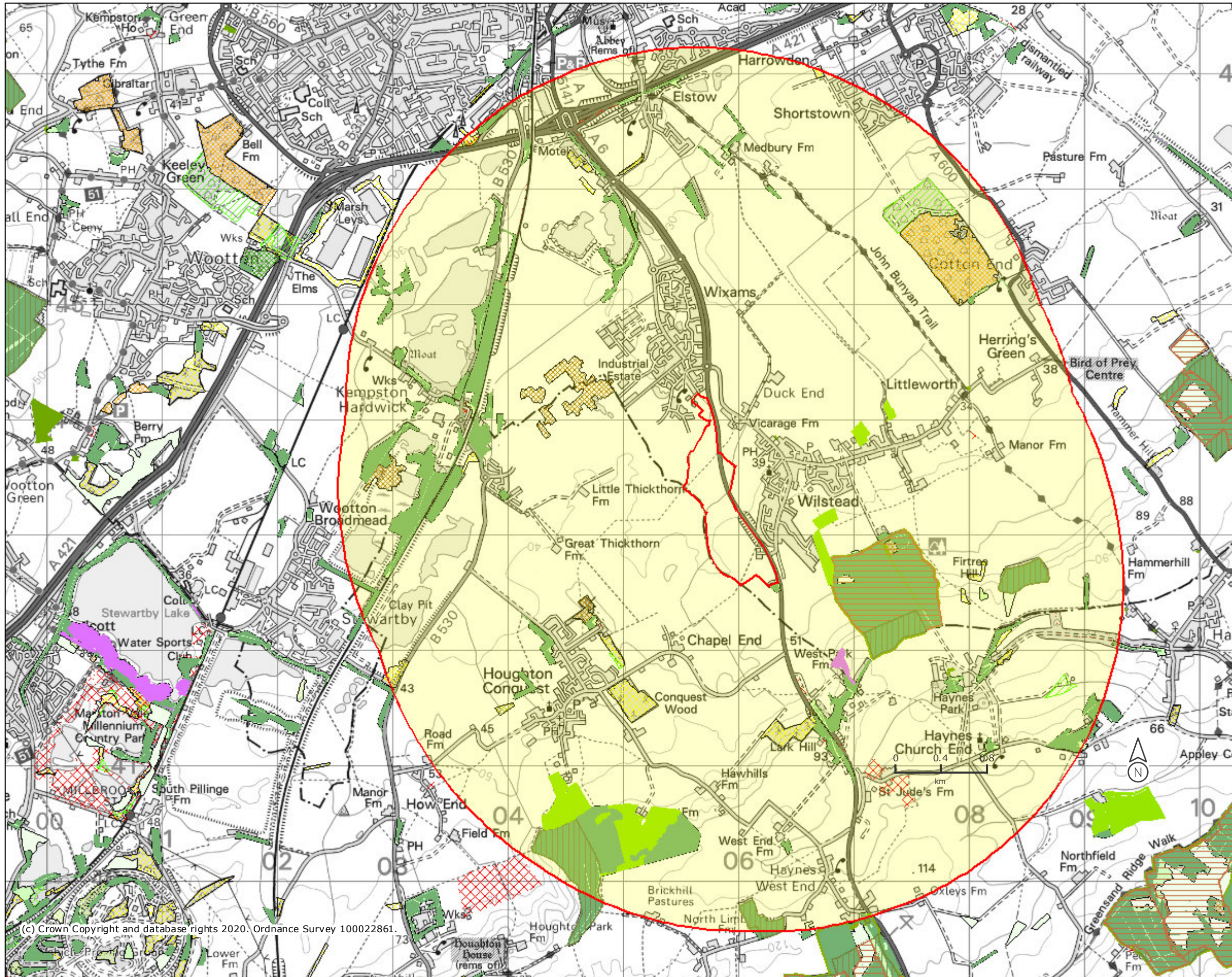
Legend

-  Ramsar Sites (England)
-  Special Areas of Conservation (England)
-  Possible Special Areas of Conservation (England)
-  Special Protection Areas (England)
-  Potential Special Protection Areas (England)

Projection = OSGB36
 xmin = 439500
 ymin = 214700
 xmax = 564200
 ymax = 274400



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Legend

- Priority Habitat Inventory - Good quality semi-improved grassland (Non Priority) (England)
- Priority Habitat Inventory - Lowland Meadows (England)
- Ancient Woodland (England)**
 - Ancient and Semi-Natural Woodland
 - Ancient Replanted Woodland
 - Priority Habitat Inventory - Deciduous Woodland (England)
 - Forestry Commission Legal Boundary (England)
- National Forest Inventory (GB)**
 - Assumed woodland
 - Broadleaved
 - Cloud \ shadow
 - Conifer
 - Coppice
 - Coppice with standards
 - Failed
 - Felled
 - Ground prep
 - Low density
 - Mixed mainly broadleaved
 - Mixed mainly conifer
 - Shrub
 - Uncertain
 - Windthrow
 - Young trees
 - Priority Habitat Inventory - Traditional Orchards (England)
 - Priority Habitat Inventory - No main habitat but additional habitat exists (England)

Projection = OSGB36
 xmin = 496400
 ymin = 239100
 xmax = 513600
 ymax = 247700

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Appendix 5820/2:

Principles of Ecological Evaluation

Principles of Ecological Evaluation

1. The evaluation of ecological features and resources is based on professional judgement whilst also drawing on the latest available industry guidance and research. The approach taken in this report is based on that described by the Chartered Institute of Ecology and Environmental Management (CIEEM) 'Guidelines for Ecological Impact Assessment in the UK and Ireland'¹.

Importance of Ecological Features

2. Various characteristics contribute to the importance of ecological features, including:
 - Naturalness;
 - Animal or plant species, sub-species or varieties that are rare or uncommon, either internationally, nationally or more locally, including those that may be seasonally transient;
 - Ecosystems and their component parts, which provide the habitats required by important species, populations and/or assemblages;
 - Endemic species or locally distinct sub-populations of a species;
 - Habitat diversity;
 - Habitat connectivity and/or synergistic associations;
 - Habitats and species in decline;
 - Rich assemblages of plants and animals;
 - Large populations of species or concentrations of species considered uncommon or threatened in a wider context;
 - Plant communities (and their associated animals) that are considered to be typical of valued natural/semi-natural vegetation types, including examples of naturally species-poor communities; and
 - Species on the edge of their range, particularly where their distribution is changing as a result of global trends and climate change.
3. As an objective starting point for identifying important ecological features, European, national and local governments have identified sites, habitats and species which form a key focus for biodiversity conservation in the UK, supported by policy and legislation. These are summarised by CIEEM guidance as follows:

Designated Sites

- Statutory sites designated or classified under international conventions or European legislation, for example World Heritage Sites, Biosphere Reserves, Wetlands of International Importance (Ramsar sites), Special Areas of Conservation (SAC), Special Protection Areas (SPA);
- Statutory sites designated under national legislation, for example Sites of Special Scientific Interest (SSSI), National Nature Reserves (NNR) and Local Nature Reserves (LNR);
- Locally designated wildlife sites, e.g. Local Wildlife Sites (LWS).

¹ Chartered Institute of Ecology and Environmental Management (CIEEM) (2016) 'Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal'

Biodiversity Lists

- Habitats and species of principal importance for the conservation of biodiversity in England and Wales (largely drawn from UK BAP priority habitats and priority species), often referred to simply as Priority Habitats / Species;
- Local BAP priority species and habitats.

Red Listed, Rare, Legally Protected Species

- Species of conservation concern, Red Data Book (RDB) species;
- Birds of Conservation Concern;
- Nationally rare and nationally scarce species;
- Legally protected species.

4. In addition to this list, other features may be considered to be of importance on the basis of local rarity, where they enable effective conservation of other important features, or play a key functional role in the landscape.

Assigning Level of Importance

5. The importance of an ecological feature should then be considered within a defined geographical context. Based on CIEEM guidance, the following frame of reference is used:
 - International (European);
 - National;
 - Regional;
 - County;
 - District;
 - Local (e.g. Parish or Neighbourhood);
 - Site (not of importance beyond the immediate context of the site).
6. Features of 'local' importance are those considered to be below a district level of importance, but are considered to appreciably enrich the nature conservation resource or are of elevated importance beyond the context of the site.
7. Where features are identified as 'important' based on the list of key sites, habitats and species set out above, but are very limited in extent or quality (in terms of habitat resource or species population) and do not appreciably contribute to the biodiversity interest beyond the context of the site, they are considered to be of site importance.
8. In terms of assigning the level of importance, the following considerations are relevant:

Designated Sites

9. For designated sites, importance should reflect the geographical context of the designation (e.g. SAC/SPA/Ramsar sites are designated at the international level whereas SSSIs are designated at the national level). Consideration should be given to multiple designations as appropriate (where an area is subject to differing levels of nature conservation designations).

Habitats

10. In certain cases, the value of a habitat can be measured against known selection criteria, e.g. SAC selection criteria, 'Guidelines for the selection of biological SSSIs' and the Hedgerows Regulations 1997. However, for the majority of commonly encountered sites, the most relevant habitat evaluation will be at a more localised level and based on relevant factors such as antiquity, size, species-diversity, potential, naturalness, rarity, fragility and typicalness (Ratcliffe, 1977). The ability to restore or re-create the habitat is also an important consideration, for example in the case of ancient woodland.
11. Whether habitats are listed as priorities for conservation at a national level in accordance with Sections 41 and 42 of the Natural Environment and Rural Communities Act (NERC) 2006, so called 'Habitats of Principal Importance' or 'Priority Habitats', or within regional or local Biodiversity Action Plans (BAPs) is also relevant, albeit the listing of a particular habitat under a BAP does not in itself imply any specific level of importance.
12. Habitat inventories (such as habitat mapping on the MAGIC database) or information relating to the status of particular habitats within a district, county or region can also assist in determining the appropriate scale at which a habitat is of importance.

Species

13. Deciding the importance of species populations should make use of existing criteria where available. For example, there are established criteria for defining nationally and internationally important populations of waterfowl. The scale within which importance is determined could also relate to a particular population, e.g. the breeding population of common toads within a suite of ponds or an otter population within a catchment.
14. When determining the importance of a species population, contextual information about distribution and abundance is fundamental, including trends based on historical records. For example, a species could be considered particularly important if it is rare and its population is in decline. With respect to rarity, this can apply across the geographic frame of reference and particular regard is given to populations where the UK holds a large or significant proportion of the international population of a species.
15. Whether species are listed as priorities for conservation at a national level in accordance with Sections 41 and 42 of the Natural Environment and Rural Communities Act (NERC) 2006, so called 'Species of Principal Importance' or 'Priority Species', or within regional or local Biodiversity Action Plans (BAPs) is also relevant, albeit the listing of a particular species under a BAP does not in itself imply any specific level of importance.
16. Species populations should also be considered in terms of the potential zone of influence of the proposals, i.e. if the entire species population within the site and surrounding area were to be affected by the proposed development, would this be of significance at a local, district, county or wider scale? This should also consider the foraging and territory ranges of individual species (e.g. bats roosting some distance from site may forage within site whereas other species such as invertebrates may be more sedentary).

Appendix 5820/3:

Hedgerow Descriptions

Hedgerow Descriptions

No.	Height	Woody species	Avg. per 30m*	Woodland ground flora species	Associated features	Comments (including structure / management)	Likely to qualify#
H1	4-5m	Hawthorn (D), Elm, Bramble, Ash	<5	-	Multi-stem Ash trees along length	Bushy, unmanaged	N
H2	4-6m	Hawthorn (D), Elm, Bramble, Crack Willow, Blackthorn, Hazel	<5	-	Adjacent to watercourse. Rough grass/ruderal margin along watercourse.	Relatively dense and bushy	N
H3	3-6m	Ash, Blackthorn, Dog Rose, Hawthorn, Elm, Birch, Field Maple (y)	<5	-	-	Scattered young tree planting with loose undergrowth, likely planted as part of highways works	N
H4	4m	Hawthorn (D), Blackthorn (D)	<5	-	-	Continuation of H2. Bushy, unmanaged	N
H5A	1m	Hawthorn (D), Bramble, Privet	<5	-	-	Low box cut hedgerow	N
H5B	4-5m	Blackthorn (D), Elm, Bramble	<5	-	-	Unmanaged, dense and bushy	N
H6A	5-6m	Willow (y), Hawthorn, Ash (y), Dogwood	<5	-	Associated with offsite pond	Outgrown scrub with large areas of dense Bramble	N
H6B	2-3m	Hawthorn, Elm, Blackthorn (D), Rose	<5	-	-	Outgrown scrub with large areas of dense Bramble	N
H6C	5-6m	Elm, Blackthorn, Hawthorn	<5	-	Mature Oak tree	More substantial hedgerow	N
H7	5-6m	Blackthorn, Hawthorn, Elm, Bramble, Elder	<5	-	Adjacent to watercourse and offsite woodland block. Rough grass/ruderal margin along watercourse.	Relatively dense, shrubby hedgerow	N
H8	5-6m	Hawthorn, Blackthorn, Rose	<5	<u>Lords and Ladies</u>	Narrow grass field margin (c.2m wide)	Two lines of vegetation forming double hedgerow with central open area. 6-8m in width.	N
H9	4-5m	Hawthorn, Blackthorn, Field Maple (sm)	<5	-	Adjacent to watercourse. Rough grass/ruderal margin along watercourse.	Dense, wide hedgerow	N
H10	4m	Blackthorn (D), Hawthorn, Ash (y)	<5	-	Narrow grass field margin (c.2m wide)	Wide hedgerow, almost developing into band of scrub	N
H11	4-5m	Hawthorn (D), Elm, Bramble	<5	-	-	Some occasional gaps with Bramble providing continuous cover	N
H12	4-5m	Blackthorn (D), Elm, Hawthorn	<5	-	Adjacent to watercourse. Rough grass/ruderal margin along watercourse.	Dense, wide hedgerow	N
H13	4m	Bramble, Blackthorn,	<5	-	Narrow grass field margin (c.2m wide)	Slightly defunct with small gaps filled by dense Bramble scrub	N

No.	Height	Woody species	Avg. per 30m*	Woodland ground flora species	Associated features	Comments (including structure / management)	Likely to qualify#
H14	4-5m	Hawthorn (D), Blackthorn (D), Ash (y)	<5	-	Narrow grass field margin (c.2m wide)	Dense, wide hedgerow. Slight ditch at centre holding water at time of survey.	N
H15	4m	Hawthorn, Blackthorn, Bramble	<5	-	Narrow grass field margin (c.2m wide). Several standard trees.	Continuous, dense hedgerow	N
H16	1m	Bramble (D), Hawthorn,	<5	-	Adjacent to grass trackway	Very low, box-cut hedgerow	N
H17	10m	Elm (y), Ash, Hawthorn, Blackthorn, Field Maple (y), Bramble	<5	-	Adjacent to watercourse with rough grass/ruderal/scrub margin on south side. Several standard trees.	Relatively substantial hedgerow with young trees	N
H18	4-5m	Hawthorn, Blackthorn, Oak (m), Ash (m)	<5	-	Adjacent to watercourse with rough grass/ruderal/scrub margin on west side. Numerous standard trees.	Numerous large trees with loose understorey vegetation	N
H19	3m	Hawthorn (D), Rose	<5	-	-	Low, continuous hedgerow	N
H20A	4-5m	Hawthorn, Blackthorn, Oak (m), Ash (m)	<5	-	Adjacent to watercourse. Numerous standard trees.	Numerous large trees with loose understorey vegetation	N
H20B	3-4m	Hawthorn (D), Elder, Field Maple, Oak	<5	-	Occasional young standards.	Narrow, relatively well maintained hedgerow, cut to 'A' shape	N
H21	4-5m	Hawthorn (D), Blackthorn (D), Rose, Field Maple (y)	<5	-	Field Maple standard	Wide hedgerow with vegetation either side of ditch feature	N
H22	3-4m	Hawthorn (D), Oak (sm), Elm	<5	-	Oak standards	Relatively narrow, well maintained hedgerow	N
H23	4-5m	Hawthorn, Blackthorn, Ash (y), Elm, Rose	<5	-	-	Adjacent to main road. Relatively shrubby, cut to 'A' frame shape.	N
H24	2-10m	Hawthorn, Ash (y), Oak (y)	<5	-	Young standard trees	Adjacent to main road. Well maintained hedgerow along site boundary, with shrubby treeline along road.	N
H25	3m	Hawthorn, Ash (y)	<5	-	Young standard trees	Adjacent to main road. Well maintained hedgerow.	N
H26	3m	Hawthorn (D), Rose	<5	-	-	Low, continuous hedgerow	N
H27	3m	Hawthorn (D), Rose	<5	-	-	Fairly dense and continuous	N
H28	8m	Hawthorn, Ash (y), Field Maple (y)	<5	-	Young standard trees.	Adjacent to main road. Becoming wooded strip along road embankment.	N
H29	1.5m	Hawthorn (D), Bramble	<5	-	-	West of trackway, low box cut hedgerow.	N

No.	Height	Woody species	Avg. per 30m*	Woodland ground flora species	Associated features	Comments (including structure / management)	Likely to qualify#
H30	10m	Ash (y), Field Maple, Elm (y)	<5	-	Young standard trees	Adjacent to main road. Fairly established wooded strip along road embankment with numerous young trees.	N
H31	6-7m	Hawthorn, Elm, Bramble	<5	-	Adjacent to watercourse with band of Bramble scrub along banks.	Relatively outgrown, unmanaged, fairly continuous	N
H32	6m	Hawthorn (D), Elm, Blackthorn, Ash (y), Field Maple (y)	<5	-	Some standard trees	Scrubby and unmanaged	N

y = young, sm = semi-mature, m = mature, pv = possible veteran, B = bank, W = wall, br = bridleway, f/p = footpath, b/w = byway, (D) = dominant species

* estimated average number of woody species (as listed under Schedule 3 of the Hedgerows Regulations 1997) in any one 30m stretch

likely to qualify – as 'important' under the wildlife and landscape criteria of the Hedgerows Regulations 1997

Appendix 5820/4:

Legislation Summary

LEGISLATION SUMMARY

1. In England and Wales primary legislation is made by the UK Parliament, and in Scotland by the Scottish Parliament, in the form of Acts. The main piece of legislation relating to nature conservation in the UK is the Wildlife and Countryside Act 1981 (as amended).
2. Acts of Parliament confer powers on Ministers to make more detailed orders, rules or regulations by means of secondary legislation in the form of statutory instruments. Statutory instruments are used to provide the necessary detail that would be too complex to include in an Act itself¹. The provisions of an Act of Parliament can also be enforced, amended or updated by secondary legislation.
3. In summary, the key pieces of legislation relating to nature conservation in the UK are:
 - Wildlife and Countryside Act 1981 (as amended)
 - Protection of Badgers Act 1992
 - Hedgerows Regulations 1997
 - Countryside and Rights of Way (CROW) Act for England and Wales 2000
 - Natural Environment and Rural Communities Act 2006
 - Conservation of Habitats and Species Regulations 2017
4. A brief summary of the relevant legislation is provided below. The original Acts and instruments should be referred to for the full and most up to date text of the legislation.
5. **Wildlife and Countryside Act 1981 (as amended)**. The WCA Act provides for the notification and confirmation of Sites of Special Scientific Interest (SSSIs) identified for their flora, fauna, geological or physiographical features. The Act contains strict measures for the protection and management of SSSIs.
6. The Act also refers to the treatment of UK wildlife including protected species listed under Schedules 1 (birds), 5 (mammals, herpetofauna, fish, invertebrates) and 8 (plants).
7. Under Section 1(1) of the Act, all wild birds are protected such that it is an offence to intentionally:
 - Kill, injure or take any wild bird;
 - Take, damage or destroy the nest of any wild bird whilst in use* or being built;
 - Take or destroy an egg of any wild bird.

* The nests of birds that re-use their nests as listed under Schedule ZA1, e.g. Golden Eagle, are protected against taking, damage or destruction irrespective of whether they are in use or not.
8. Offences in respect of Schedule 1 birds are subject to special, i.e. higher, penalties. Schedule 1 birds also receive greater protection such that it is an offence to intentionally or recklessly:
 - Disturb any wild bird included in Schedule 1 while it is building a nest or while it is in, on or near a nest containing eggs or young;
 - Disturb dependent young of such a bird.

¹ <http://www.parliament.uk/business/bills-and-legislation/secondary-legislation/statutory-instruments/>

9. Under Section 9(1) of the Act, it is an offence to:
 - Intentionally kill, injure or take any wild animal included in Schedule 5.
10. In addition, under Section 9(4) it is an offence to intentionally or recklessly:
 - Obstruct access to, any structure or place which any wild animal included in Schedule 5 uses for shelter or protection; or
 - Disturb any wild animal included in Schedule 5 while occupying a structure or place which it uses for that purpose.
11. Under Section 13(1) it is an offence:
 - To intentionally pick, uproot or destroy any wild plant listed in Schedule 8; or
 - Unless the authorised person, to intentionally uproot any wild plant not included in Schedule 8.
12. The Act also contains measures (S.14) for preventing the establishment of non-native species that may be detrimental to native wildlife, prohibiting the introduction into the wild of animals (releases or allows to escape) and plants (plants or causes to grow) listed under Schedule 9.
13. **Protection of Badgers Act 1992.** The Act aims to protect the species from persecution, rather than being a response to an unfavourable conservation status, as the species is in fact common over most of Britain. It should be noted that the legislation is not intended to prevent properly authorised development. Under the Act it is an offence to:
 - Wilfully kill, injure, take, possess or cruelly ill-treat* a Badger, or attempt to do so;
 - To intentionally or recklessly interfere with a sett# (this includes disturbing Badgers whilst they are occupying a sett, as well as damaging or destroying a sett or obstructing access to it).

* the intentional elimination of sufficient foraging area to support a known social group of Badgers may, in certain circumstances, be construed as an offence

A sett is defined as “any structure or place which displays signs indicating current use by a Badger”. Natural England advice (June 2009) is that a sett is protected so long as such signs remain present, which in practice could potentially be for some time after the last actual occupation by Badger. Interference with a sett includes blocking tunnels or damaging the sett in any way
14. Licences can be obtained from the Statutory Nature Conservation Organisation (SNCO) for development activities that would otherwise be unlawful under the legislation, provided there is suitable justification. The SNCO for England is Natural England.
15. **Hedgerows Regulations 1997.** ‘Important’ hedgerows (as defined by the Regulations) are protected from removal (up-rooting or otherwise destroying). Various criteria specified in the Regulations are employed to identify ‘important’ hedgerows for wildlife, landscape or historical reasons.
16. **Countryside and Rights of Way (CRoW) Act for England and Wales 2000.** The CRoW Act provides increased measures for the management and protection of SSSIs and strengthens wildlife enforcement legislation. Schedule 12 of the Act amends the species provisions of the WCA 1981, strengthening the legal protection for threatened species. The Act also introduced a duty on Government to have regard to the conservation of biodiversity and maintain lists of species and habitats for which conservation steps should be taken or promoted, in accordance with the Convention on Biological Diversity.

17. **Natural Environment and Rural Communities Act 2006.** Section 41 of the NERC Act requires the Secretary of State to publish a list of habitats and species that are of principal importance for the conservation of biodiversity in England. The S41 list is used to guide decision-makers such as local planning authorities, in implementing their duty under Section 40 of the Act, to have regard to the conservation of biodiversity in England, when exercising their normal functions. 56 habitats and 943 species of principal importance are included on the S41 list. These are all the habitats and species in England that were identified as requiring action in the UK Biodiversity Action Plan (BAP).
18. **Conservation of Habitats and Species Regulations 2017 (as amended).** The Regulations enact the European Union's Habitats Directive (92/43/EEC) in the UK. The Habitats Directive was designed to contribute to the maintenance of biodiversity within member states through the conservation of sites, known in the UK as Special Areas of Conservation (SACs), containing habitats and species selected as being of EC importance (as listed in Annexes I and II of the Habitats Directive respectively). Member states are required to take measures to maintain or restore these natural and semi-natural habitats and wild species at a favourable conservation status.
19. The Regulations also require the compilation and maintenance of a register of European sites, to include SACs and Special Protection Areas (SPAs)² classified under Council Directive 79/409/EEC on the Conservation of Wild Birds (the Birds Directive). These sites constitute the Natura 2000 network. The Regulations impose restrictions on planning decisions likely to significantly affect SPAs or SACs.
20. The Regulations also provide protection to European Protected Species of animals that largely overlaps with the WCA 1981, albeit the provisions are generally stricter. Under Regulation 43 it is an offence, *inter alia*, to:
 - Deliberately capture, injure or kill any wild animal of a European Protected Species;
 - Deliberately disturb any wild animals of any such species, including in particular any disturbance likely to impair their ability to survive, to breed or reproduce, to rear or nurture their young, to hibernate or migrate, or which is likely to affect significantly their local distribution or abundance;
 - Deliberately take or destroy the eggs of such an animal;
 - Damage or destroy a breeding site or resting place of such an animal.
21. Similar protection is afforded to European Protected Species of plants, as detailed under Regulation 47.
22. The Regulations do provide a licensing system that permits otherwise illegal activities in relation to European Protected Species, subject to certain tests being fulfilled.

² Special Protection Areas (SPAs) are protected sites classified in accordance with Article 4 of the EC Directive on the Conservation of Wild Birds (79/409/EEC) (aka the Birds Directive), which came into force in April 1979. SPAs are classified for rare and vulnerable birds (as listed on Annex I of the Directive), and for regularly occurring migratory species.

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