absolute ecology LLP wildlife surveys

Preliminary Ecological Appraisal

Westfields, Endon, Staffordshire

February 2014

Notice to readers

This report has been prepared by Absolute Ecology LLP with all reasonable skill, care and diligence, within the terms of the contract with the client. The actions of the surveyor on site, and during the production of the report were undertaken in accordance with the Code of Professional Conduct for the Chartered Institute of Ecology and Environmental Management (www. cieem.org.uk).

Non-technical summary

Absolute Ecology LLP was commissioned to undertake a Preliminary Ecological Appraisal of land at Westfields, Endon. The Preliminary Ecological Appraisal was undertaken on 12th February by an experienced and licensed ecologist who is a member of the Chartered Institute of Ecology & Environmental Management (CIEEM).

The site comprises of three distinct areas; access road, lawn and scrub. These are divided by two well-tended conifer hedges. Immediately adjacent to the access road is a broadleaf woodland, containing three ponds.

Nesting birds may be present in the trees, hedgerows and scrub during the bird breeding season (March to August inclusive). If vegetation removal is planned during these months, a prior check for nesting birds should be undertaken by an ecologist. Any active nests that are found must not be moved until fledglings have dispersed.

A reptile survey of the area of scrub should be undertaken prior to any planning application being made. Reptile surveys can be carried out between April and September. Further details are given in section 5 of this report.

It is recommended that the three ponds within the neighbouring woodland should be surveyed for Great Crested Newts. These surveys must be timed between mid-March and mid-June. Further details are given in section 5 of this report.

A lighting design around the new development, and specifically on the western boundary opposite the woodland, should be considered at an early stage. Further details are given in section 5 of this report.

Contents

Introduction

Background

1.1 Absolute Ecology LLP was commissioned to undertake a Preliminary Ecological Assessment of a site known as Westfields, Endon.

1.2 The Assessment was undertaken on the 12th February by James Porter BSc (Hons), MSc; an experienced ecologist who is a member of the Chartered Institute of Ecology & Environmental Management (CIEEM). He has 4 years' experience of conducting Preliminary Ecological Appraisals (Phase 1), and holds a Class 1 Bat Licence, with 3 years' experience of bat inspection, as well as a Class 1 Great Crested Newt Licence and 3 years' experience of GCN surveying.

1.3 The objective of this report is to provide the client with information on any known or potential protected or rare species that may be using the site, and to outline recommendations on how to proceed with the works in a legal and ecologically sensitive manner.

1.4 Unless the client indicates to the contrary, information on the species found to be present on the site will be passed to the county biological records centre to update records held for the area.

Site Description

1.5 The site is a small building plot and lawn, situated within a residential area. Residential properties lie to the north, east and south. To the immediate west is a small area of deciduous woodland, containing a stream and three ponds. Endon Brook lies approx. 275m to the east, with fields beyond in that direction. Fields are also present to the northwest (220m approx.), south (200m approx.) and southwest (160m approx.). To the southwest also lies Stoney Wood, approx. 170m away from site.

1.6 The site itself comprises of a small lawn, bordered by hedges, separated from the building plot; which is an overgrown, scrubby area of brambles and tree saplings.

1.0 Methodology

Desk Study

1.1 In order to compile background information on the site and immediate surroundings the Staffordshire Ecological Record (SER) was contacted.

1.2 Information requested was as follows:-

- Records of protected species within the 2 km of the site.
- Records of rare or notable species within the 2 km of the site.
- Non-statutory site designations on or within 2 km of the site.

1.3 Additionally, MAGIC (Multi-Agency Geographic Information for the Countryside, 2010) was used to establish whether any of the following were present:-

- Statutory site designations on or within 1 km of the site.
- Statutory sites designated for bats within 5 km of the site.

Habitat Survey

1.4 The site was visited on the 12th February 2014 and was surveyed in accordance with the Joint Nature Conservation Committee (JNCC) Phase I Habitat Survey methodology (JNCC, 2007). This technique provides an inventory of the basic habitat types present and allows identification of areas of greater potential that might warrant further study.

1.5 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

1.6 Habitats present on the site were searched for obvious signs of faunal activity, *e.g.* presence of badger setts, mammal tracks or herpetofauna under refugia. Any buildings and mature trees on site were visually examined from the ground to identify features with the potential to support roosting bats.

Valuation of Ecological Features

1.7 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.

1.8 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.

Survey Constraints

1.9 Data Search

Desk study data provides information on recorded species in the area and can be helpful for targeting survey. However, it is possible that protected species that have not been identified within the data search may occur on or adjacent to the site.

1.10 Field survey

Habitats within 30 m of the site boundary were inspected as far as access allowed. Ponds up to 500m from the site were viewed where there was public access.

The survey was undertaken in winter when not all botanical species are visible. However, given the lack of vegetative diversity and other evidence which indicates that the grassland is species-poor (see Section 4.3), this is unlikely to be a significant constraint.

Fauna species present may not always leave field signs and in addition, species may take up residence on site subsequent to the survey. If no development takes place within 12 months of this survey report, the findings should be reviewed and may need updating, and a full survey should be repeated within three years

Nomenclature

1.11 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, 2011) 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.

2.0 Legislation

2.1 The United Kingdom Biodiversity Action Plan (BAP) 1994 sets out a strategy for implementing the Convention on Biological Diversity, which was signed by the United Kingdom at the Rio de Janeiro Earth Summit in 1992. The published report contains action plans for the United Kingdom's most threatened species and habitat plans for the most vulnerable areas.

2.2 The Local BAP sets out the county's part in the UK biodiversity planning process, in the form of local habitat and species action plans. Local BAPs are intended to focus resources, to conserve and enhance biodiversity, by taking account of national and local priorities.

2.3 Schedule 1 Part 1 of The Wildlife and Countryside Act 1981 (and amendments) – this lists birds protected by special penalties at all times. It prohibits intentional killing/injuring, taking, possessing, disturbing and selling (including parts and derivatives, eggs, nests, *etc.* as applicable) as well as damaging, destroying or disturbing nests in current use or dependent young, *etc.*

2.4 Schedule 5 of The Wildlife and Countryside Act 1981 (and amendments) – this prohibits deliberate killing, injuring, taking, possessing, disturbing and selling (including parts and derivatives) as well as damaging, destroying or obstructing any structure or place of refuge of listed fauna, such as Dormouse, Otter and bat species.

2.5 The Conservation of Habitats and Species Regulations 2010, consolidate all the various amendments made to the Conservation (Natural Habitats, &c.) Regulations 1994, in respect of England and Wales. It is illegal to kill, disturb, destroy eggs, breeding sites or resting places, to pick, collect, take cuttings, uproot or destroy in the wild as well as keep, transport, sell/exchange and offer for sale/exchange species listed.

2.6 The Countryside and Rights of Way Act 2000 – this increases protection given by The Wildlife and Countryside Act 1981 (and amendments). The offence to intentionally damage any structure or place that a wild animal listed in Schedule 5 of the Act uses for shelter or protection or deliberately disturbing any such animal while in such a structure or place is extended so that the offence also covers reckless damage or disturbance. The CRoW Act also places a duty on Ministers and Government Departments to have regard for the purpose of conserving biological diversity in accordance with the Convention on Biological Diversity.

2.7 The Protection of Badgers Act 1992 - this Act makes it illegal to wilfully kill, injure or take any Badger, or attempt to do so and it is an offence to intentionally or recklessly damage, destroy or obstruct access to any part of a Badger sett.

2.8 The Natural Environment and Rural Communities Act, 2006 - as well as creating Natural England, this act gives all public authorities the duty to have regard for conserving biodiversity within the commission of their duties. This includes a duty to restore and enhance as well as maintain biodiversity. The act also strengthens protection for Sites of Special Scientific Interest (SSSI) and makes authorities liable for allowing damage to such sites or their features.

3.0 Results

Desk Study

3.1 There is 1 statutory designated site within 1 km of the site.

- The vicinity is designated as a Less Favoured Area. These are (mainly upland) areas where the natural characteristics (geology, altitude, climate, etc.) make it difficult for farmers to compete.

3.2 There are no statutory designated sites for bats within 5 km of the site.

3.3 There is 1 non-statutory site within 2 km of the site.

- The vicinity is designated as part of the Catchment Sensitive Farming Delivery Initiative 2011-2014. This is a designation aimed at reducing diffuse water pollution from agriculture, in order to protect water bodies and the environment.

3.4 The proposed development, being residential, does not affect either the area's status as a 'Less Favoured Area', or the Catchment Sensitive Farming Delivery Initiative 2011-2014.

3.5 SER provided the following records for protected and notable species within 2 km of the site boundary:

Plants – Bluebell (*Hyacinthoides non-scripta*), Corn Chamomile (*Anthemis arvensis*), Cornflower (*Centaurea cyanus*), Corn Marigold (*Glebionis segetum*), Native Black Poplar (*Populus nigra subsp. Betulifolia*), Corn Spurrey (*Spergula arvensis*).

Mammals – Eurasian Badger (*Meles meles*), Polecat (*Mustela putorius*), European Water Vole (*Arvicola amphibious*), Pipistrelle bat (*Pipistrellus pipistrellus sens. lat.*), Brown Long-eared Bat (*Plecotus auritus*), and unidentified bats (*Chiroptera*), West European Hedgehog (*Erinaceus europaeus*), Brown Hare (*Lepus europaeus*).

Birds – Red Kite (*Milvus milvus*), Barnacle Goose (*Branta leucopsis*), Eurasian Oystercatcher (*Haematopus ostralegus*), Northern Lapwing (*Vanellus vanellus*), Barn Owl (*Tyto alba*), Peregrine Falcon (*Falco peregrinus*), Meadow Pipit (*Anthus pratensis*), Reed Bunting (*Emberiza schoeniclus*), Grey Wagtail (*Motacilla cinerea*), Brambling (*Fringilla montifringilla*), Lesser Redpoll (*Carduelis cabaret*), European Golden Plover (*Pluvialis apricaria*), House Martin (*Delichon urbicum*), Barn Swallow (*Hirundo rustica*), Little Egret (*Egretta garzetta*), Stock Dove (*Columba oenas*), Merlin (*Falco columbarius*), Eurasian Tree Sparrow (*Passer montanus*), Common Grasshopper Warbler (*Locustella naevia*), Common Kestrel (*Falco tinnunculus*), Common Cuckoo (*Cuculus canorus*), Short-eared Owl (*Asio flammeus*), Common Starling (*Sturnus vulgaris*), Common Whitethroat (*Sylvia communis*), Song Thrush (*Turdus philomelos*), Ring Ouzel (*Turdus torquatus*), Northern Wheatear (*Oenanthe oenanthe*), House Sparrow (*Passer domesticus*), Dunnock (*Prunella modularis*), Common Bullfinch (*Pyrrhula pyrrhula*), Mistle Thrush (*Turdus viscivorus*), Common Swift (*Apus apus*), Common Linnet (*Carduelis cannabina*), Common Redstart (*Phoenicurus phoenicurus*), Tree Pipit (*Anthus trivialis*), Little Plover (*Charadrius dubius*), Black-tailed Godwit (*Limosa limosa*), Grey Partridge (*Perdix perdix*), Eurasian Wryneck (*Jynx torquilla*), Lesser Black-backed Gull (*Larus fuscus*), Willow Warbler (*Phylloscopus trochilus*), Fieldfare (*Turdus pilaris*), Common Snipe (*Gallinago gallinago*), Pink-footed Goose (*Anser brachyrhynchus*), Yellow Wagtail

(*Motacilla flava subsp. Flavissima*), Sandwich Tern (*Sterna sandvicensis*), Willow Tit (*Poecile montanus*), Whimbrel (*Numenius phaeopus*), Whinchat (*Saxicola rubetra*), Eurasian Curlew (*Numenius arquata*), Lesser Spotted Woodpecker (*Dendrocopos minor*), Redwing (*Turdus iliacus*), Green Woodpecker (*Picus viridis*), Green Sandpiper (*Tringa ochropus*), Mediterranean Gull (*Larus melanocephalus*), Herring Gull (*Larus argentatus*), Common Gull (*Larus canus*), Common Redshank (*Tringa tetanus*), Sand Martin (*Riparia riparia*), Whooper Swan (*Cygnus Cygnus*), Pied Flycatcher (*Ficedula hypoleuca*), Bar-tailed Godwit (*Limosa lapponica*), Tufted Duck (*Aythya fuligula*), Greylag Goose (*Anser anser*), Common Tern (*Sterna hirundo*), Dunlin (*Calidris alpine*), Common Sandpiper (*Actitis hypoleucos*), Common Kingfisher (*Alcedo atthis*), Eurasian Woodcock (*Scolopax rusticola*), Eurasian Teal (*Anas crecca*), Mallard (*Anas platyrhynchos*), Common Pochard (*Aythya farina*), Sky Lark (*Alauda arvensis*).

Reptiles - Grass Snake (*Natrix natrix*), Adder (*Vipera berus*).

Amphibians - Great Crested Newt (*Triturus cristatus*)

Insects - Small Heath butterfly (*Coenonympha pamphilus*), Wall butterfly (*Lasiommata megera*), Latticed Heath moth (*Chiasmia clathrata*), September Thorn moth (*Ennomos erosaria*), *Ctenophora pectinicornis*.

Habitats

3.6 The following habitats or vegetation types were identified on the site during the course of the habitat survey.

- Amenity grassland
- Scrub
- Hardstanding
- Scattered Trees
- Hedgerows

Amenity grassland

The eastern section of the site is a well-tended lawn, dominated by perennial ryegrass (*Lolium perenne*) with frequent white clover (*Trifolium repens*). A large rhododendron bush is located on the eastern boundary.

Scrub

The northern section of the site is an untended building plot. This is dominated by bramble (*Rubus fruticosus*), with abundant common nettle (*Urtica dioica*), frequent rose (*Rosa sp.*) and frequent young willow saplings (*Salix sp.*). This area contained a pile of timber rubbish (T1) and several piles of branches (T2, T3, T5).

Hardstanding

The western portion of the site is an access track, comprised of hardcore,

Scattered Mature Trees

There are mature trees across the site, primarily associated with the site boundaries. These are mainly willow (*Salix sp.*), with occasional crab apples (*Malus sp.*). The tree in the north-east corner of the site contained an old bird nest (T4).

Hedgerows

Separating the lawn from the access track and area of scrub are two conifer hedges. These are approx. 2m high by 1m wide, dense and regularly maintained.

Fauna

Bats

3.7 SER provided several records of bat species within 2 km of the site. The trees on site do not appear to offer any potential roosting sites for bats such as rot holes, or cracked / split limbs, or dense coverings of Ivy.

3.8 The site provides good foraging habitat for a range of bat species. The neighbouring woodland edge and hedgerows are likely to be used by foraging bats as well as navigational flight lines.

Badgers

3.9 SER provided records of Badger within 2 km of the site. No Badger setts were observed on site. The northern portion of the site provides optimal foraging habitat for Badgers in the form of scrub, but no evidence of Badger activity, such as hairs, dung pits, latrines or snuffle marks, was discovered during the survey.

Dormice

3.10 There are no records of Dormice occurring within 2 km of the site. The potential for the site to support Dormice is low. The hedgerows provide only limited habitat and are not well connected to the wider area. Whilst there is an adjacent woodland, the lack of suitable habitat on site mean that it is considered that Dormice are likely to be absent from the site.

Water Voles and Otters

3.11 SER provided records of Water Voles occurring within 2 km of the site. There was however no standing or running water present on site at the time of the survey, and no evidence that these would usually be present. It is considered that otters and water voles are likely to be absent from the site.

Other mammals

3.12 Records of Polecat, Hedgehog and Brown hare were provided by SER. The site is unsuitable for Brown Hare. The area of scrub contained a pile of timber rubbish (T1) and several piles of branches (T2, T3, T5); but these were too small to be used by hibernating hedgehogs. A few scattered Rabbit droppings were noted in a small number of locations within the neighbouring woodland, indicating the presence of Rabbits, which could be used as a food source by Polecat; however no droppings were found on site. With regard to other mammals the scrub and hedgerows provide habitat with plenty of cover and as such are expected to support a good number of common small mammals.

Birds

3.13 Records of a wide number of protected and BAP species were provided by SER (see section 4.5). The following were all either observed or heard on site during the survey: Magpie, Feral Pigeon, and Robin.

3.14 The site as a whole provides moderate foraging and nesting habitat for a range of bird species. The area of scrub provides cover for ground nesting birds although this is small in area. The mature trees and hedgerows offer good foraging and nesting habitat for a range of common birds. The crab apple in the north-east corner of the site contained an old bird nest (T4).

Reptiles

3.15 SER provided records of Grass Snake and Adder. The site contains scrub, immediately adjacent to an open basking area (the access road). This is typically associated with reptiles. The hedgerows, neighbouring woodland and scrub provide cover and foraging habitat. The area of scrub contained a pile of timber rubbish (T1) and several piles of branches (T2, T3, T5). These provide potential refuge areas for reptiles.

Amphibians

3.16 SER provided one record of Great Crested Newt within 2 km of the site. The scrub and hedgerows all provide optimal habitat for species of amphibians in the terrestrial phase of their life cycle. There was no standing water on site, and the vegetation present indicates that prolonged periods of standing water are likely to be only during exceptionally wet periods.

3.17 There are three ponds in the neighbouring woodland, all located approx. 50m from the site boundary. A Habitat Suitability Index (HSI) was calculated for each of these ponds. 3.4 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.

3.18 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).

3.19 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

3.20 Water bodies scoring less than 0.5, those over 500 m away from the intended works or with significant barriers to dispersal between these and the intended works were deemed as not requiring further surveys.

3.21 Full details of the Habitat Suitability Index scores for each pond are provided in the Appendix but have been summarised below.

Table 2: HSI Assessment of Waterbodies

Pond	Description	HSI	Rating
1	Large pond, 50 meters from application site. Optimal habitat for newts around the pond and leading to application site.	0.78	Good
2	Mid-sized pond, 50 meters from application site. Optimal habitat for newts around the pond and leading to application site.	0.65	Average
3	Small pond, 50 meters from application site. Optimal habitat for newts around the pond and leading to application site.	0.66	Average

3.22 Pond 1 received a HSI rating 0.78 and should therefore be subject to a four-day presence/absence survey.

3.23 Pond 2 received a HSI rating 0.65 and should therefore be subject to a four-day presence/absence survey.

3.24 Pond 3 received a HSI rating 0.66 and should therefore be subject to a four-day presence/absence survey.

3.25 In terms of terrestrial habitat the development site primarily consists of scrub, hedgerow and young trees. The scrub, rubble piles and hedgerows provide optimal conditions for amphibian species in the terrestrial phase of their life cycle although they are limited in size. The surrounding habitat provides excellent habitat for newts with extensive areas of woodland, scrub, tree lines, and tall ruderal vegetation all present and providing a wildlife corridor.

Invertebrates

3.26 SER provided records of Small Heath butterfly, Wall butterfly, Latticed Heath moth, September Thorn moth, and Ctenophora pectinicornis. The habitats on site are generally common and do not provide much potential for rare invertebrate species although they are expected to support a number of more common species.

4.0 Development Constraints and Recommendations

4.1 The site is the subject of a possible planning application for a residential development. Ecological constraints and recommendations with regard to any development are discussed below.

Designated Sites

4.2 There is one designated statutory site within 1 km of the site, and one non-statutory site within 2 km of the site.

- The vicinity is designated as a Less Favoured Area
- The vicinity is designated as part of the Catchment Sensitive Farming Delivery Initiative 2011-2014.

4.3 Less Favoured Area is not an ecological designation. These are (mainly upland) areas where the natural characteristics (geology, altitude, climate, etc.) make it difficult for farmers to compete. This designation therefore has no bearing on this ecological appraisal.

4.4 The Catchment Sensitive Farming Delivery Initiative 2011-2014 is a designation aimed at reducing diffuse water pollution from agriculture, in order to protect water bodies and the environment. As the proposed development is not agricultural, it will have no impact on this designation.

Habitats

4.5 Botanically, the site itself does not appear to have any rare species and it is not particularly diverse.

Potential Impacts of Works

4.6 It is understood that plans for a residential development are currently being drawn up. If residential development is undertaken, then potential impacts are likely to include the following:

4.6.1 Removal of scrub, hedgerows and trees may cause loss of bat foraging habitat. Loss or severance of hedgerows may affect bat commuting routes. An increase in general light levels could also affect bat foraging and commuting.

4.6.2 Although no badger setts were observed on site, badger activity can change over a short time. If any setts are created on site prior to works, tunnels could be affected by ground works and vegetation removal and badgers could be harmed.

4.6.3 Loss of scrub, hedgerows and trees may affect birds that use the site for breeding and foraging by causing a decrease in nesting sites and food resources. Loss of these habitats may directly harm nesting birds if carried out during the breeding season (March to August inclusive).

4.6.4 In the event that reptiles are present on site, they might be killed or injured during removal of vegetation or ground works. They would also suffer loss of habitat.

4.6.5 In the event that amphibians are present on site, they might be killed or injured during removal of vegetation or ground works. They would also suffer loss of habitat.

4.6.6 Removal of the brash or rubbish piles within the scrub would cause disturbance to any over-wintering hedgehogs, reptiles or amphibians that may be present.

Recommendations

4.7 The following are general recommendations that are likely to be a minimum requirement for any future development of the site. To prevent potential delays, it would be prudent to undertake the recommended surveys well in advance of any master-planning and certainly before any planning application is made.

Bats

4.8 The habitats for foraging bats are limited within the site, and loss of scrub is unlikely to significantly impact local bat populations, particularly as any new residential development will also include gardens, which can be used by foraging bats. Due to the limited size of the hedgerows on site, it is unlikely that they would form significant landmarks for bat commuting routes

Badgers

4.9 Although no badger activity was observed on the site at the time of the survey, activity patterns of this species can change over a short time. If any setts are created on site prior to works, then all works should cease and a suitably qualified ecologist consulted.

Birds

4.10 Where possible, habitats suitable for nesting and foraging birds should be retained, enhanced or created within any new development. The mature trees on site are likely to be the most valuable to nesting birds, and should be retained as far as possible. The hedgerows also provide some suitable nesting habitat and so their loss should be minimised as much as is practical.

4.11 Nesting birds may be present in the trees, hedgerows and scrub during the bird breeding season (March to August inclusive). If vegetation removal is planned during these months, a prior check for nesting birds should be undertaken by an ecologist. Any active nests that are found must not be moved until fledglings have dispersed.

4.12 It would be of conservation benefit to install a variety of nesting boxes for different bird species within the site in future (buildings and trees where suitable) to enhance the site for nesting birds and encourage bird diversity. Information on bird nesting boxes can be found at http://www.rspb.org.uk/advice/helpingbirds/nestboxes/. Enhancing existing hedgerows or

planting new hedgerows and shrubs within any new development can benefit birds if a wide range of native species are used.

Reptiles

4.13 A reptile survey of the area of scrub should be undertaken prior to any planning application being made. Reptile surveys can be carried out between April and September (April, May and September are the optimal survey months). Standard survey methodology involves installing artificial refugia (0.5 m squares of roofing felt) throughout the habitat, which are used by basking reptiles if they are present. Seven checks of the refugia are carried out to confirm presence or absence.

4.14 If reptiles are present, mitigation will involve protecting individuals from harm during the development. Depending on the size of the population present, this may require catching and relocating reptiles prior to ground works and/or destructive searches during ground works.

Amphibians

4.15 It is recommended that the three ponds within the neighbouring woodland should be subject to four Great Crested Newt presence/absence surveys for Great Crested Newts and where Great Crested Newts are found these should be extended by a further two surveys in order to gain population data. These surveys must be timed between mid-March and mid-June with 50% of the survey timed between mid-April and mid-May where weather conditions allow. In the event Great Crested Newts are found, a European Protected Species (EPS) licence may need to be obtained to permit the proposed activity.

Other considerations

4.16 A lighting design around the new development, and specifically on the western boundary opposite the woodland, should be considered at an early stage. Light spill can affect the foraging and commuting strategy of many species and thus should be avoided on nearby trees and hedges/shrubs and should not exceed 200 lumens (150 watts). Any security lighting should be on a timer setting and faced downwards to prevent spillage onto nearby habitats. The height of any lighting columns around the development should not exceed 8 m to further reduce any ecological impact of light pollution. Low-pressure sodium lamps (SOX) fitted with hoods are recommended to direct light below the horizontal plane to minimize upward light spill.

5.0 References

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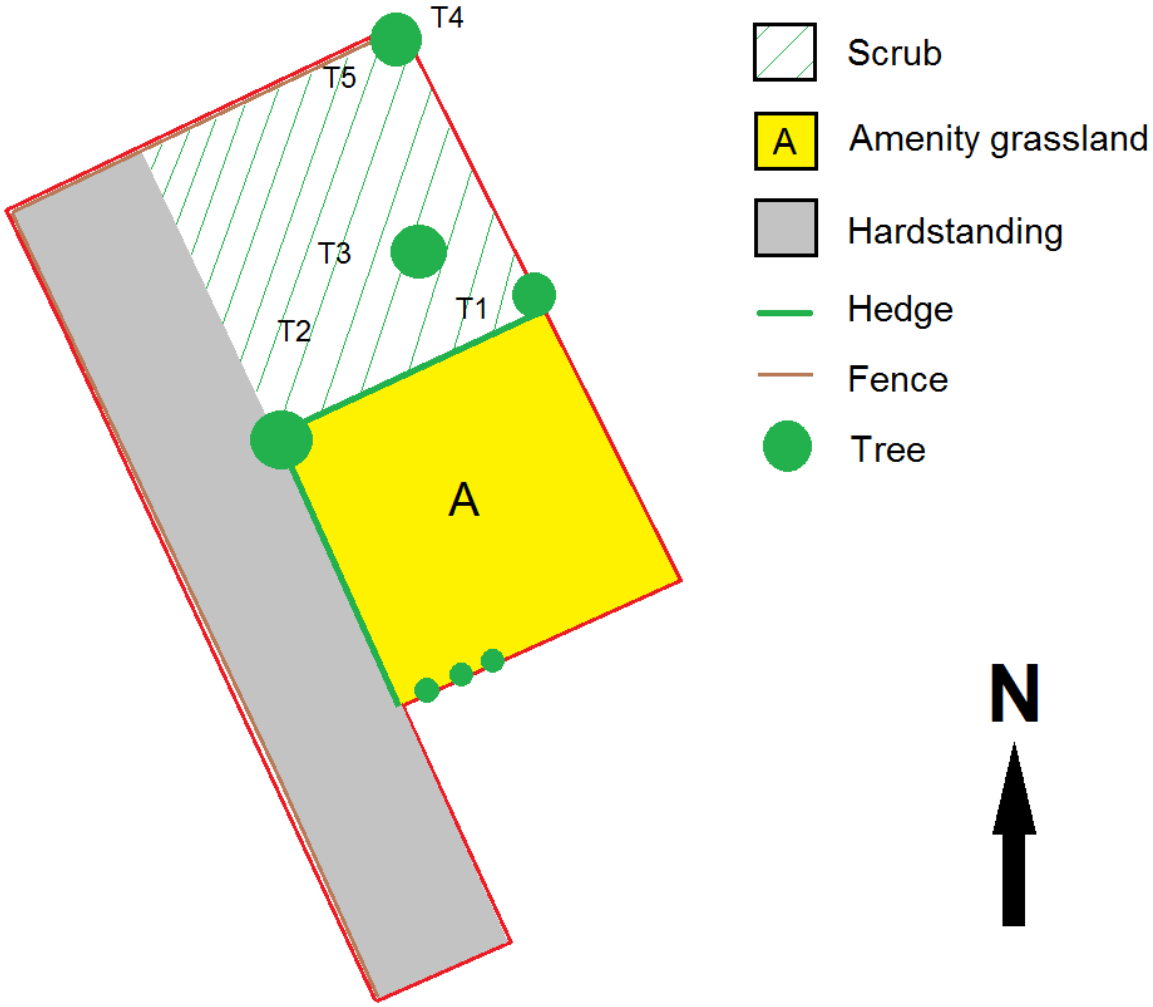
6.0 Plans

Extended Phase I Habitat Survey

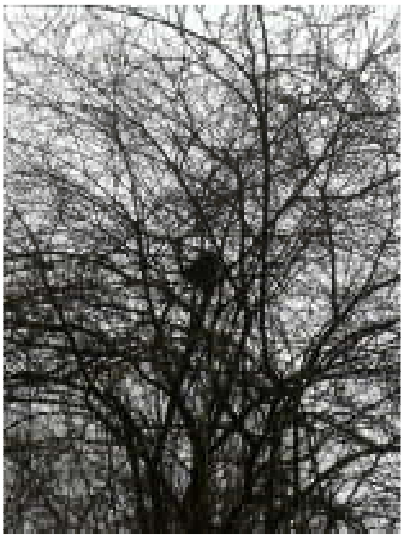


7.0 Photographic Plates

Slide 1: Amenity grassland – lawn

Slide 2: Rubbish pile

Slide 3: Scrub



Slide 4: Old bird nest

Appendix 1 - Habitat Suitability Index (HSI) Data

Pond ref	Pond 1	Pond 2	Pond 3
SI1 - Location	1	1	1
SI2 - Pond area	1	0.2	0.1
SI3 - Pond drying	0.9	0.9	0.9
SI4 - Water quality	0.33	0.33	0.33
SI4 - Shade	1	1	1
SI6 - Fowl	1	1	1
SI7 - Fish	0.67	0.67	1
SI8 - Ponds	1	1	1
SI9 - Terr'l habitat	1	1	1
SI10 - Macrophytes	0.4	0.35	0.5
HSI	0.78	0.65	0.66

Appendix 2 - Habitat Suitability Index Score Sheet

Categorisation of HSI Scores

Lee Brady has developed a system for using HSI scores to define pond suitability for great crested newts on a categorical scale:

HSI Pond suitability
<0.5 = poor
0.5 – 0.59 = below average
0.6 – 0.69 = average
0.7 – 0.79 = good
> 0.8 = excellent

Summary of scoring system

SI_1 Location

Field score	SI
A (optimal)	1
B (marginal)	0.5
C (unsuitable)	0.01

SI_2 Pond area

Field score	SI
Measure pond surface area (m^2) and round to nearest 50 m^2	Read off graph.

SI_3 Pond drying

Field score	SI	Criteria
Never	0.9	Never dries
Rarely	1.0	Dries no more than two years in ten or only in drought
Sometimes	0.5	Dries between three years in ten to most years
Annually	0.1	Dries annually

SI_4 Water quality

Field score	SI	Criteria
Good	1.0	Abundant and diverse invertebrate community
Moderate	0.67	Moderate invertebrate diversity
Poor	0.33	Low invertebrate diversity, few submerged plants
Bad	0.01	Clearly polluted, only pollution-tolerant invertebrates, no submerged plants

SI_5 Shade

Field score	SI
Estimate percentage perimeter shaded to a least 1 m from shore.	Read off graph.

SI_6 Fowl

Field score	SI	Criteria
Absent	1	No evidence of water fowl (although moorhen may be present)
Minor	0.67	Waterfowl present, but little sign of impacts
Major	0.01	Severe impact of waterfowl

SI_7 Fish

Category	SI	Criteria
Absent	1	No records of fish stocking and no fish revealed during survey
Possible	0.67	No evidence of fish, but local conditions suggest that they may be present.
Minor	0.33	Small numbers of crucian carp, goldfish or stickleback known to be present.
Major	0.01	Dense populations of fish known to be present.

SI_8 Ponds

Field score	SI
Count the number of ponds within 1 km of survey pond, not separated by major barriers, and divide by 3.14. This can be done from maps rather than in the field.	Read off graph.

SI_9 Terrestrial habitat

Field score	SI
Good	1
Moderate	0.67
Poor	0.33
None	0.01

SI_{10} Macrophytes

Field score	SI
Estimate the percentage of the pond surface area occupied by macrophyte cover (between May and the end of September)	Read off graph.