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Little Common Field, North Bradley, Trowbridge.
Ecological Appraisal

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Notice to readers:

The results of the survey and assessment work undertaken by All Ecology are representative at the time of surveying.

Every endeavour has been made to identify the presence of protected species on site, where this falls within the agreed scope of works.

The flora and fauna detailed within this report are those noted during the field survey and from anecdotal evidence. It should not be viewed as a complete list of flora and fauna species that may frequent or exist on site at other times of the year.

Up to date standard methodologies have been used, which are accepted by Natural England and other statutory conservation bodies. No responsibility will be accepted where these methodologies fail to identify all species on-site.

All Ecology cannot take responsibility where Government, national bodies or industry subsequently modify standards.

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Reference to sections or particular paragraphs of this document taken out of context may lead to misrepresentation.

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1.0 Introduction

Background

- 1.1 All Ecology was commissioned by to undertake an Ecological Appraisal of an area of land at Little Common Field, North Bradley, Trowbridge. The site is approximately 3.6 ha in size and is comprised of a large field of improved grassland. This is bound by hedgerows and trees with short sections of fencing. The site is bordered by industrial buildings to the east, residential housing and main road along the south boundary, a small road and field to the west, and amenity grassland and tree lines adjacent to the north boundary. The local surrounding area is dominated by pasture and arable farmland to the south and east, with a large business park to the north and large residential area to the west.
- 1.2 The site is the subject of a potential planning application for a residential development of around 90 units.
- 1.3 The aim of the survey was to identify features of ecological interest, undertake a basic search of habitats present for evidence of use, or potential use, by protected species, and to identify any other possible ecological constraints to the development.

Site Location



2.0 Methodology

Personnel

- 2.1 The survey was carried out by Laura Cuming BSc Hons, Grad CIEEM and James Godbeer BSc Hons MCIEEM, an ecologist with over 9 years experience working as a consultant. James has extensive experience of managing environmental contracts, and particular experience in surveying, assessment and mitigation for rare and protected species. He has considerable knowledge of the development and planning process including Ecological Impact Assessments, sustainable ecological design and he has completed ecology chapters of Environmental Statements. James holds a number of protected species licences including bats (all species, all counties, Licence No. CLS01752), and Great Crested Newts (Class Licence Registration No. 2015-8038-CLS-CLS). He has successfully obtained European Protected Species mitigation licences for a number of bat species including Lesser Horseshoe, Serotine, Brown Long-eared, Common Pipistrelle and Natterer's bats, for a number of roost types including maternity and hibernation sites for Lesser Horseshoe bats.

Desk Study

- 2.2 In order to compile background information on the site and immediate surroundings, Wiltshire and Swindon Biological Records Centre (WSBRC) was contacted.
- 2.3 Information requested was as follows:
- Statutory site designations on or within 1 km of the site.
 - Non-statutory site designations on or within 1 km of the site.
 - Records of protected species within the 1 km of the site.
 - Records of rare or notable species within the 1 km of the site.
- 2.4 MAGIC (Multi-Agency Geographic Information for the Countryside, 2016) was used to establish the distance and direction of designated sites within the search area.

Habitat Survey

- 2.5 The site was visited on the 26th May 2016 and surveyed in accordance with the Joint Nature Conservation Committee (JNCC) Phase I Habitat Survey methodology (JNCC, 2010). This technique provides an inventory of the basic habitat types present and allows identification of areas of greater potential that might warrant further study.
- 2.6 The observable higher plant species in each habitat type within the site, and their abundance, were recorded using the DAFOR scale:

D	Dominant
A	Abundant
F	Frequent
O	Occasional

R Rare

Fauna

- 2.7 Habitats present on the site were searched for signs of faunal activity. The trees were assessed for their potential to support bat roosts by visually inspecting them from the ground using binoculars and high-powered torches where appropriate. Potential features such as holes, cavities or splits were recorded and then inspected where possible for signs of bats, which including grease/urine stains, scratch marks, droppings or the bats themselves.
- 2.8 The site and surroundings, for a minimum distance of 30 m, were searched for signs of Badgers. These include setts, latrines, dung pits, snuffle marks or hairs caught in hedges or on fencing.
- 2.9 A casual search for evidence of Dormice such as nests and/or gnawed nuts was also carried out.
- 2.10 Incidental observations of invertebrates and birds were recorded and a search made for any signs of current or previous nesting.
- 2.11 Any refugia on site such as logs or other debris were lifted and inspected for reptiles and amphibians; any ponds on site or within a 500 m radius were subject to the Great Crested Newt Habitat Suitability Index Assessment, details of which are presented in Appendix 1.

Valuation of Ecological Features

- 2.12 The valuation process used in this report follows the guidance on ecological evaluation and assessment from the Chartered Institute of Ecology and Environmental Management (CIEEM, 2006).
- 2.13 The value of areas of habitat and plant communities has been measured against published criteria where available. Biodiversity Action Plans (BAPs) have been searched to identify whether action has been taken to protect all areas of a particular habitat and to identify current factors causing loss and decline of particular habitats. The presence of injurious and legally controlled weeds has also been taken into account.
- 2.14 When assigning a level of value to a species, its distribution and status (including a consideration of trends based on available historic records) has been taken into account. Other factors influencing the value of a species are: legal protection, rarity and Species Action Plans (SAPs). Guidance, where it is available, for the identification of populations of sufficient size for them to be considered of national or international importance has also been taken into account.

Nomenclature

- 2.15 The English name only of flora and fauna species is given in the main text of this report; however, scientific names are used for invertebrates where no English name is available. Vascular plants and charophytes follow the nomenclature of The Botanical Society for the British Isles (BSBI) 2007 database (BSBI, 2007) with all other flora and fauna following the Nameserver facility of the National Biodiversity Network Species Dictionary (<http://www.nhm.ac.uk/nbn/>), which is managed by the Natural History Museum.

3.0 Results

Desk Study

- 3.1 There are no statutory or non-statutory designated sites within 1 km of the site.
- 3.2 The site falls within the Bat Special Area of Conservation (SAC) Consultation Zone for Bradford On Avon (BOA) Bat SAC and Core Roosts. This consultation zone covers sensitive areas within a certain distance to a bat roost that may be used by foraging and commuting bats. The site falls within 1500 m of one or more Bechstein's bat roosts.
- 3.3 WSBRC provided the following records for protected and notable species within 1 km of the site boundary:

Mammals – Hedgehog, Badger, Otter, Water Vole, unidentified bats, *Myotis* sp., Greater Horseshoe bat, Bechstein's bat, Natterer's bat, Common Pipistrelle, Pipistrelle sp., Brown Long-eared bat.

Birds – Osprey, Common Tern, Kingfisher, Fieldfare, Redwing, Spotted Flycatcher, House Sparrow.

Amphibians – Common Frog, Common Toad, Great Crested Newt.

Reptiles – Slow-worm, Grass Snake, Common Lizard.

Invertebrates – Butterflies: Small Blue, White-letter Hairstreak, Purple Emperor, Small Heath. Moths: Knot Grass, Shoulder-striped Wainscot, Dusky Brocade, Rustic, White Ermine, Cinnabar. True Fly: *Molophilus niger*.

Flora – Good-King-Henry, Nodding Bur-marigold. Lichen: *Caloplaca crenulatella*.

Habitats

- 3.4 The following habitats or vegetation types were identified on the site during the course of the habitat survey:
- Improved grassland
 - Dense scrub
 - Species-rich hedge
 - Species-rich hedge and trees
 - Species-poor hedge
 - Standard trees
 - Dry ditch
 - Fence

Improved grassland

- 3.5 The large field on site consisted of cultivated improved grassland that was dominated by Perennial Rye-grass with frequent Soft Brome and Rough Meadow-grass and occasional Meadow Foxtail, Creeping Buttercup, Barren Brome, Creeping Thistle and Broad-leaved Dock.

There was abundant Common Nettle at the edges of the field with the south boundary of the field dominated by Yorkshire-fog with abundant Red Fescue in the southeast corner of the field; there were rare occurrences of Field Forget-me-not.

Photograph 1: General view of the improved grassland field.



Dense scrub

- 3.6 Dense bramble scrub was present along the north boundary of the field which also had occasional Elder and Ivy.

Photograph 2: Dense scrub along north boundary.



Species-rich hedge

- 3.7 Species-rich hedge was present along the east boundary of the field. This was dominated by Blackthorn with abundant Hawthorn and frequent English Elm and Field Maple. There were rare occurrences of Elder.

Photograph 3: Species-rich hedgerow along east boundary.



Species-rich hedge and trees

- 3.8 Species-rich hedge and trees was present along the north boundary of the field. This was dominated by Blackthorn with occasional English Elm, Elder, Ash, Crack Willow and rare occurrences of Hawthorn. The section of hedge close to the southeast corner was dominated by Blackthorn and Hawthorn with abundant Snowberry and frequent English Elm and Field Maple.

Photograph 4: Species-rich hedgerow and trees along the north boundary.



Species-poor hedge

- 3.9 Species poor hedge was present along the west boundary of the field and part of the south boundary. The hedgerow along the west boundary contained five species however these were not found within a 30 m stretch and so it is classified as species-poor hedge. The hedgerow was

dominated by English Elm with abundant Blackthorn and frequent Hawthorn, there were rare occurrences of Field Maple and Elder with Bramble, Common Nettle and Cleavers growing through the hedge. The section of species-poor hedge along the south boundary is dominated by Hawthorn with abundant Blackthorn and occasional Dog-Rose.

Photograph 5. Species-poor hedgerow along the west boundary.



Standard trees

- 3.10 A line of small Black Hybrid Poplars was present along part of the southwest boundary of the site. Other standard trees on site include Crack Willow, a number of which were along the north boundary, Horse Chestnut, Ash, Leyland Cypress and Elder.

Photograph 6. Standard trees along north boundary.



Dry ditch

- 3.11 Dry ditches was present along the east, north and west boundary. Species present here included Broad-leaved Dock, Soft Rush, Cow Parsley, Hogweed and Common Nettle.

Photograph 7. Dry ditch along the east hedgerow.



Fence

- 3.12 Timber post and rail livestock fencing was present along some sections of the field boundaries.

Photograph 8. Timber fencing along southwest boundary.



Fauna

Bats

- 3.13 WSBRC provided a number of bat records within 1 km of the site. A Greater Horseshoe roost was recorded in 1993 within 1 km of the site but the location has been withheld. A Natterer's bat Roost was recorded in 1995 but the location also withheld. A pipistrelle bat species roost was

recorded in 2000, but location withheld. A Brown Long-eared bat roost was recorded in 1996 and 2000, both with the locations withheld. A female Bechstein's bat was recorded in 1985 and two records of natterers were recorded in 1987. Other records include field records of Common Pipistrelle and unidentified bat and *Myotis* species.

- 3.14 The large cultivated improved grassland provides poor foraging opportunities for bats but they are likely to forage and commute along the boundary vegetation and trees. The trees on site were inspected for features with bat potential of which none were found. A Horse-chestnut tree may have been covered in dense ivy so potential features may have been missed (Target Note 1). There were no buildings on site.

Photograph 9: Horse-chestnut tree



Badgers

- 3.15 There are three records of Badgers within 1 km of the site. Two of these records are from 1989 and 1980. The most recent record is from 2013 approximately 370 m southeast of the site.
- 3.16 The cultivated improved grassland provides sub-optimal foraging habitat for Badgers except in its early stages of growth. A soil bank with newly planted young trees and shrubs adjacent to the east boundary of the site provides potential habitat for the construction for setts but none were present. The site and immediate surroundings were also searched for evidence of Badgers such as hairs, dung pits, latrines and digging. A mammal run was found that stretched along the perimeter of the field and a small area of digging and a fresh dung pile was found adjacent to this mammal run in the southeast corner of the site (Target Note 2). It is therefore likely that Badgers use the site for foraging and pass through the site regularly.

Photograph 10. Badger dung pit.



Dormice

- 3.17 There are no Dormice records within 1 km of the site. The hedgerows and trees provide the only habitat for Dormice on site but these are connected to other hedgerows and treelines. Dormice are known to inhabit a range of habitats and networks of hedgerows alone can sustain a population. While the potential for their presence is regarded as low, it cannot be entirely ruled out.

Water Voles and Otters

- 3.18 WSBRC provided four Otter records and two Water Vole records within 1 km of the site. One Otter spraint was recorded in 2009 approximately 425 m southeast of the site. Another Otter spraint was recorded in 2009 approximately 590 m northeast of the site. Two Otter spraints were recorded in 2002 approximately 215 m southeast of the site and another spraint was recorded approximately 390 m northeast of the site. Two records of Water Vole burrows were recorded in 2009. One of these records was of 29 burrows counted approximately 590 m northeast of the site. The other record is of 12 burrows counted approximately 425 m southeast of the site.
- 3.19 There are a number of dry ditches on site however these were not deemed suitable for Water Voles or Otters and are unlikely to be used as connecting habitat as the ditches do not connect to any streams or rivers. These species are therefore expected to be absent.

Other mammals

- 3.20 A large number of Hedgehogs have been recorded in the area however all of these records range from 1979 – 1981 and have only 4-digit grid references. The majority of the site is cultivated improved grassland which is generally poor for small mammals, however, the hedgerows are expected to support a number of small mammals. There was a mammal track on site that extended around the perimeter of the field but this has been attributed to Badgers. This site is likely to provide potential habitat for common small mammal species with little potential for rare or protected species.

Birds

- 3.21 WSBRC provided a small number of bird records within 1 km of the site including House Sparrow, Fieldfare and Redwing. The hedgerows and trees have potential to support nesting and foraging birds including some of those listed above. The value of the field for ground nesting birds is dependent on the use in any given year; however, at present the field is unlikely to be of much value and no signs of birds such as skylarks were recorded. The survey was carried out in May which is within the nesting season of March – August. No evidence of previous or current nesting by birds was observed but some may have been missed in the denser vegetation. It is highly likely that birds will nest in the trees and hedgerows in the future.

Reptiles

- 3.22 WSBRC provided a number of reptile records within 1 km of the site. These included Slow-worm, Common Lizard, Grass Snake that were recorded between 1978 and 1980.
- 3.23 The improved grassland is very poor habitat for reptiles as the cultivated grassland lacks structure with no areas of tussocky grassland to provide areas of cover and for basking. Potential habitat for reptiles is therefore restricted to the hedgerows and the minimal margins. It is possible that small numbers of reptiles are present in these habitats but they are generally expected to be absent.

Amphibians

- 3.24 WSBRC provided a number of Common Frog and Common Toad records within 1 km of the site and two Great Crested Newt records. The two records are both from 2004, one of which is a record of a breeding pond approximately 180 m east of the site. The other record is of a female Great Crested Newt and larvae in a pond approximately 46 m northeast from the site. It is also known that a Great Crested Newt survey took place in the area in 2012 in relation to an adjacent development and this included a number of ponds. Great Crested Newts were recorded as a small population in a pond approximately 88 m northeast of the site and as a medium population in a pond approximately 50 m northeast of the site.
- 3.25 The hedgerows and dry ditches provide limited terrestrial habitat for amphibians but the majority of the site is not considered suitable, being cultivated improved grassland and subject to regular changes. There are no ponds on site but the dry ditches on site could provide breeding habitat if standing water is present during the breeding season although it does not appear that this is likely to be the case. Any impacts to Great Crested Newts are likely to be those associated with the removal of boundary habitats and the risk of harm to individual newts that could cross the site moving between ponds and terrestrial habitats both on site and in the surrounding area.
- 3.26 There are 15 ponds within 500 m of the site. These were subject to the Great Crested Newt Habitat Suitability Index (HSI) Assessment; full details of the HSI Assessment are presented in Appendix 1 but in summary Ponds 1, 3, 8, 10 and 15 were rated as 'poor', Ponds 2 and 9 were rated as 'below average', Ponds 4, 5, 6, 7 and 11 were rated as 'good' and Ponds 12, 13 and 14 were rated as 'excellent'.

Invertebrates

- 3.27 There were a small number of butterfly and moth within 1 km of the site. The site is composed of common habitats types with limited potential for rare invertebrate species. It is expected that

mainly common species would be present on site with the majority of the invertebrate interest confined to the hedgerows and trees.

4.0 Development Constraints and Recommendations

- 4.1 The site is the subject of a potential planning application for a residential development of around 90 units. The full details of this are not known at this time; possible ecological constraints and recommendations with regard to the potential development are discussed below.

Designated sites

- 4.2 The site is within the BOA Bat SAC and Core Roosts Consultation Zones which is an area that may be used by bats roosting in the area for commuting or foraging. The field provides poor foraging habitats however the linear hedgerows and tree vegetation is likely to be used for foraging and commuting. Therefore, the development has the potential to impact on qualifying species of this SAC but any impacts are largely dependent on whether the removal these habitats is proposed, and the specification and use of lighting. Further discussion on the potential impacts to bats is presented below.

Habitats

- 4.3 The UK BAP Priority Habitats include all hedgerows with at least 80% cover of at least one woody UK native species (JNCC, 2016). All but one hedgerow had at least 80% cover of native species and as such qualify as UK BAP Priority Habitats. If the hedgerows are to be retained and the existing entranceways utilised, no further assessment of these is necessary. However, if there is to be any additional entrances, or if any hedges are to be lost or breached, it will be necessary to carry out a hedgerow assessment in accordance with the Hedgerows Regulations 1997 to establish whether any qualify as important.
- 4.4 Where new hedgerows are to be planted or if existing hedges are to be enhanced as part of the landscape proposals for the site, the following species rich mix is recommended to encourage wildlife: 50% Hawthorn, 20% Field Maple, 15% Blackthorn and 15% mix of Hazel, Spindle, Dog-Rose and Holly (Gilbert and Anderson, 1998). Management practices for both new and existing hedgerows include laying the hedgerows to encourage bushy growth low down, trimming only every three years or less if possible, and maintaining them at a height of three metres.
- 4.5 Mature trees, will require protection during the construction works by establishing root protection zones in accordance with BS 5837:2012, where appropriate.
- 4.6 The remaining habitats i.e. improved grassland, do not qualify as UK BAP Priority Habitats. In order to qualify as a UK BAP Priority Habitat, grassland typically has to be unimproved (good semi-improved grassland can also qualify) and would have to be examples of lowland calcareous grassland or lowland dry acid grassland, habitats not found on site.
- 4.7 Where new areas of habitat are to be created, consideration should be given to the seeding of these areas using appropriate seed mixes. Where possible these seeds should be locally sourced to support the genetic integrity of local wild plant populations. Where new trees or shrubs are to be planted, native tree and shrub species should be used as these are most beneficial to invertebrates, and many also produce seeds, nuts and berries that are food for native mammals and birds. Planting of non-native plant species should be limited to those that are not invasive, and should prioritise those that provide a good source of nectar for invertebrates e.g. Butterfly-bush, Jasmine.

Protected and Notable Species

Bats

- 4.8 The site and surroundings are likely to be used by various species of foraging bats and bat roosting potential was noted in one of the trees (Target Note 1). If this tree is to be removed, a detailed inspection survey for bats will be required before any felling or tree surgery works are carried out.
- 4.9 If any other trees require removal or tree surgery works then it is recommended that the following procedures be employed in the unlikely event a bat or bats are discovered:
- If the roost is still on the tree and bats are not injured, seek advice from a licensed ecologist. If help is not available, allow bats to fly out of harm's way.
 - If the timber is felled, the roost is not exposed and the bats are not injured, temporarily seal and isolate the roost and seek advice from a licensed ecologist. If advice is not readily available, position the roost off the ground, re-open it and allow bats to relocate of their own accord.
 - If the roost has been exposed, and especially if bats have been injured, collect bats in a secure box or bag (using a glove) and contact a licensed ecologist.
 - Note the date, locality, type of tree, situation in tree and bat species if known.
- 4.10 The hedgerows and trees on site provide good foraging habitat for bats and may be used as navigational flight lines by bats commuting from potential and known roosts in the surrounding area. If any sections of the hedgerows or trees are to be removed or illuminated, then a bat activity survey will be required in order to establish its importance for bats to enable a suitable mitigation strategy to be devised in order to minimise impacts to bats and ensure that there are no negative impacts on the qualifying features of the BOA Bat SAC. In accordance with the Bat Conservation Trust Good Practice Guidelines (Collins, 2016) for 'moderate suitability habitat for bats', one visit per month (April to October) in appropriate weather conditions should be carried out. At least one of these surveys should comprise a dusk and pre-dawn (or dusk to dawn) within one 24-hour period. Further surveys may be required if these survey visits reveal higher levels of bat activity than originally predicted by habitat alone and the precise specification of the survey should be determined in consultation with the local authority and Natural England in order to ensure that the BOA Bat SAC is fully considered.
- 4.11 In general, any external lighting strategy should be designed with consideration to bats. As a general rule external lighting should be kept to a minimum in order to minimise disturbance to foraging and commuting bats. The lighting of boundary vegetation should be avoided and where lighting is necessary for reasons of security and/or health and safety, the use of column lighting, with full cut-off directional shielding and low UV bulbs is recommended.
- 4.12 The proposed development provides an opportunity to significantly enhance the site for bats. The creation of new residential gardens are likely to provide foraging habitat and the provision of roosting opportunities would be of significant value. These could be incorporated into the development and/or bat boxes provided on mature trees.
- 4.13 The types of residential buildings likely to be proposed for the site means that the provision of large open roof spaces for species such as long-eared and horseshoe bats is unlikely to be

desirable but there are many ways in which the buildings could be enhanced for crevice-dwelling species without inconveniencing prospective occupants. Bat panels such as Schwegler Bat Access Panel 1FE, or bat tubes such as the Schwegler 2FR Bat Tube can be incorporated into the building exterior with little visual impact, or roosts such as the Schwegler Bat Roost 1FQ can be erected after building completion.

- 4.14 In terms of the trees the Schwegler 2F bat box is a good general design that will attract many species. Bats are very particular about the internal conditions of bat boxes, so providing several bat boxes with different aspects creates differences in temperature, humidity etc. thereby increasing the chance of colonisation.

Dormice

- 4.15 There are no Dormice records within 1 km of the site however the hedgerows on site provide potential habitat for this species. No evidence of their presence was found during an informal search but this species can be difficult to detect even when using recognised survey techniques.
- 4.16 No further surveys for this species are necessary if the hedgerows are to be retained. The restrictions on lighting with regard to bats would also benefit Dormice, if present, and during any tree surgery works, larger limbs should not be allowed to fall to the ground during the winter months, and instead should be lowered to avoid potentially crushing hibernating Dormice. If any hedgerow requires removal a full presence/absence survey would be required in order to confirm presence or likely absence.

Badgers and other mammals

- 4.17 The site provides potential habitat for common mammals which are most likely to be found in the hedgerows and dry ditches. A mammal run with a fresh Badger dung pile and small area of digging was present on site however no constraints are predicted as a result of potential foraging and passing Badgers. As a precaution it is recommended that during the construction phase of the project any trenches and other excavations are back-filled before nightfall or a ramp left to allow animals to easily exit, and any open pipes larger than 150 mm should be capped off overnight.

Birds

- 4.18 The survey was carried out in May, which is within the nesting season. No evidence of past or current nesting by birds on site was noted but nests could have been missed in some of the dense hedgerows or the trees and there is potential for birds to nest in the hedgerows and trees in the future. The proposed development would result in the loss of improved grassland, which is of limited value to foraging birds.
- 4.19 Nesting birds are protected under The Wildlife and Countryside Act 1981 (and amendments). Any hedgerow removal, tree felling or on-going management of the site such as hedge trimming or tree surgery works, should be carried out outside of the bird-nesting season of March to August. Any works within this period should be preceded by a nesting bird survey. If nesting birds are found, then works must be postponed until the young have fledged.
- 4.20 The development should include enhancements for birds as part of the overall site scheme. This could be achieved by erecting bird boxes for small birds on mature trees on the site; these should be fixed a minimum of 2 m from the ground, with the entrance hole between north and east. This

avoids the worst of the weather and prevents the box and its inhabitants becoming overheated in sunny weather.

- 4.21 Consideration should also be given to the incorporation of new nesting sites for small birds on the new residential buildings. Nest boxes for Swifts and House Martins could be installed under the eaves or on north-facing walls at a height of at least 6 m. Colony type boxes could also be installed at a height of least 2 m to provide nesting sites for birds such as House Sparrows.

Great Crested Newts

- 4.22 There are no ponds present on site but the site provides potential terrestrial habitat for amphibians in the form of hedgerows and dry ditches. There are a number of Great Crested Newt records within 1 km and a previous survey of Ponds 4, 5, 7, 8, 9 and 10 in 2012 found populations of Great Crested Newts in Ponds 4 and 5. There are a number of ponds within 500 m of the site, which were subject to a Great Crested Newt HSI Assessment with Ponds 1, 3, 8, 10 and 15 being rated as 'poor', Ponds 2 and 9 being rated as 'below average', Ponds 4, 5, 6, 7 and 11 being rated as 'good' and Ponds 12, 13 and 14 being rated as 'excellent'. These ponds are therefore regarded as being potentially suitable for this species, full details are presented in Appendix 1. Any ponds or ditches that score above 0.5 are considered to have sufficient potential for Great Crested Newt and further survey may be necessary to determine presence or likely absence of the species, and estimate a population size.
- 4.23 Great Crested Newts and their places of breeding or rest are protected under the Wildlife and Countryside Act 1981 (and amendments) and The Conservation of Habitats and Species Regulations 2010 making it illegal to kill, injure, capture or disturb a Great Crested Newt and to damage or destroy a breeding or resting site of this species. All activities that would otherwise constitute an offence under The Conservation of Habitats and Species Regulations 2010 must be licensed by Natural England. Great Crested Newts are also a UK BAP Priority Species.
- 4.24 Using the Natural England's Great Crested Newt Rapid Risk Assessment, for any land (not just newt habitat) between 100 – 250 m for any breeding pond where >1 ha is to be lost or damaged, the risk of an offence being committed is classified as 'red: offence highly likely'. Therefore, further surveys are required to determine their presence or likely absence, and population size where found to be present, so that a suitable mitigation strategy can be devised.

5.0 References

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6.0 Plans

Habitat Survey Results



7.0 Appendices

Appendix 1

Great Crested Newt Habitat Suitability Index Assessment

Methodology

The assessment was undertaken during the Ecological Appraisal by a Licensed Ecologist (Licence Number 2015-8038-CLS-CLS), trained in the assessment of water bodies for their potential to support populations of Great Crested Newts.

The HSI is a measure of habitat quality using a numerical index between 0 and 1 derived from an assessment of variables known to influence the presence of Great Crested Newts (Oldham et al. 2000). It is used to assess whether a water body warrants detailed surveys to establish presence or absence of newts and aids in the assessment of impacts and the design of mitigation measures. Since January 2008 it has been a requirement to include the results of HSI assessments in European Protected Species (EPS) licence applications.

To calculate the HSI of the water body ecologists first record the following variables before applying the HSI calculation to these: pond size; surface area; water depth; water quality; % shade, % macrophyte cover; presence of fish and waterfowl; number of water bodies within 1 km of survey water body; quality of terrestrial habitat surrounding ponds; and type of marginal/aquatic vegetation (Oldham et al. 2000).

Once the HSI score is obtained it can be used to define water body suitability for Great Crested Newts in the following way (National Amphibian Recording Scheme, 2008):

Table 1: HSI Scores

<0.5	Poor
0.5 – 0.59	Below Average
0.6 – 0.69	Average
0.7 – 0.79	Good
>0.8	Excellent

Water bodies scoring less than 0.5 are deemed as not requiring further surveys.

Limitations

All but one of the ponds within 500 m of the site could be accessed during the survey, therefore 15 out of the 16 ponds could be assessed for Great Crested Newt habitat suitability.

Results

- 7.1 Pond 1. This pond is approximately 55 m² in size. The pond is part of a ditch system that runs alongside the west and north boundaries of the large field. No fish or fowl were present at the time of survey but fish may be present. The field had small areas of tall ruderal immediately surrounding the pond but was largely surrounded by amenity grassland, however hedgerows were close to the pond. The pond was well shaded by trees and had approximately 20% macrophyte cover.

Pond 1.



Pond 2: Pond 2 was adjacent to Pond 1 and approximately 113 m² in size, and had moderate water quality with approximately 10% macrophyte cover. The surroundings were similar to Pond 1 but had more immediate areas of tall ruderal and was well shaded by trees.

Pond 2.



Pond 3: Pond 3 was adjacent to Pond 2 and is likely to connect to Pond 2 in times of high rainfall. This pond was approximately 55 m² in size and had moderate water quality

with negligible macrophyte cover. This pond may have fish but is known to dry on occasion in summer, no fowl were observed.

Pond 3.



Pond 4: This pond is a landscaped pond forming part of a business park situated adjacent to the busy A363. The pond is approximately 237m² in size and is surrounded by amenity grassland with a hedge is situated near the pond. The water quality appeared moderate and had good macrophyte cover. The pond is partially shaded by a tree growing on the bank. The pond is likely to sometimes dry.

Pond 4.



Pond 5: This pond is also a landscaped pond as part of the business park and situated adjacent to the busy A363 on the opposite side of Pond 4. The characteristics were very much the same apart from this pond was larger at 295 m².

Pond 5.



Pond 6: This pond is situated within the business park and surrounded by car parking and patio, with only small area of introduced shrub nearby. The pond was approximately 109 m² in size and good macrophyte cover with approximately 80% of the pond covered. The fish is unlikely to contain fish and fowl are unlikely to use this pond. The pond appeared to have moderate water quality and will rarely dry out.

Pond 6.



Pond 7: This pond is also situated within the business park and approximately 250 m² in size. The pond was surrounded by a mix of hedges, introduced shrub and amenity grassland in an island in a car park, within close distance of an area of woodland. The pond had good macrophyte cover with approximately 80% cover and the water appeared moderate in quality. Fish may be present here but fowl are unlikely to visit the pond.

Pond 7.



Pond 8: This was part of a ditch within a small area of woodland adjacent to a railway. The pond was heavily shaded and appeared to have poor water quality. The pond was approximately 100 m² in size but is likely to dry often. There was negligible macrophyte cover and fowl are unlikely to use the pond.

Pond 8.



Pond 9: Pond 9 was separate to Pond 8 however in periods of heavy rain may connect. The pond is approximately 100 m² and has similar characteristics to Pond 8 but was less heavily shaded.

Pond 9.



Pond 10: Pond 10 was adjacent to Pond 9 and likely to connect in periods of heavy rainfall. This pond is very small at only approximately 5 m² in size with little macrophyte cover and poor water quality. This pond was unshaded.

Pond 10.



Pond 11: This pond is a large pond at approximately 1530 m² in size and situated adjacent to the A363 on the corner of the business park. The pond is surrounded by amenity grassland and next to busy roads. However, the water quality appeared moderate with approximately 60% macrophyte cover. Fish may be present here and fowl may visit the pond, but only a Moorhen was present at the time of survey. The pond was unshaded.

Pond 11.



Pond 12: Pond 12 was also adjacent to the A363 and similar in features to Ponds 4 and 5. The pond was approximately 450 m² in size with good macrophyte cover. The pond was surrounded by amenity grassland but a hedgerow and trees were close to the pond. The pond is unlikely to have fish present and no evidence of fowl was present. The pond is likely to dry on rare occasions.

Pond 12.



Pond 13: Pond 13 was on the opposite side of the A363 to Pond 12 and was approximately 525 m² in size. This pond had similar characteristics to Pond 12 but with more macrophyte cover.

Pond 13.



Pond 14: This pond was approximately 920 m² in size. The pond was situated in an area of unmanaged tussocky grassland with areas of scattered scrub, and hedgerows nearby, that were surrounded by pasture and arable fields. The pond had small vegetated islands within the pond. The pond had moderate water quality and fish are likely to be present, with fowl also likely to visit the pond although no evidence of this was observed. The pond had approximately 35% macrophyte cover and is unlikely to ever dry out.

Pond 14.



Pond 15: This pond was very large at approximately 12,500 m² and is unlikely to be suitable for Great Crested Newts. The pond is likely to be densely populated with fish. Waterfowl are also likely to be present here. The surrounding terrestrial habitat was good with areas of tussocky grassland and had approximately 50% macrophyte cover.

Pond 15.



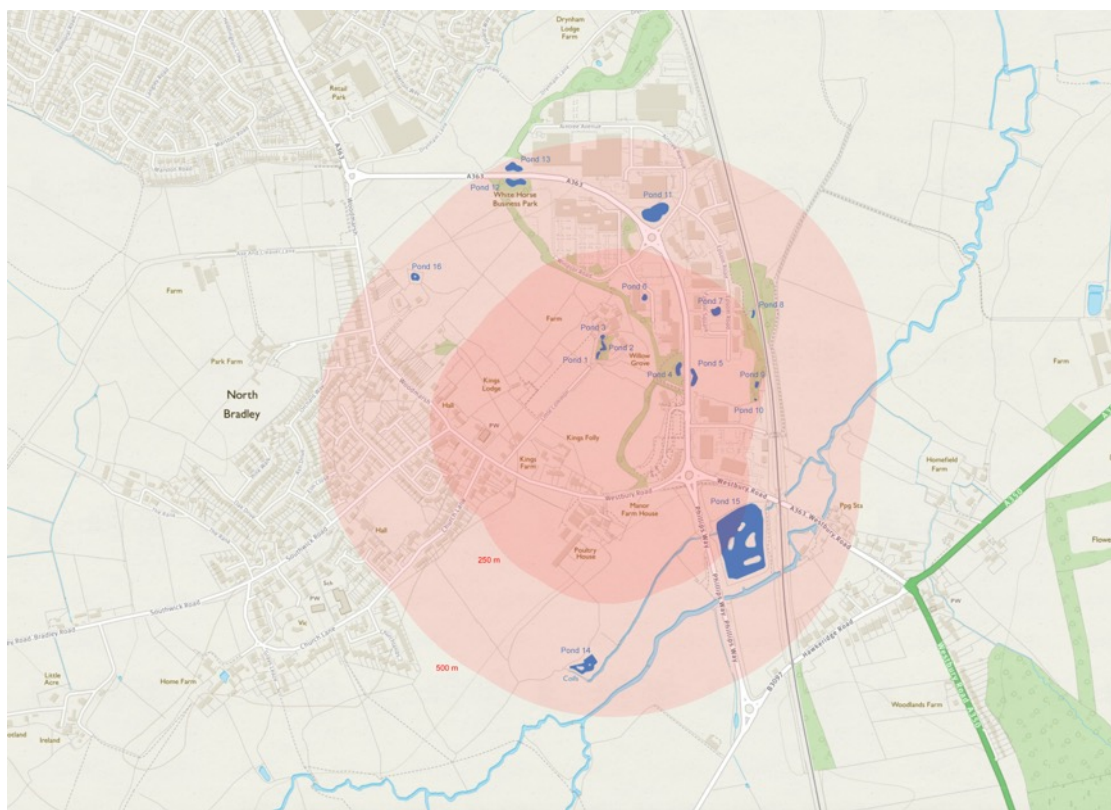
Pond 16: This pond could not be accessed.

HSI Calculator		Pond 1	Pond 2	Pond 3	Pond 4	Pond 5	Pond 6
SI1 - Location	1	1	1	1	1	1	1
SI2 - Pond area	2	0.06	0.21	0.06	0.5	0.6	0.2
SI3 - Pond drying	3	0.1	0.1	0.1	0.5	0.5	1
SI4 - Water quality	4	0.67	0.67	0.67	0.67	0.67	0.67
SI5 - Shade	5	0.6	0.8	1	1	1	1
SI6 - Fowl	6	1	1	1	1	1	1
SI7 - Fish	7	0.67	0.67	0.67	1	1	1
SI8 - Ponds	8	1	1	1	1	1	1
SI9 - Terr'l habitat	9	0.67	0.67	0.67	0.33	0.33	0.33
SI10 - Macrophytes	10	0.5	0.4	0.3	1	1	1
HSI Score	Score	0.47	0.54	0.47	0.75	0.76	0.73

HSI Calculator		Pond 7	Pond 8	Pond 9	Pond 10	Pond 11	Pond 12
SI1 - Location	1	1	1	1	1	1	1
SI2 - Pond area	2	0.5	0.2	0.2	0.05	0.88	0.9
SI3 - Pond drying	3	1	0.1	0.1	0.1	1	1
SI4 - Water quality	4	0.67	0.33	0.33	0.33	0.67	0.67
SI5 - Shade	5	1	0.2	0.6	1	1	1
SI6 - Fowl	6	1	1	1	1	0.67	1
SI7 - Fish	7	0.67	0.67	0.67	1	0.67	1
SI8 - Ponds	8	1	1	1	1	1	1
SI9 - Terr'l habitat	9	0.33	1	1	1	0.33	0.67
SI10 - Macrophytes	10	1	0.3	0.4	0.5	0.9	0.8
HSI Score	Score	0.77	0.44	0.50	0.49	0.78	0.89

HSI Calculator		Pond 13	Pond 14	Pond 15
SI1 - Location	1	1	1	1
SI2 - Pond area	2	0.85	0.96	0.05
SI3 - Pond drying	3	1	0.9	0.9
SI4 - Water quality	4	0.67	0.67	0.67
SI5 - Shade	5	1	1	1
SI6 - Fowl	6	1	0.67	0.67
SI7 - Fish	7	1	0.67	0.01
SI8 - Ponds	8	1	1	1
SI9 - Terr'l habitat	9	0.67	1	1
SI10 - Macrophytes	10	1	0.6	0.8
HSI Score	Score	0.91	0.83	0.42

Pond Location Plan.



Evaluation

Ponds 1, 3, 8, 10 and 15 scored a rating of 'poor' which is below the threshold at which further surveys may be required. Ponds 2 and 9 were rated as 'below average', Ponds 4, 5, 6, 7 and 11 were rated as 'good'. Ponds 12, 13 and 14 were rated as 'excellent' in

terms of their suitability for Great Crested Newts. Therefore, further surveys are required to determine if Great Crested Newts are present and where present, the population size.