



ECOLOGYSOLUTIONS

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Ecological Assessment

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1. INTRODUCTION

1.1. Background & Proposals

- 1.1.1. Ecology Solutions was commissioned in May 2020 by Springbourne Homes, to undertake an Ecological Assessment of the site known as The Coppice, Burbage, Leicestershire (see Plan ECO1).
- 1.1.2. The site is proposed for a small-scale residential development, with associated garden landscaping and infrastructure. The planning application is currently with Hinckley and Bosworth Borough Council for determination (planning ref: 20/00094/FUL). Following the completion of detailed ecology surveys, receipt of consultation responses from Leicestershire County Council (LCC), and to ensure that the existing site interests are both protected and enhanced, the applicant has taken the decision to reduce the scheme from nine units to eight units. The land under the applicant's ownership and control extends beyond the application boundary with the habitats that are contained within this area, namely scrub, a woodland that is wet in parts, pond, tall ruderal vegetation and some areas of grassland, to be safeguarded and enhanced, in order to deliver net gains in biodiversity.
- 1.1.3. The site has been subject to previous ecology surveys and where considered beneficial to the robustness and detail of this assessment these shall be referenced.

1.2. Site Characteristics

- 1.2.1. The site is located in the Lash Hill area of Burbage, Hinckley. The site is bounded by existing residential development to the west and north-west of the site. Horse grazing fields lie to the north-east, with further grassland present to the east and south of the site.
- 1.2.2. It is understood that the site used to be subject to grazing, however, the site is no longer subject to grazing or other forms of management, with the exception of Rabbit *Oryctolagus cuniculus* grazing. The site as a whole comprises semi-improved grassland ranging from poor to moderate condition, a wet woodland, pond, trees, scrub, tall ruderal vegetation and hedgerows.

1.3. Ecological Assessment

- 1.3.1. This document assesses the ecological interest of the site. The importance of the habitats within the site is evaluated with due consideration given to the guidance published by the Chartered Institute of Ecology and Environmental Management (CIEEM)¹. This report also includes an assessment of any potential adverse impacts associated with the development.
- 1.3.2. Where necessary, mitigation measures are recommended so as to safeguard any significant existing ecological interest within the site and, where appropriate, potential enhancement measures are put forward and

¹ CIEEM (2018). Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine. Version 1.1 – updated September 2019. Chartered Institute of Ecology and Environmental Management, Winchester.

reference made to both priority species and priority habitats. Where relevant monitoring will also be outlined.

2. SURVEY METHODOLOGY

2.1. The methodology utilised for the survey work can be split into three areas, namely desk study, habitat survey and faunal survey. These are discussed in more detail below.

2.2. Desk Study

2.2.1. In order to compile background information on the site, Ecology Solutions reviewed information obtained from the online Multi-Agency Geographic Information for the Countryside (MAGIC)² database which uses information held by Natural England and other organisations. This information is reproduced in Appendix 1 and where appropriate on Plan ECO1. As well as reviewing information within the existing Ecological Appraisal.

2.3. Habitat Survey

2.3.1. Habitat surveys were carried out by Ecology Solutions in May 2020 in order to ascertain the general ecological value of the site and to identify the main habitats and associated plant species.

2.3.2. The site was surveyed based around extended Phase 1 survey methodology³, as recommended by Natural England, 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.

2.3.3. 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.

2.3.4. All 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 at different seasons. However, given the habitats present on site and the species recorded it is considered an accurate assessment has been made.

2.3.5. The grassland habitats on site were subject to a more detailed level of survey during the May 2020 visit. The botanical survey undertaken of the grassland was based around the methodology detailed within the National Vegetation Classification (NVC) user's handbook⁴. The survey involved identifying botanically homogeneous stands within the site. Each identified stand was subject to quadrat surveys. The number and size of quadrats may vary depending on the size of the stand. All plant species within the quadrat were recorded and were assigned with a corresponding percentage cover and subsequent domin score.

² <http://www.magic.gov.uk>

³ Joint Nature Conservation Committee (2010). *Handbook for Phase 1 Habitat Survey – A Technique for Environmental Audit*. England Field Unit, Nature Conservancy Council, reprinted JNCC, Peterborough.

⁴ Joint Nature Conservation Committee (2006). *National Vegetation Classification: User's handbook*. John S. Rodwell, JNCC, Peterborough.

- 2.3.6. The results of the field survey will be analysed using the British Plant Communities Volume 3⁵ and Modular Analysis of Vegetation Information System (MAVIS) in order to best identify NVC plant communities within the site.

2.4. Faunal Survey

- 2.4.1. Obvious faunal activity, such as birds or mammals observed visually or by call within the site or within the wider area during the course of the surveys, was recorded. Specific attention was paid to any potential use of the site by protected species, priority species (formerly known as Biodiversity Action Plan (BAP) species), or other notable species.

- 2.4.2. In addition to general observations of faunal activity-specific surveys have been completed for Badger *Meles meles*, bats and Great Crested Newt *Triturus cristatus*.

Badgers

- 2.4.3. The site was surveyed for Badgers in March and May 2020 by Ecology Solutions.

- 2.4.4. The surveys comprised two main elements: firstly, searching thoroughly for evidence of Badger setts. For any setts encountered each sett entrance was noted and plotted, even if the entrance appeared disused. The following information was recorded:

- i) The number and location of well used or very active entrances; these are clear of any debris or vegetation and are obviously in regular use and may, or may not, have been excavated recently.
- ii) The 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.
- iii) The 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 together with the remains of the spoil heap.

- 2.4.5. Secondly, evidence of Badger activity such as well-worn paths, run-throughs, snagged hair, footprints, latrines and foraging signs was recorded, where present, so as to build up a picture of the use of the site by Badgers.

Bats

- 2.4.6. All trees within the site were assessed for their potential to support roosting bats. Features typically favoured by bats, or evidence of past use by bats were searched for, including:

⁵ J.S. Rodwell (1992). British Plant Communities Volume 3, Grasslands and Montane Communities. JNCC.

- Obvious holes, e.g. rot holes and old Woodpecker holes;
- Dark staining on the tree, below a hole;
- Tiny scratch marks around a hole from bats' claws;
- Cavities, splits and / or loose bark from broken or fallen branches, lightning strikes etc.; and
- Very dense covering of mature Ivy over trunk.

2.4.7. In addition, a general appraisal of the site was completed for its likely value for foraging and commuting bat species.

Great Crested Newts

2.4.8. A Habitat Suitability Index (HSI) for Great Crested Newt *Triturus cristatus* was undertaken as part of the survey effort. The HSI for the Great Crested Newt was developed by Oldham et al. (2000) ⁶and was applied during the survey according to the guidance set out by the National Amphibian and Reptile Recording Scheme launched in 2007.

2.4.9. The HSI is a numerical index, for which score between 0 and 1 indicate the suitability of the habitat. The scoring system is shown in Table 2.1 below.

HSI Score	Pond Suitability
<0.5	Poor
0.5 – 0.59	Below Average
0.6 – 0.69	Average
0.7 – 0.79	Good
>0.8	Excellent

Table 2.1. Habitat Suitability (HSI) for Great Crested Newts Scores Summary

2.4.10. To determine the absence / presence of Great Crested Newts within the water bodies on site Ecology Solutions undertook eDNA testing on the 11 May 2020.

2.4.11. Testing for eDNA is a relatively new method to establish absence or presence of Great Crested Newts approved by Natural England. Whilst residing within a waterbody, Great Crested Newts deposit traces of DNA which can be detected through sampling the pond water and undergoing analysis within the laboratory. Pond samples can be collected between 15th April and 30th June inclusive.

2.4.12. Water samples of any given waterbody are taken in 20 separate locations, with a focus towards areas of high suitability for Great Crested Newts. The samples are then pooled together into a self-supporting Whirl-pak Bag.

2.4.13. Once the pooled samples have been mixed thoroughly 15ml of water is removed and transferred into an ethanol filled test tube. This is repeated a further five times leaving six test tubes that contain a mix of the sampled water and ethanol. These samples are then sent to a laboratory to undergo analysis.

⁶ Oldham R.S., Keeble J., Swan M.J.S & Jeffcote M. (2000). Evaluating the suitability of habitat for the Great Crested Newt (*Triturus cristatus*). *Herpetological Journal* 10 (4), 143 – 155

- 2.4.14. Within the laboratory, the samples are pooled together and tested via real-time PCR in order to amplify select parts of the DNA allowing it to be detected and measured. A result of presence or absence is returned by the laboratory. If present, no measure of the population size is obtained through this survey method.

3. ECOLOGICAL FEATURES

3.1. Habitat surveys were undertaken within the site by Ecology Solutions in May 2020.

3.2. The following main habitat / vegetation types have been identified within the site:

- Grassland;
- Woodland;
- Pond;
- Hedgerows and Treeline; and
- Scrub.

3.3. The location of these habitats and features are shown on Plan ECO2, and discussed in more detail below. Note that some of these habitats do not fall within the development boundary, but are in control of the applicant (see Plan ECO2) and shall be taken forward as part of site wide ecology mitigation and management plan.

3.4. Grassland

3.4.1. Grassland dominates the site. Two homogenous stands were identified as part of the grassland NVC survey, and a total of twelve quadrats were surveyed. The two grassland stands present on site are described below and are shown on Plan ECO2.

3.4.2. A rough grassland (stand 1) resembling and MG1 NVC grassland community is present in the north of the site and surrounding the woodland (see Photograph 1), as well as along the narrow access track in the south-west, which is becoming to be overgrown with Bramble *Rubus fruticosus*. MAVIS indicates that the highest community match for this stand is MG1 sub-community B with a 54.68% match, followed by a 51.49% match to MG1. The species recorded within this grassland stand are listed in Table 3.1 below, along with their percentage cover within that stand and within the site itself, a DAFOR score as also been assigned.

3.4.3. The semi-improved grassland (stand 2) in the south-west of the site, supports similar species to those recorded in the rough grassland, however finer herb species were more abundant. This grassland resembles a mix of both MG1 (48% match on MAVIS) and MG9 (46.83% match on MAVIS) NVC grassland communities (see Photograph 2). The species recorded are listed in Table 3.1 below, along with their percentage cover within the stand and within the site itself, a DAFOR score has also been assigned.

Species	Average % Cover in Stand 1	Average % Cover in Stand 2	Average Percentage Cover Across the Site	DAFOR Score ⁷
Field Bindweed <i>Convolvulus arvensis</i>	<1	0	<1	R

⁷ The DAFOR values have been assigned based on those outlined within the *Guidelines for the selection of Local Wildlife Sites in Leicester, Leicestershire and Rutland*. DAFOR scores are as follows D 75-100% cover A 25-74% cover F 10-24% cover O 5-9% cover R <5% cover and < 5 individuals / clumps within the survey unit.

Birdsfoot Trefoil <i>Lotus corniculatus</i>	<1	28	12	F
Broadleaved Dock <i>Rumex obtusifolius</i>	<1	<1	<1	R
Bluebell <i>Hyacinthoides x massartiana</i>	<1	0	<1	R
Bulbous Buttercup <i>Ranunculus bulbosus</i>	0	<1	<1	R
Lesser Celandine <i>Ranunculus ficaria</i>	<1	0	<1	R
Cleavers <i>Galium aparine</i>	2	<1	2	R
Cocksfoot <i>Dactylis glomerata</i>	<1	1	<1	R
Common Mouse-ear <i>Cerastium fontanum</i>	<1	0	<1	R
Common Nettle <i>Urtica dioica</i>	18	<1	11	F
Common Ragwort <i>Senecio jacobaeat</i>	2	1	1	R
Common Vetch <i>Vicia sativa subsp. segetalis</i>	<1	1	<1	R
Cow Parsley <i>Anthriscus sylvestris</i>	5	0	3	R
Cowslip <i>Primula veris</i>	0	<1	<1	R
Creeping Buttercup <i>Ranunculus repens</i>	<1	<1	<1	R
Creeping Cinquefoil <i>Potentilla reptans</i>	1	10	5	O
Creeping Thistle <i>Cirsium arvense</i>	1	4	3	R
Cut-leaved Cranesbill <i>Geranium dissectum</i>	<1	0	<1	R
Dandelion <i>Taraxacum agg.</i>	<1	<1	<1	R
False Oat-grass <i>Arrhenatherum elatius</i>	4	0	3	R
Field Wood-rush <i>Luzula campestris</i>	<1	22	9	O
Germander Speedwell <i>Veronica chamaedrys</i>	<1	<1	<1	R
Greater Stitchwort <i>Stellaria holostea</i>	<1	<1	<1	R
Hairy Sedge <i>Carex hirta</i>	<1	<1	<1	R
Hedge Bedstraw <i>Galium album</i>	<1	0	<1	R
Hogweed <i>Heracleum sphondylium</i>	7	<1	4	R
Horse-radish <i>Armoracia rusticana</i>	2	0	1	R
Meadow Saxifrage <i>Saxifraga granulata</i>	<1	<1	<1	R
Meadowsweet <i>Filipendula ulmaria</i>	0	<1	<1	R
Meadow Vetching <i>Lathyrus pratensis</i>	1	<1	<1	R
Oxeye Daisy <i>Leucanthemum vulgare</i>	<1	0	<1	R
Pignut <i>Conopodium majus</i>	1	10	5	O

Raspberry <i>Rubus idaeus</i>	0	<1	<1	R
Red Campion <i>Silene dioica</i>	6	0	3	R
Red Clover <i>Trifolium pratense</i>	0	<1	<1	R
Red Fescue <i>Festuca rubra</i>	2	14	7	O
Ribwort Plantain <i>Plantago lanceolata</i>	0	3	1	R
Silverweed <i>Potentilla anserina</i>	0	4	2	R
Smooth Meadow-grass <i>Poa pratensis</i>	0	<1	<1	R
Sorrel <i>Rumex acetosa</i>	<1	3	2	R
Spear Thistle <i>Cirsium vulgare</i>	2	1	1	R
Sweet Vernal Grass <i>Anthoxanthum odoratum</i>	<1	6	3	R
Timothy <i>Phleum pratense</i>	<1	0	<1	R
White Clover <i>Trifolium repens</i>	0	<1	<1	R
Winter-cress <i>Barbarea vulgaris</i>	<1	0	<1	R
Yarrow <i>Achillea millefolium</i>	<1	<1	<1	R
Yorkshire Fog <i>Holcus lanatus</i>	43	4	27	A

Table 3.1. Species list for Grassland stands. Note that average % cover has been rounded to the nearest whole number.

- 3.4.4. During the May 2020 survey it was noted that the site has been subject to guerrilla planting. All examples of Meadow Saxifrage, Cowslip, Meadowsweet and Red Clover (highlighted in bold in the above table) encountered on site all show signs of recent or past planting. Clear evidence of ground disturbance was noted in and around these species, the majority of samples could also be easily lifted out of the ground showing the recent introduction to the site with no rooting having taken place (see Photographs 3, 4 and 5), whilst the removed and discarded turf to accommodate the guerrilla planting was frequently lying close to the new planting. It is also noted that the vast majority of these species recorded, including most examples of Meadow Saxifrage are showing signs of failure, all examples are wilted and are beginning to die back, owing to the disturbance to their root system caused by the uprooting and moving of the plant to a new location. The presence of two Meadowsweet plants were in areas less disturbed and appear to have not been moved as part of the most recent planting. Nonetheless the species is conspicuous by its presence and locations on this site; the sward is dominated by dry grassland species as the soil conditions would support with this species normally associated with damp ground conditions and hence it is not considered to be a naturally occurring species within the site's grassland sward.

3.5. Woodland

- 3.5.1. The wooded area on site comprises Goat Willow *Salix caprea*, Crack Willow *Salix fragilis*, Ash *Fraxinus excelsior*, Alder *Alnus glutinosa* Elder *Sambucus nigra*, Elm *Ulmus* sp. and Horse-chestnut *Aesculus hippocastanum* and joins area of scrub and hedgerows (see Plan ECO2).

- 3.5.2. The woodland supports marshy areas, particularly in the southern area. This area is dominated by Common Nettle and Bramble *Rubus fruticosus* (see Photograph 6. Red Campion, Creeping Thistle, Bluebell *Hyacinthoides non-scripta*, Cleavers, Lesser Celandine *Ranunculus ficaria*, Lesser Pond-sedge *Carex acutiformis*, Hedge Bindweed *Calystegia sepium*, Field Horsetail *Equisetum arvense* and Broad-leaved Willowherb *Epilobium montanum* were also recoded frequently within this area. Male Fern *Dryopteris filix-mas*, Wood Dock *Rumex sanguineus* and Figwort *Scrophularia nodosa* occur rarely.

3.6. Pond

- 3.6.1. A small pond is located within the woodland. The pond is devoid of any aquatic vegetation and is heavily shaded by the nearby trees (see Photograph 7). A large accumulation of leaf litter is present at the bottom of the pond with only a shallow depth of water (c. 200 mm) being present. The pond is fed by surface water and ground seepage with a single small outflow to the north-east. The water quality at the time of survey was seen to be poor.

3.7. Hedgerows, Trees and Treelines

- 3.7.1. There are three hedgerows present on site, these are labelled H1 to H3 on Plan ECO2, and described individually below.
- 3.7.2. Hedgerow H1 is located along the north-eastern boundary of the site and separates the site from the horse grazing fields beyond. The hedgerow comprises Blackthorn *Prunus spinosa*, Hawthorn *Crataegus monogyna*, Ash and Bramble. An element of Blackthorn is self-seeding and suckering into the margins of the site.
- 3.7.3. Hedgerow H2 lies along the southern boundary and comprises Elm, Raspberry, Hawthorn, Elder, Lime *Tilia platyphyllos x cordata* and Bramble.
- 3.7.4. Hedgerow H3 is a well-maintained Cherry Laurel amenity hedgerow approximately 2-3 metres in height and associated with the rear garden of No. 4 The Coppice.
- 3.7.5. A treeline runs along the western boundary and contains a large number of semi-mature Lime tree standards. Sycamore *Acer pseudoplatanus*, Silver Birch *Betula pendula*, Oak *Quercus robur* and a Damson *Prunus insititia* are also present.
- 3.7.6. A limited number of standards are associated with the hedgerows, with a young Horse Chestnut tree within the centre of the site.

3.8. Scrub

- 3.8.1. Pockets of scrub are establishing at the margins of the site. The principally species forming the encroaching areas of scrub are Blackthorn, Bramble and Raspberry. These are particularly prominent at the entrance of the site from The Coppice and adjacent to hedgerows H1 and H2.

- 3.8.2. A former hedgerow in the east of the site (linking to the pond area from hedgerow H2) is now an area of mature and established scrub with a number of trees. Species present include Hawthorn, Goat Willow, Elder, Ground Elder *Aegopodium podagraria*, Dog's Mercury *Mercurialis perennis*, and Bluebell.

4. WILDLIFE USE OF THE SITE

- 4.1. General observations were made during the surveys of any faunal use of the site, with specific attention paid to the potential presence of protected species.

4.2. Badgers

- 4.2.1. No recent evidence of Badgers was identified during the survey work from within the site, but a footprint from a Badger was recorded in the local area to the north of the site in March 2020.
- 4.2.2. The site does offer suitable foraging and dispersal opportunities as well as sett-building opportunities, and therefore the potential future presence of Badger cannot be ruled out.
- 4.2.3. It has been previously reported that the site supports a potential Badger sett this is considered to have been misidentified due to the extensive and large nature of the Rabbit *Oryctolagus cuniculus* warrens present. It is possible that the Rabbits have occupied an old sett but given the favourable soil conditions for excavation, being sandy, it is considered more likely that Rabbits have excavated the warren with the enlarged entrances having established following some collapsing (due to the sandy soil conditions) and re-excavations.

4.3. Bats

- 4.3.1. A single Ash tree associated with the pond area is considered to support potential roosting features (PRFs). The suitability is associated with woodpecker holes with it considered to offer low to moderate suitability.
- 4.3.2. The habitats within the site, specifically the treeline, woodland, scrub and hedgerows offer some limited interest to both locally present foraging and dispersing bats.
- 4.3.3. The wider area to the east and north of the site specifically Burbage Common and Woods Local Nature Reserve (LNR) and Burbage Wood and Aston Firs Site of Special Scientific Interest (SSSI), provide large areas of high-quality habitats for bats principally woodland, grassland and scrubland.
- 4.3.4. The desk study shows that a number of European Protected Species (EPS) licences for bats have been granted within a 5km radius of the site. All these licences relate to roosting Common Pipistrelle *Pipistrellus pipistrellus* and Brown Long-eared bat *Plecotus auratus*, with two also relating to roosting Natterer's Bat *Myotis nattereri*. The most recent licence was granted in 2016.

4.4. Other Mammals

- 4.4.1. Signs of Rabbit were recorded across the site, two warrens are present in the southern area of the site.
- 4.4.2. The site also supports good opportunities for Hedgehog *Erinaceus europaeus*. A dead Hedgehog was recorded within the southern area of the site.

- 4.4.3. The pond on-site does not offer any opportunities to Water Vole *Arvicola amphibius* or Otter *Lutra lutra*.

4.5. Birds

- 4.5.1. Robin *Erithacus rubecula*, Pheasant *Phasianus colchicus*, Green Woodpecker *Picus viridis*, Wood Pigeon *Columba palumbus*, Blue Tit *Cyanistes caeruleus*, Great Tit *Parus major*, Blackbird *Turdus merula* and Magpie *Pica pica* were recorded on site by Ecology Solutions in May 2020.
- 4.5.2. The treeline, woodland, scrub and hedgerow habitats on site provide good opportunities for foraging and nesting birds.

4.6. Reptiles

- 4.6.1. The site is considered to provide some opportunities for common reptile species, including Slow Worm *Anguis fragilis* and Grass Snake *Natrix helvetica*. There are records for Grass Snake within 1km of the site. However, owing to the size of the site, it is not considered likely to support a significant population of either reptile species, although the potential for a small population to be present or occasional use of the site cannot be fully dismissed .

4.7. Amphibians

- 4.7.1. There is a single pond on site. This pond was assessed for its potential to support Great Crested Newts in May 2020. Whilst the pond was considered to be sub-optimal due to the shallow nature and poor water quality to ensure a robust assessment was made an eDNA test was undertaken in May 2020.
- 4.7.2. The HSI score for the pond is 0.27 which is of poor suitability for Great Crested Newts. The results of the eDNA survey were negative (see Appendix 3), meaning that Great Crested Newts do not use the pond. Evidence of breeding Common Frog *Rana temporaria* was recorded within the pond in March 2020, but no evidence noted in May 2020.
- 4.7.3. There are further ponds within the local area. The closest of which are recorded within 250 metres of the site boundary with the others over 800 metres and associated with the golf course to the north-east of the site and beyond the railway track. In respect of the closer ponds, and within the acknowledged dispersal range of amphibians including Great Crested Newts, one of these ponds is located approximately 200 metres south-east of the site. This pond covers an area approximately 4,600m², with evidence that it is stocked for recreational fishing. The presence of fish detracts from any potential interest for breeding Great Crested Newts. The second pond is located 215 metres north-east of the site. According to the OS map this is a small pond located within an existing hedgerow, this pond could not be readily identified during the May 2020 survey. Owing to the nature of these types of hedgerow ponds it is extremely likely that this pond is subject to frequent drying, especially given the warm and dry spring that has been experienced in 2020.
- 4.7.4. The desk study shows that the closest Great Crested Newt EPS licence was granted in 2013 for a location approximately 1km north of the site.

- 4.7.5. The site is considered to offer suitable opportunities for amphibians during their terrestrial phase, with the more favourable opportunities present in the woodland area, particularly the area with wetter ground conditions.

4.8. **Invertebrates**

- 4.8.1. The range of habitats together with the plant species present on site provide good opportunities for a range of invertebrate species.

5. ECOLOGICAL EVALUATION

5.1. The Principles of Ecological Evaluation

- 5.1.1. The guidelines for ecological evaluation produced by CIEEM propose an approach that involves professional judgement, but makes use of available guidance and information, such as the distribution and status of the species or features within the locality of the project.
- 5.1.2. The methods and standards for site evaluation within the British Isles have remained those defined by Ratcliffe⁸. These are broadly used across the United Kingdom to rank sites so priorities for nature conservation can be attained. For example, current Sites of Special Scientific Interest (SSSI) designation maintains a system of data analysis that is roughly tested against Ratcliffe's criteria.
- 5.1.3. In general terms, these criteria are size, diversity, naturalness, rarity and fragility, while additional secondary criteria of typicalness, potential value, intrinsic appeal, recorded history and the position within the ecological / geographical units are also incorporated into the ranking procedure.
- 5.1.4. Any assessment should not judge sites in isolation from others, since several habitats may combine to make it worthy of importance to nature conservation.
- 5.1.5. Further, relying on the national criteria would undoubtedly distort the local variation in assessment and therefore additional factors need to be taken into account, e.g. a woodland type with a comparatively poor species diversity, common in the south of England, may be of importance at its northern limits, say in the border country.
- 5.1.6. In addition, habitats of local importance are often highlighted within a local Biodiversity Action Plan (BAP). The Leicester, Leicestershire and Rutland BAP has been considered as part of this assessment and is referenced where relevant.
- 5.1.7. Levels of importance can be determined within a defined geographical context from the immediate site or locality through to the international level.
- 5.1.8. The legislative and planning policy context are also important considerations and have been given due regard throughout this assessment.

5.2. Habitat Evaluation

Designated Sites

- 5.2.1. **Statutory Sites.** There are no statutory designations of nature conservation value within or directly adjacent to the site.
- 5.2.2. The closest statutory sites are Burbage Wood and Aston Firs SSSI and Burbage Common & Woods LNR located approximately 0.6km northeast of

⁸ Ratcliffe, D A (1977). *A Nature Conservation Review: the Selection of Biological Sites of National Importance to Nature Conservation in Britain*. Two Volumes. Cambridge University Press, Cambridge.

the site. The boundary of both these sites overall each other, with the LNR site extending further to the north and the SSSI site extending to the south.

- 5.2.3. Burbage Wood and Aston Firs is approximately 52ha and comprises one of the best remaining examples of Ash – Oak – Maple woodland in Leicestershire and is representative of semi-natural woodland developed on the clays of eastern England.
- 5.2.4. Burbage Common and Woods LNR comprises grassland, woodland and scrubland. The majority of the grassland is unimproved acid grassland with some areas of heath. A large colony of Adder's-tongue *Ophioglossum vulgatum* fern thrives on part of the grassland. A total of 250 species of fungi, 300 flowering plants, 15 damselflies and dragonflies, 20 butterflies and 100 birds have been recorded on the site.
- 5.2.5. **Effects and Mitigation.** Owing to the type and small size of the proposed development no direct or indirect effects are considered likely on the statutory sites both during construction and during the site's operational phase. No mitigation is required.
- 5.2.6. **Non-statutory Sites.** The closest designated non-statutory site lies approximately 1km north of the site. The boundaries of the Local Wildlife Site (LWS) overlaps the boundaries of the LNR and SSSI discussed above. The LWS comprises a mix of woodland, grassland scrub and a wet ditch.
- 5.2.7. The site has been made a candidate LWS against the grassland interest with associated mature trees as a secondary feature. On account of the botany survey findings by Ecology Solutions it is not considered that the site meets the necessary LWS classification criteria, lacking the necessary floristic diversity or coverage by the specific indicator species (see below).
- 5.2.8. **Effects and Mitigation.** Owing to the type and small size of the proposed development no direct or indirect effects are considered likely on the locally present non-statutory sites both during construction and during the site's operational phase. However, in accordance with best practice construction methodologies appropriate safeguards shall be implemented to limit any pollution. Details of the appropriate safeguards and work practices shall be detailed in a Construction Environmental Management Plan (CEMP).

Habitats

- 5.2.9. **Grassland.** The rough grassland that is present in the north-eastern part of the site as well as around the boundary of the woodland is of limited ecological value with both common and widespread species recorded. The NVC community this area of grassland supports is MG1 which is a common and widespread grassland type associated with unmanaged grasslands.
- 5.2.10. The semi-improved grassland present in the south-western area of the site, is of slightly heightened value when compared to the rough grassland, as it supports a greater floristic diversity. However, none of the species naturally occurring on site are of specific ecological interest. The NVC community this grassland supports elements of both MG1 and MG9 grassland, both of which are common semi-improved grassland communities in the UK, neither of which are similar to grassland communities within the Local BAP.

5.2.11. There have been a number of surveys completed across the grassland habitats and site as a whole with the most recent undertaken by Leicestershire County Council (LCC) in late April 2020 as part of their consultation response to the planning application. It has been reported that the site and habitats therein, particularly the grassland meet the classification criteria for Local Wildlife Site (LWS) status.

5.2.12. In Leicestershire and Rutland area, for grassland to be designated as an LWS it must fit the following criteria:

Mesotrophic grasslands should be at least 2500m² or 200m of linear habitat in extent in which at least 7 species from list F should be Occasional, Frequent, Abundant or Dominant or at least 10 species from grassland list F should be present.

5.2.13. Note that list F can be viewed in Appendix 2.

5.2.14. A total of seven naturally occurring species listed within list F (see Appendix 2) were recorded within the grassland on site, these species and their site DAFOR score are summarised in Table 5.1 below.

Species	DAFOR Score
Pignut	O
Meadow Vetchling	R
Oxeye Daisy	R
Birdsfoot Trefoil	F
Field Wood-rush	O
Bulbous Buttercup	R
Common Sorrel	R

Table 5.1. LWS Criteria Species on Site.

5.2.15. Meadowsweet, Meadow Saxifrage, Red Clover and Cowslip are all listed in List F (see Appendix 2). However, as these have all been planted on site and are not naturally occurring the site does not meet the criteria for containing 10 or more species listed on list F or contain 7 species from the list meeting the required coverage and levels of abundance. Therefore, the site does not meet the LWS criteria for this region.

5.2.16. The site has been subject to illegal targeted botanical sabotage with efforts deliberately taken to seek to elevate the floristic diversity, and plant key species, to allow the threshold of LWS grassland classification to be met. Given the recent and obvious attempts to artificially enhance the grassland's floristic diversity and interest, it is possible and indeed probable that other species included in the detailed species lists have also been imported or seeded.

5.2.17. A review of the species recorded in 2012 / 2013 by LCC and Curious Ecologists, together with Dr J Bailey as part of 13/00117/OUT has been completed to allow for a consideration of the species found in 2020 against those found in 2012/2013. Whilst there are species that have remained consistent and at broadly the same levels of coverage others such as Red Clover recorded as occasional in 2012 and listed as a reason for candidate LWS classification (as part of the general assemblage) was not found by LCC during their 2020 surveys. Sheep's Sorrel *Rumex acetosella* was not recorded in 2012 / 2013 but was recorded in 2020 in a small area near the

rabbit warren. This species was not recorded by Ecology Solutions despite efforts being made, this could be accounted for by the heavy rabbit grazing in this area of the site and very limited presence of this species. Nonetheless given its isolation and limited presence it is not considered this would meet an occasional species coverage as reported by LCC, and hence can be removed from any indicator species list on level of abundance / coverage. When removing the planted species (Meadowsweet and Meadow Saxifrage) from the LWS indicator species recorded by LCC there are only eight species, and when assessing the levels of cover, as robustly gathered by Ecology Solutions, only six indicator species from the LCC list are present at the required occasional or above level.

- 5.2.18. As detailed it is acknowledged that the site was subject to a candidate LWS designation in 2013 due to the combination of eight indicator species (at an occasional or above coverage) recorded by the various ecologists across the survey timeframe 2012 to 2013, despite each ecologists confirming that their own surveys showed the grassland 'as not being particularly species-rich, and not meeting LWS criteria. Given the obvious guerrilla planting that has been undertaken across the site and likelihood that this has been a prolonged and premeditated effort to artificially inflate the site's interest and nudge it towards the required classification criteria for a LWS the appropriate and necessary levels of doubt and suspicion on the true value of the grassland must be applied. It is in the opinion of Ecology Solutions that the candidate LWS classification previously applied by LCC should be removed against the clear and obvious evidence of the illegally planting of additional LWS indicator species and the fact that without those species the grassland interest fails to meet the classification threshold.
- 5.2.19. Despite the malicious attempts to thwart the proposed development through the guerrilla planting the surveys have identified areas of relatively elevated botanical interest within the context of the site, and in line with good practice principles the scheme has evolved to allow for these to be safeguarded and preserved as part of the proposals. As a direct consequence of the botany survey results and consideration of the consultation response received from LCC, the applicant has conscientiously removed a proposed unit from the central area of the site to allow the area to be retained and managed for grassland conservation. Overall a c0.3ha area of grassland is to be retained and sensitively managed as part of the development; with a further area associated with the former marshy grassland to be restored and enhanced as part of the habitat mosaic.
- 5.2.20. **Effects.** Despite the amendments to the proposals there will be loss grassland on site as a result of the development. The effects from the development will result in a permanent loss of approximately 0.6ha of semi-improved grassland. There may also be the potential for some areas of grassland to be subject to temporary disturbance as a result of the groundworks required to facilitate the new development.
- 5.2.21. **Mitigation and Enhancements.** The loss of the grassland will be compensated in part through the inclusion of species-rich grassland verges within the site, which should be sown with an Emorsgate EM5 seed mix or equivalent. In addition, the retained areas of grassland to the north and south of the site will be subject to enhancements. There is also scope to incorporate a turf translocation exercise from the more botanically diverse grassland in the south of the site to be directly affected by the proposal to

retained area in the wider site of currently poor valued grassland, thereby retaining the interest and seed bank on site.

- 5.2.22. Potential effects from ground compaction and temporary degradation / loss of grassland interest will be mitigation against through appropriate protective fencing (Herras or similar) to prevent accidental encroachment. These measures shall be detailed within a CEMP that could be secured and agreed by way of an appropriately worded planning condition.
- 5.2.23. The provision of grassland translocation of area of grassland within the site together with the seeding of a species-rich seed mix (Emorsgate EM5) will ensure that the grassland community is maintained and enhanced post-development.
- 5.2.24. Following the implementation of the mitigation and enhancement measures, including adopting a sensitive and bespoke management plan, it is considered that effects will be positive at the local level and of minor significance.
- 5.2.25. **Woodland.** The woodland areas are of some ecological interest. However, the lack of management has resulted in a woodland that is in relatively poor condition with the naturally occurring woodland glades being dominated by dense Bramble. Glades are an important feature of woodlands as they enhance the floristic diversity and provide good opportunities to a range of animal species. The previously completed surveys by Dr J Bailey in 2013 noted that the in the context of the site the marshy area was of likely highest value due to the scarceness of such habitats in Leicestershire. The current natural succession in this area of the site has resulted in a significant reduction in the value and without intervention and management this area will be lost.
- 5.2.26. **Effects.** The woodland is to be fully retained and enhanced as part of the development proposals. Potential effects associated with construction include the risk of accidental encroachment and pollution having a detrimental effect on the interest of the woodland.
- 5.2.27. Prior to mitigation and general safeguards effects are negative at the site level and of minor significance.
- 5.2.28. **Mitigation and Enhancements.** The trees associated with the woodland area, including those associated with the pond shall be subject to the necessary protective measures to accord with BS 5837 2012. A CEMP should be drafted which will ensure that accidental encroachment is prohibited through appropriate signing and protective fencing as required. Furthermore, appropriate measures detailed in the CEMP will negate the potential effects of surface run-off.
- 5.2.29. The woodland will be subject to enhancement measures, through the sensitive clearing and management of the dense Bramble in the woodland glade to re-establish areas of marshy grassland. To enhance the overall habitat mosaic of the site, and to complement the wet nature of the woodland, a wildlife pond will also be created within the glade. The re-establishment of the marshy grassland as well as the creation of a new pond will allow for a more diverse species mix to establish on site and provide greater opportunities for animals' species which may be present on site and

in the local area. It is recommended that once the Bramble has been cleared, the area is sown with Emorsgate EM8F seed mix (or equivalent). The pond will include a range of native submerged and emergent vegetation, with the pond edges sown with an Emorsgate EP1 seed mix.

- 5.2.30. Following mitigation and enhancements, it is considered that effects shall be positive at the local level and of minor significance on the woodland.
- 5.2.31. **Pond.** The on-site pond is in very poor condition and has limited ecological value. The value is suppressed principally on account of the depth of leaf litter and silt accumulation which has both affected the water quality and significantly reduced the depth of the pond. The amount of shade around the pond from the trees is reducing opportunities for aquatic and emergent plants whilst also contributing to the levels of leaf litter within the pond.
- 5.2.32. **Effects.** The pond is to be retained and enhanced as part of the development. Potential effects associated with construction include the risk of accidental encroachment and pollution having a detrimental effect on the interest (albeit very limited) of the pond. Prior to mitigation and general safeguards effects are negative at the site level and of minor significance.
- 5.2.33. **Mitigation and Enhancements.** Adherence to a CEMP will ensure that encroachment and pollution events are minimised. The pond will be subject to multiple enhancements principally designed to increase the depth, water quality and floristic diversity present. Elements of the over-hanging trees will be subject to sensitive and agreed pruning to allow elevated levels of light to penetrate, which will improve floristic diversity and water quality (establishment of oxygenating plants). In addition, the edges of the pond will be planted with a diverse seed mix such as Emorsgate EP1.
- 5.2.34. **Hedgerows and Treeline.** The hedgerows and the treeline on site, are generally in a good condition, however, they are not very diverse in terms of species present and their structure could be improved particularly at their base.
- 5.2.35. **Effects.** All hedgerows and the treeline are to be retained as part of the development. Potential effects associated with construction include the risk of accidental encroachment and pollution could have a detrimental effect on the interest of the hedgerows.
- 5.2.36. Prior to mitigation and general safeguards effects are negative at the site level and of minor significance.
- 5.2.37. **Mitigation and Enhancements.** A CEMP will be adhered to which will ensure that accidental encroachment is prohibited through appropriate signing and fencing as required. Furthermore, appropriate measures detailed in the CEMP will negate the potential effects of surface run-off.
- 5.2.38. The hedgerows can be enhanced through the planting of additional native species of known wildlife value such as Spindle *Euonymus europaeus*, Hazel *Corylus avellane*, Hornbeam *Carpinus betulus*. To improve the field layer of the hedgerows, which is currently sparse and homogenous a shade-tolerant seed mix such as Emorsgate EH1F should be sown.

- 5.2.39. Positive hedgerow management would be adopted as part of the scheme which together with the additional native bolster planting would include specific management to improve the structure and functionality of the hedgerows.
- 5.2.40. **Biodiversity Net Gain Assessment.** An assessment has been made against the current beta Biodiversity Metric 2.0 to establish the measurable level of net gains that be achieved on site post-development. Overall, the scheme has delivered a 2.94% gain in biodiversity.
- 5.2.41. A detailed biodiversity net gain assessment has been completed (see Appendix 4).
- 5.2.42. Given the above it is clear that the site meets all current policy requirements with regards to biodiversity net gains.

5.3. Faunal Evaluation

Badgers

- 5.3.1. **Legislation.** The Protection of Badgers Act 1992 consolidates the previous Badgers Acts of 1973 and 1991. The legislation aims to protect the species from persecution, rather than being a response to an unfavourable conservation status.
- 5.3.2. As well as protecting the animal itself, the 1992 Act also makes the intentional or reckless destruction, damage or obstruction of a Badger sett an offence. A sett is defined as “any structure or place, which displays signs indicating current use, by a Badger”. ‘Current use’ is defined by Natural England as any use within the preceding 12 months.
- 5.3.3. In addition, the intentional elimination of sufficient foraging area to support a known social group of Badgers may, in certain circumstances, be construed as an offence by constituting ‘cruel ill treatment’ of a Badger.
- 5.3.4. Local Authorities are therefore obliged to consult Natural England over any application that is likely to adversely affect Badgers.
- 5.3.5. Any work that disturbs Badgers is illegal without a licence granted by Natural England. Unlike the general conservation legislation, the Badgers Act 1992 makes specific provision for the granting of licences for development purposes, including for the destruction of setts.
- 5.3.6. Guidance produced by Natural England in 2002, and subsequently amended, developed guidelines on the types of activity that it considers should be licensed within certain distances of sett entrances. Any work on site must be completed in accordance with that guidance.
- 5.3.7. **Site Usage.** The survey work undertaken by Ecology Solutions confirmed an absence of any current Badger setts from within the site.
- 5.3.8. The site does provide opportunities for foraging and dispersing Badger as well as sett building opportunities, and with some limited evidence of Badger present in the wider area occasion use of the site cannot be dismissed.

5.3.9. **Mitigation and Enhancements.** It is recommended that further survey work is undertaken before any groundworks commence in order to establish if Badgers have become active on site in the intervening time. If an active Badger sett were to become established on site a Natural England licence may be required to close it should it be present in an unsustainable position. Such licences typically take 30 working days to obtain and are used for works to be undertaken between the months of July and November inclusive. The following measures will be followed throughout the construction process:

- All site personnel will be made aware of the potential presence of this species and the appropriate steps required to ensure the safety of the Badgers while on site;
- Inclines and mounds of loose soil present ideal habitats for Badgers seeking to establish new setts; therefore, during the construction process, all dug ground and loose soil will be levelled and compacted wherever possible. This will prevent Badgers from attempting to excavate setts prior to completion of the works and causing potential disruption;
- Any mounds of material will be regularly checked for signs of Badgers, especially before disturbance or movement;
- Planks will be left in any uncovered trenches to provide any Badger that may stray onto the site with an escape route;
- Any open trenches will be checked at the beginning of each day, to ensure that Badgers are not present, and at the end of each day, to ensure that the means of escape remain in place;
- Tools and loose materials will be stored in an appropriate container in order to reduce the risk of Badgers coming onto site and injuring themselves; and
- Fires and chemicals will not be used within 20 metres of a sett (should one be established), and no fires or chemicals should be left unsupervised anywhere on the site.
- In the event that any suspected Badger activity is observed during construction, work in the area will cease and Ecology Solutions will be contacted for advice.

Bats

5.3.10. **Legislation.** All bats are protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and included on Schedule 2 of the Conservation of Habitats and Species Regulations 2017 ("the Habitats Regulations"). These include provisions making it an offence:

- Deliberately to kill, injure or take (capture) bats;
- Deliberately to disturb bats in such a way as to:-
 - (i) be likely to impair their ability to survive, to breed or rear or nurture their young; or to hibernate or migrate; or

- (ii) affect significantly the local distribution or abundance of the species to which they belong;
 - Damage or destroy any breeding or resting place used by bats;
 - Intentionally or recklessly obstruct access to any place used by bats for shelter or protection (even if bats are not in residence).
- 5.3.11. The words deliberately and intentionally include actions where a court can infer that the defendant knew that the action taken would almost inevitably result in an offence, even if that was not the primary purpose of the act.
- 5.3.12. The offence of damaging (making it worse for the bat) or destroying a breeding site or resting place is an absolute offence. Such actions do not have to be deliberate for an offence to be committed.
- 5.3.13. In accordance with the Habitats Regulations, the licensing authority (Natural England) must apply the three derogation tests as part of the process of considering a licence application. These tests are that:
 - 1. the activity to be licensed must be for imperative reasons of overriding public interest or for public health and safety;
 - 2. there must be no satisfactory alternative; and
 - 3. the favourable conservation status of the species concerned must be maintained.
- 5.3.14. Licences can usually only be granted if the development is in receipt of full planning permission.
- 5.3.15. **Site Usage.** A single Ash trees was noted as supporting low to medium potential for roosting bats albeit with no evidence of any roosting noted from a ground inspection. This tree associated with the pond shall be fully retained as part of the development.
- 5.3.16. The habitats on-site may provide some foraging opportunities for locally present bat species. However, greater opportunities are present in the wider area including Burbage Wood and Aston Firs SSSI, and Burbage Common and Woods LNR, which provide large areas of high-quality habitats for bats principally woodland, grassland and scrubland.
- 5.3.17. Given the size of the site and the greater foraging opportunities present in the wider area is not considered likely that any locally present bat species that could utilise the site for foraging would be heavily reliant on the foraging opportunities present on site to maintain their favourable conservation status. Nonetheless, some level of use is considered likely.
- 5.3.18. **Effects.** The proposals are not thought to cause any significant impact on any locally present bat species. The Ash tree with bat potential shall be retained as part of the scheme and buffered from any potential indirect effects. The area of most interest to bats within the site are the hedgerows and woodland, and these habitats are being retained as part of the development. The woodland and the hedgerows will also be subject to enhancements including the creation of woodland glades and additional species planting within the hedgerows.

- 5.3.19. Given the sensitive nature of bats to artificial lighting, a potential negative effect on bats could arise from lighting during the construction and operational phase.
- 5.3.20. Overall, prior to mitigation effects are both temporary and permanent and are considered to be negative on a group of European interest and of minor significance at the local level.
- 5.3.21. **Mitigation and Enhancements.** New landscape planting based around native species to increase diversity within the existing hedgerows on site may encourage the use of the site by bats. The creation of a woodland glade within the existing woodland will also provide enhanced foraging opportunities for any local present bat population.
- 5.3.22. The enhancement of the existing pond, as well as the creation of an additional pond, will provide enhanced foraging opportunities for bat species.
- 5.3.23. The lighting scheme shall be designed with due regard to the potential presence of bats, and the design will follow the guidance published by the Bat Conservation Trust and Institution of Lighting Professionals⁹. A CEMP will detail lighting restrictions during the construction phase to ensure there are no detrimental effects on foraging and commuting bats during this phase of the development.
- 5.3.24. A variety of bat boxes such as Schwegler 2F, and 1FF bat boxes will be installed around the site and the wider area will provide new potential roosting sites for bats. In addition, Schwegler 2FR bat tubes could be incorporated into the masonry of an external wall of the new units providing additional roosting opportunities for bats (see Appendix 5).
- 5.3.25. Following the implementation of the sensitive design, CEMP, habitat provision and enhancements together with new roosting opportunities it is considered that effects would be positive at the site level.

Hedgehogs

- 5.3.26. **Legislation.** Hedgehogs are not a protected species, but they are a priority species under section 41 of the Natural Environment and Rural Communities Act 2006. The NERC Act 2006 requires the Secretary of State to:
- ...take such steps as appear...to be reasonably practicable to further the conservation of the living organisms and types of habitat included in any list published under this section, or...promote the taking by others of such steps.**
- 5.3.27. **Site Usage.** The habitats on-site offer good opportunities for both foraging and hibernating hedgehogs. A dead Hedgehog was recorded in the south of the site in May 2020.
- 5.3.28. **Effects.** It is considered unlikely that the proposed development will have any significant impact on any locally present Hedgehog population. There

⁹ Bat Conservation Trust and Institution of Lighting Professionals (2018). *Guidance Note 08/18 Bats and artificial lighting in the UK.*

will be some loss of suitable foraging habitat in the form of grassland. There may also be barriers to dispersal as part of the development without suitable mitigation. There is potential that hibernating Hedgehogs could be harmed if dense vegetation is cleared during the hibernation season.

- 5.3.29. Prior to mitigation effects are negative at the site level and of negligible significance.
- 5.3.30. **Mitigation and Enhancement.** It is recommended that any ground cover be cleared outside of the winter hibernation period with any Hedgehogs found relocated to the margins of the site. The planting of native species and / or species of known ecological value will provide both foraging and commuting opportunities for locally present Hedgehogs.
- 5.3.31. To provide additional hibernation opportunities for Hedgehog a number of Hedgehog hibernation boxes can be placed within the woodland (see Appendix 5).
- 5.3.32. To ensure continued access opportunities are provided across the site and enable any present Hedgehogs, together with other less mobile species, to disperse, 'Hedgehog Gateways', 13cm x13cm sections of fence cut out at the base will be provided. This will ensure that the current level of permeability is maintained post-development.

Birds

- 5.3.33. **Legislation.** Section 1 of the Wildlife and Countryside Act 1981 (as amended) is concerned with the protection of wild birds, whilst Schedule 1 lists species that are protected by special penalties. All species of birds receive general protection whilst nesting.
- 5.3.34. **Site Usage.** A number of bird species were recorded during the course of the habitat surveys completed by Ecology Solutions. The woodland and hedgerows are considered to be the habitats of principal interest in the context of the site, offering both nesting and foraging opportunities, although the grassland is also likely to offer foraging opportunities.
- 5.3.35. **Effects.** The proposals retain the features of most interest to birds, principally the hedgerows and woodland. It is acknowledged that there is potential that the construction works may deter nesting birds, should the development overlap with breeding bird season, owing to the increase in noise levels, however, this impact will be short term. In addition, there are numerous additional opportunities for nesting birds in the wider area.
- 5.3.36. Prior to mitigation and safeguards effects are both temporary and permanent and negative.
- 5.3.37. **Mitigation and Enhancements.** As a precaution to avoid a possible offence, it is recommended that removal of suitable nesting habitats be undertaken outside the breeding season (March to July inclusive) or checked for nesting birds by a trained ecologist immediately prior to removal.

- 5.3.38. All retained woodland, hedgerows and grassland will be fenced off to avoid possible encroachment during construction works, thereby minimising disturbance on any nesting birds that may be present.
- 5.3.39. The additional planting along the hedgerows as well as the enhancements within the woodland will provide greater opportunities for both foraging and nesting birds. In addition, a range of bird boxes will also be incorporated into the development such as Swift *Apus apus*, Swallow *Hirundo rustica* and House Martin *Delichon urbicum* boxes. A Barn Owl *Tyto alba* box could also be provided. A range of other bird boxes designed to accommodate a range of bird species such as Schwegler 1B and 2H bird boxes shall also be incorporated and installed within the woodland and / or hedgerows (see Appendix 5).
- 5.3.40. The habitat enhancement works that will be completed across the site will be tailored to improving the overall biodiversity of the site. The retention of a diverse habitat mosaic, that in areas is being lost to succession, will ensure a variety of opportunities for various bird species is provided.
- 5.3.41. Overall, following the implementation of the required mitigation and safeguards, together with habitat enhancements and new habitat provision it is considered that effects on birds would be positive at the local level and of minor significance.

Reptiles

- 5.3.42. **Legislation.** All six British reptile species receive a degree of legislative protection that varies depending on their conservation importance.
- 5.3.43. Rare, endangered or declining species receive 'full protection' under the Wildlife and Countryside Act 1981 (as amended) as well as protection under the Conservation of Habitats and Species Regulations 2017 (as amended). Species that are fully protected are Smooth Snake *Coronella austriaca* and Sand Lizard *Lacerta agilis*. These receive the following protection from:
- Killing, injuring, taking;
 - Possession or control (of live or dead animals, their parts or derivatives);
 - Damage to, destruction of, obstruction of access to any structure or place used for shelter or protection;
 - Disturbance of any animal occupying such a structure or place; and
 - Selling, offering for sale, possession or transport for purposes of sale (live or dead animal, part or derivative).
- 5.3.44. Owing to their abundance in Britain, Common Lizard *Zootoca vivipara*, Slow Worm, Grass Snake and Adder *Vipera berus* are only 'partially protected' under the Wildlife and Countryside Act 1981 (as amended) and as such only receive protection from:
- Deliberate killing and injuring;
 - Being sold or other forms of trading.

- 5.3.45. Therefore, if reptiles are present within a site, a scheme of translocation can be implemented to avoid the offence of killing / injury.
- 5.3.46. **Site Usage.** The site and adjacent land support suitable opportunities for this group, with records of Grass Snake within 1km of the site. However, owing to the size of the site, it is not considered likely to support a significant population of species, although the potential for a small population to be present or occasional use cannot be fully dismissed.
- 5.3.47. **Effects.** Adverse effects associated with the accidental injury or potential killing of potentially present reptiles could occur if no safeguards are put in place during the construction phase of the site. There is also the potential of disturbance of retained areas of suitability occurring during the construction period.
- 5.3.48. **Mitigation and Enhancements.** All retained habitats will be fenced off during construction work to avoid possible encroachment.
- 5.3.49. In order to ensure that no offence is committed the grassland will be subject to a passive displacement regime to encourage any reptiles that may be present to naturally disperse into retained habitats within the site as well as the wider area. This technique involves the intensive management of grassland through a cutting regime. Cuts will be undertaken using a hand trimmer and the initial cut will be to 200mm followed by a cut of 100mm 24 hours later and then cut as short as possible. This will be undertaken during the reptile active season April – September / October and during favourable weather conditions. All cuttings would be removed from the grassland and placed within a designated area within the habitats to be retained or removed from site. All works will be undertaken under the supervision of a suitability experienced ecologist.
- 5.3.50. The retention and subsequent enhancement of the grassland will ensure continued basking and foraging opportunities are retained and on-site. Additional enhancements such as the creation of the woodland glade will also provide significant enhancements. The enhancements to the existing pond and the creation of an additional pond will elevate opportunities for Grass Snake (see Appendix 5).
- 5.3.51. As an additional enhancement, hibernacula can be created within the retained areas to provide opportunities for hibernating reptiles. In addition, if grass cuttings from the site's management regime are placed in discrete piles within a suitable location (e.g. edge of a woodland glade) they will also provide breeding opportunities for Grass Snake.

Invertebrates

- 5.3.52. **Site Usage.** No notable or protected invertebrates were recorded during the walkover survey undertaken by Ecology Solutions. It is expected that the site does offer opportunities for a range of invertebrate species. However, there is no evidence to suggest that any species would be wholly reliant on the site.
- 5.3.53. **Effects.** The proposed development will result in a loss of foraging and egg-laying habitat for some invertebrate species. The loss and disturbance of

some areas of grassland may also have a negative impact on the local invertebrate population.

- 5.3.54. Prior to mitigation and safeguards effects are negative at the site level and of minor significance.
- 5.3.55. **Mitigation and Enhancement.** No mitigation measures in respect of invertebrates are required during the construction phase, although, measures to be adopted in respect to other species would offer a mechanism to safeguard any existing invertebrate interest.
- 5.3.56. The retention and subsequent enhancement and management regime of the grassland will provide enhancement foraging and breeding opportunities for locally present invertebrate species. Furthermore, the inclusion of additional native species within the hedgerows, as well as the creation of a species-rich woodland glade will provide additional enhancements.
- 5.3.57. The enhancement measures of the pond, as well as the creation of an additional pond, will provide greater opportunities for invertebrates with an aquatic stage of their life cycle.
- 5.3.58. As a further enhancement, invertebrate nesting aids and log piles will also be included within the scheme (see Appendix 5).

6. PLANNING POLICY CONTEXT

- 6.1. The planning policy framework that relates to nature conservation at the site is issued nationally through the National Planning Policy Framework, and locally through the planning policies of Hinckley and Bosworth Borough Council.
- 6.2. Any proposed development will be judged in relation to the policies contained within these documents.

6.3. National Policy

National Planning Policy Framework (February 2019)

- 6.3.1. Guidance on national policy for biodiversity and geological conservation is provided by the NPPF, published in March 2012, revised on 24 July 2018 and updated on 19 February 2019. It is noted that the NPPF continues to refer to further guidance in respect of statutory obligations for biodiversity and geological conservation and their impact within the planning system provided by Circular 06/05 (DEFRA / ODPM, 2005) accompanying the now-defunct Planning Policy Statement 9 (PPS9).
- 6.3.2. The key element of the NPPF is that there should be “*a presumption in favour of sustainable development*” (paragraphs 10 to 11). It is important to note that this presumption “*does not apply where the plan or project is likely to have a significant effect on a habitats site (either alone or in combination with other plans or projects), unless an appropriate assessment has concluded that the plan or project will not adversely affect the integrity of the habitats site*” (paragraph 177). ‘Habitats site’ has the same meaning as the term ‘European site’ as used in the Habitats Regulations 2017.
- 6.3.3. Hence the direction of Government policy is clear; that is, the presumption in favour of sustainable development is to apply in circumstances where there is potential for an effect on a European site, if it has been shown that there will be no adverse effect on that designated site as a result of the development in prospect.
- 6.3.4. A number of policies in the NPPF are comparable to those in PPS9, including reference to minimisation of impacts to biodiversity and provision of net gains to biodiversity where possible (paragraph 170).
- 6.3.5. The NPPF also considers the strategic approach that Local Authorities should adopt with regard to the protection, maintenance and enhancement of green infrastructure, priority habitats and ecological networks, and the recovery of priority species.
- 6.3.6. Paragraphs 174 to 176 of the NPPF comprise a number of principles that Local Authorities should apply, including encouraging opportunities to incorporate biodiversity in and around developments; provision for refusal of planning applications if significant harm cannot be avoided, mitigated or compensated for; applying the protection given to European sites to potential SPAs, possible SACs, listed or proposed Ramsar sites and sites identified (or required) as compensatory measures for adverse effects on European sites; and the provision for the refusal for developments resulting in the loss or deterioration of ‘irreplaceable’ habitats – unless there are ‘wholly exceptional reasons’ (for instance, infrastructure projects where the

public benefit would clearly outweigh the loss or deterioration of habitat) and a suitable compensation strategy exists.

- 6.3.7. National policy therefore implicitly recognises the importance of biodiversity and that with sensitive planning and design, development and conservation of the natural heritage can co-exist, and benefits can, in certain circumstances, be obtained.

6.4. Local Policy

- 6.4.1. The local policy for this is currently made up of the current Local Plan 2006 to 2026. The Council is also currently working on a new Local Plan which will set out land allocations and planning policies for the period of 2016 to 2036.

Local Plan 2006 – 2026, Core Strategy CPD (adopted 2009).

- 6.4.2. The Core Strategy CPD was formally adopted in 2009. This document provides an overarching planning policy framework to for the area until 2026. Policies in this report are related to ecology and nature conservation, these are laid out below.

- 6.4.3. **Spatial Objective 10: Natural Environment and Cultural Assets.** Whilst not a policy, the Council has an objective to deliver a linked network of green infrastructure enhancing and protecting the boroughs biodiversity.

- 6.4.4. **Policy 6 Hinckley/Barwell/Earl Shilton/Burbage Green Wedge.** This policy states that within the Green Wedge uses will be encouraged that promote the positive management of land to ensure that the Green Wedge remains or is enhanced. It goes on to state that any development in the Green Wedge should, retain the function of the Green Wedge and retain and create green networks

- 6.4.5. **Policy 20 Green Infrastructure.** The site falls within the Southern Zone of Green Infrastructure as outlined on the Key Diagram in the CPD. Therefore, the following part of the policy relate to the site.

Hinckley/Barwell/Earl Shilton/Burbage Green Wedge - Maintain the green wedge between Hinckley and Barwell as it plays an important environmental and landscape protection role. Look to develop it into a large scale recreational asset to service the Sustainable Urban Extensions and residents living in North Hinckley

- 6.4.6. The policy goes onto state that the developers will be required to contribute to the delivery of these interventions through developer contributions and / or provision of land where appropriate. It also states that development that would compromise the delivery of the Green Infrastructure Network will not be permitted.

New Local Plan 2016 – 2036 – Not yet adopted

- 6.4.7. The council are currently working on a new Local Plan, which will set out land allocations and planning policies for the period of 2016 to 2036. The

plan is not yet adopted and has gone through a 'call for sites' consultation process.

- 6.4.8. A draft local plan was meant to be prepared in early 2020 however, this has yet to be published. The council aims to have the new Local Plan adopted in 2021.

Burbage Neighbourhood Development Plan 2015 -2026 - Draft

- 6.4.9. The Burbage Neighbourhood Plan is proceeding to referendum following an inspector's examination and a number of modifications. However, owing to the Covid-19 outbreak the referendum to determine if the plan will be made has been suspended until May 2021, however, as a Decision Statement (Regulation 18) has been issued, the plan can be given due weight in decision making.
- 6.4.10. It is noted that under **Policy 7: Protection of Green Space** part of the site and adjacent areas known as 'Woodgate' have been removed from this policy following the recommendation of the examiner. The decision was taken as there was no evidence to demonstrate the Burbage community considered the area to be of specific importance nor of such significance for it to be demonstrably special.
- 6.4.11. **Policy 8: Local Wildlife Sites.** This policy states that where development proposals affect an LWS it will be expected, where possible, to protect and enhance the features that give the sites their biodiversity significance. The site is listed (Site 17) as an LWS in the Plan.
- 6.4.12. **Policy 9 Wildlife and Green Corridors.** This policy within the Neighbourhood plan states that development should protect and enhance the network of green spaces, stepping stones and wildlife corridors, including species rich hedgerows that provide valuable green infrastructure together with providing habitats for wildlife.
- 6.4.13. **Policy 12 Important Trees.** This policy states that development proposals that damage or result in the loss of a tree or trees protected with a tree preservation order, or trees of ecological significance will only be permitted in exceptional circumstances.

6.5. **Discussion**

- 6.5.1. The development proposals for the site would be judged against the policies summarised above. Recommendations have been made in respect of potentially present protected and priority species, with measures proposed to ensure presence and use is protected. In respect of the Neighbourhood Plan Policy 8, as has been detailed within this report the grassland does not meet the classification criteria for LWS designation when excluding the guerrilla planting. Nonetheless, the implementation of the safeguards and mitigation outlined within this report, and its appendices, will ensure that the proposed development will not have any detrimental long-term effect on any protected species or priority habitat within the local area and that the ecology and nature conservation of the site together with its functionality will be both preserved and enhanced. Therefore, the site and development proposals would comply with planning policy requirements as they relate to nature conservation.

7. SUMMARY AND CONCLUSIONS

- 7.1. Ecology Solutions was commissioned in May 2020 by Springbourne Homes, to undertake an Ecological Assessment of the site known as The Coppice, Burbage, Leicestershire.
- 7.2. The site is proposed for a small-scale residential development, with associated garden landscaping and infrastructure. The planning application is currently in with Hinckley and Bosworth Borough Council for determination (planning ref: 20/00094/FUL).
- 7.3. The site is located in the Lash Hill area of Burbage, Hinckley. The site is bounded by existing residential development to the west and north-west of the site. Horse grazing fields lie to the north-east, with further grassland present to the east and south of the site.
- 7.4. The site comprises semi-improved grassland ranging from poor to moderate condition with elements of tall ruderal vegetation, a woodland including wet elements, scrub, pond, hedgerows and a treeline.
- 7.5. The site was subject to an extended Phase 1 habitat survey and an NVC survey in May 2020. During these detailed surveys it was noted that a number of plant species had been maliciously planted on site to seek to artificially enhance the site's botanical interest and seek to improve the likelihood of it meeting the LWS classification criteria for mesotrophic grassland. The site has also been subject to previous ecology surveys.
- 7.6. **Statutory Sites.** There are no statutory designations of nature conservation value within or directly adjacent to the site. The closest statutory sites are Burbage Wood and Aston Firs SSSI and Burbage Common & Woods LNR located 0.6km northeast of the site. The boundary of both these sites overlap each other, with the LNR site extending further to the north and the SSSI site extending to the south. Owing to the type and small size of the proposed development no direct or indirect effects are considered likely on the statutory sites both during construction and during the sites operational phase.
- 7.7. **Non-statutory Sites.** The closest non-statutory site lies approximately 1km north of the site. The LWS comprises a mix of woodland, grassland and scrub with a wet ditch. Owing to the type and small size of the proposed development no direct or indirect effects are considered likely on the statutory sites both during construction and during the sites operational phase.
- 7.8. **Habitats.** The grassland habitats on site comprise a mix of MG1 and MG9 grassland communities both of which are common communities in the UK. The grassland does not meet the LWS criteria for grassland, as the species that have been planted within the site have been discounted as they are not naturally occurring. Parts of the grassland will be retained and subject to enhancement as part of the development. The wet woodland, pond, hedgerows and treeline will be retained and enhanced as part of the development. The development will also enhance the existing pond, whilst an additional wildlife pond will also be created as part of the proposals.
- 7.9. A Biodiversity Net Gain Metric 2.0 assessment has been completed to allow for a measurable calculation to be made from the pre to post-development position.

The development is seen to provide a 2.94% gain in biodiversity and hence fully accords with current policy and legislation.

- 7.10. **Badger.** No active Badger setts were recorded on site; however, the site does provide opportunities for sett building as well as foraging and dispersal, therefore the potential future presence of this species cannot be ruled out. It is recommended that further survey work is undertaken before any groundworks commence in order to establish if Badgers have become active on site in the intervening time. If a Badger sett were to become established on site a Natural England licence may be required to close it should it be present in an unsustainable position. Best practice measures will be adhered to during construction to ensure that no harm will come to any Badger that may stray onto site.
- 7.11. **Bats.** Two trees were noted as supporting low to medium potential for roosting bats, both of these trees are to be retained as part of the development and will not be subject to any direct or indirect effects. The habitats on-site may provide some foraging opportunities for locally present bat species. However, greater opportunities are present in the wider area. The enhancement measures for the hedgerows, woodland as well as the pond will provide greater opportunities on-site for foraging bat species. The lighting scheme will also be designed with due regard to the potential presence of bats. A range of bat boxes will also be installed across the site.
- 7.12. **Hedgehogs.** The habitats on-site offer good opportunities for both foraging and hibernating hedgehogs. It is recommended that any ground cover be cleared outside of the winter hibernation period with any Hedgehogs found relocated to the margins of the site. The planting of native species and / or species of known ecological value will provide both foraging and commuting opportunities for locally present hedgehogs. The site boundaries should remain permeable for Hedgehogs to allow for continued access and dispersal. Hedgehog hibernation boxes will also be placed in suitable locations within the site.
- 7.13. **Birds.** A number of bird species were recorded during the course of the habitat surveys completed by Ecology Solutions. The woodland, scrub and hedgerows are considered to be the habitats of principal interest in the context of the site, offering both nesting and foraging opportunities, although the grassland is also likely to offer foraging opportunities. As a precaution to avoid a possible offence, it is recommended that removal of suitable nesting habitats be undertaken outside the breeding season or checked for nesting birds by a trained ecologist immediately prior to removal. New landscape planting shall seek to include a number of fruit-bearing species to offer an additional foraging resource. The safeguarding of the key habitats of interest and through improvements to the existing habitat mosaic under the applicant's control it is considered a range of benefits for locally present bird species shall be delivered. Furthermore, a variety of bird boxes shall be provided to elevate current nesting opportunities.
- 7.14. **Reptiles.** The habitats on site provide some opportunities for common reptile species. Suitable grassland habitat will be cleared in a sensitive and systematic manner under the direct supervision of an ecologist between April – September / October during favourable weather conditions to allow for natural dispersal into retained habitats or suitable habitats within the wider area. The enhancement measures to the woodland, pond and grassland will provide good opportunities for any reptiles that may be present on site. A number of hibernacula will also be

created in suitable locations whilst potential breeding sites for Grass Snake shall also be created.

- 7.15. **Amphibians.** An eDNA analysis was undertaken on the existing pond to establish if Great Crested Newts are present. The results of the analysis confirmed the absence of Great Crested Newt. Evidence of breeding Common Frog was noted within the pond. The enhancement of the existing pond, as well as the creation of a second wildlife pond, will provide significant opportunities for this group. The ponds in the immediate vicinity of the site are not considered likely to support Great Crested Newts. The site does offer suitable for amphibians, including Great Crested Newts, during their terrestrial phase and though the proposals these opportunities shall be preserved and enhanced.
- 7.16. **Invertebrates.** The site is considered likely to support a range of common and widespread invertebrate species. The retention and subsequent enhancement and management regime of the grassland and boundary features will provide enhancement foraging and breeding opportunities for locally present invertebrate species. Furthermore, the enhancement of the existing pond, as well as the creation of a new wildlife pond, and improvement of the associated habitats mosaic will provide opportunities for invertebrates.
- 7.17. The site does offer some opportunities for local wildlife. Nevertheless, through the sensitive design and adoption of safeguards and enhancements detailed within this report, together with the implementation of necessary mitigation measures it is considered that negative effects on habitats and fauna species could be avoided or adequately mitigated. Overall, it is considered that there are no overriding ecological constraints on-site to prevent it being brought forward for the proposed small-scale and sustainable development in accordance with current legislation and planning policy.

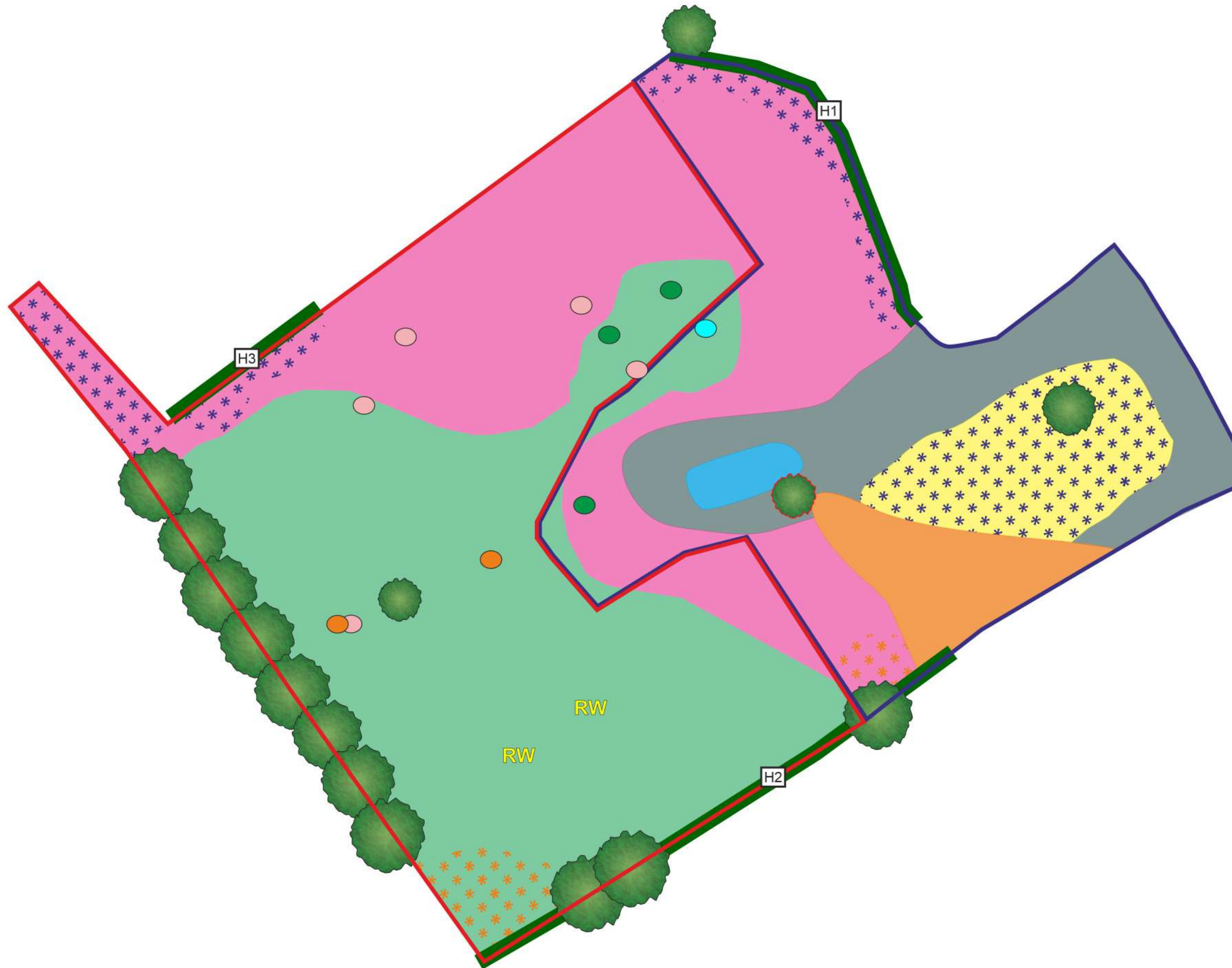
PLANS

PLAN ECO1

Site Location and Ecological Designations

PLAN ECO2

Ecological Features



KEY:

- SITE BOUNDARY
- LAND UNDER CONTROL AND OWNERSHIP OF THE APPLICANT
- MG1 / MG9 SEMI-IMPROVED GRASSLAND
- MG1 ROUGH GRASSLAND
- WOODLAND
- POND
- PREVIOUS MARSH AREA
- BRAMBLE SCRUB
- RASPBERRY SCRUB
- SCRUB
- TREE LINE
- HEDGEROW
- TREE
- PLANTED MEADOW SAXIFRAGE*
- PLANTED MEADOWSWEET*
- PLANTED COWSLIP*
- PLANTED RED CLOVER*
- RABBIT WARREN
- TREE WITH BAT ROOST POTENTIAL

* INDICATIVE LOCATIONS



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8936: THE COPPICE, BURBAGE,
LEICESTERSHIRE

PLAN ECO2: ECOLOGICAL
FEATURES

Rev: B
June 2020

PHOTOGRAPHS

PHOTOGRAPH 1: Rough Grassland



PHOTOGRAPH 2: Semi-improved Grassland



PHOTOGRAPH 3: Guerrilla Planting (Meadow Saxifrage)



PHOTOGRAPH 4: Guerrilla Planting (Cowslip)



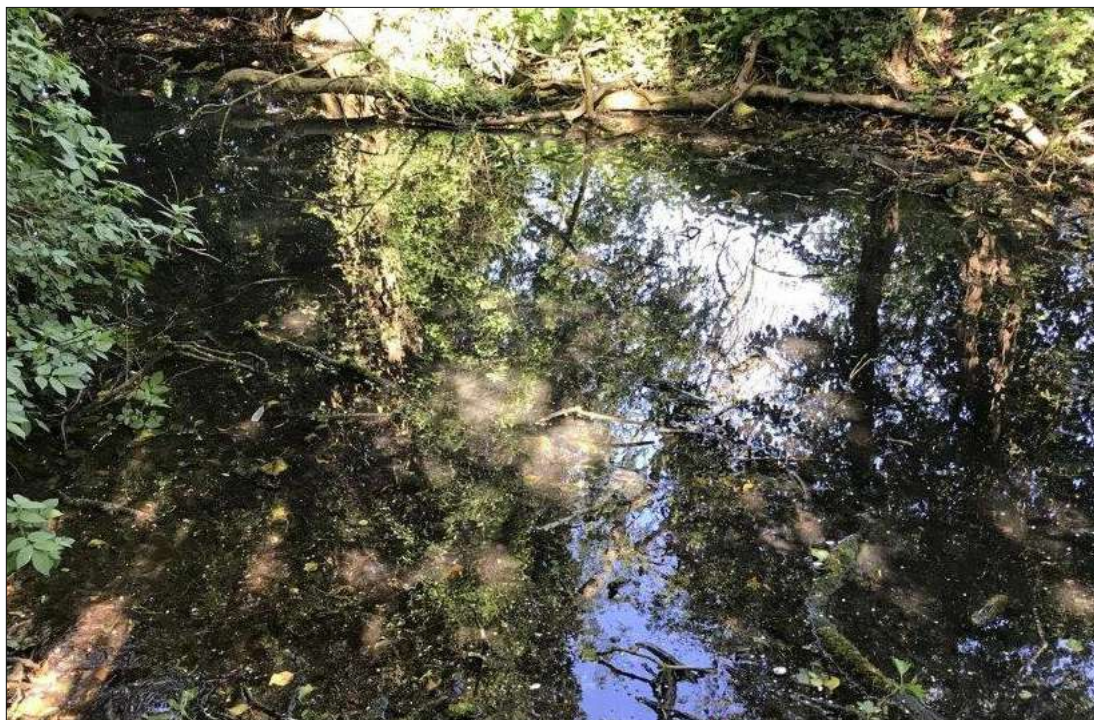
PHOTOGRAPH 5: Guerrilla Planting (Red Clover)



PHOTOGRAPH 6: Woodland



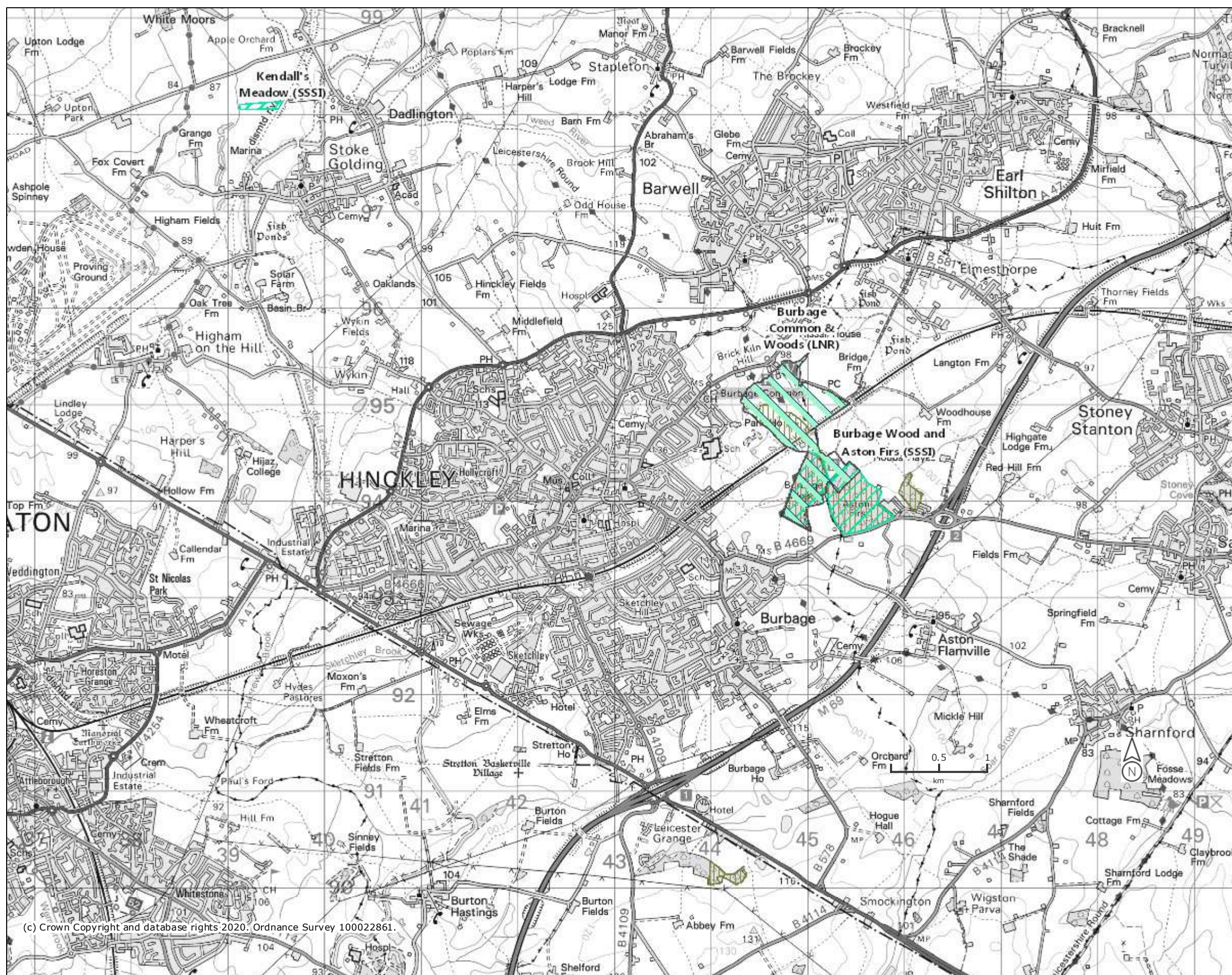
PHOTOGRAPH 7: Pond



APPENDICES

APPENDIX 1

Information downloaded from Multi-Agency
Geographic Information for the Countryside (MAGIC)



Legend

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

Projection = OSGB36

xmin = 436400

ymin = 291100

xmax = 449800

ymax = 297100

Map produced by MAGIC on 26 May, 2020.

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APPENDIX 2

Guidelines for the selection of Local Wildlife Sites in
Leicester. Leicestershire and Rutland

Guidelines for the selection of Local Wildlife Sites

(previously known as Sites of Importance for Nature Conservation or SINCs)

in Leicester, Leicestershire and Rutland



Revised 2011



LEICESTERSHIRE
AND RUTLAND



Preface to 4th edition

This edition has continued to refine the descriptions of some of the criteria and develop the link with the habitats described in the revised versions of the Biodiversity Action Plan for Leicester, Leicestershire and Rutland.

The Guidelines follow the lead of the *Planning Policy Statement 9: Biodiversity and Geological Conservation*, published in 2005, and of *Local Sites: Guidance on their Identification, Selection and Management*, published in 2006 by DEFRA. Both documents refer to 'Local Sites' instead of SINC's. The Panel has adopted the term Local Wildlife Site (LWS) as a more precise and locally usable version of the same.

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Introduction

This document outlines criteria and procedures for selecting Local Wildlife Sites (LWS) which are recognised within national guidance and the local and regional planning process. They are especially important in the new Local Development Frameworks, the Regional Spatial Strategy and for the operation of Planning Policy Statement 9, relating to the protection and enhancement of biodiversity through the planning process.

Local Wildlife Sites, and the previous SINC system, replace the three-tier system of County-, District- and Parish level sites introduced in 1979 in Leicestershire and Rutland, although that remains of historic value.

The document has been updated by the current panel consisting of the following ecologists and nature conservation officers:

Graham Walley	Leicestershire County Council
Françoise Sciré	Charnwood Borough Council
Neill Talbot	Leicestershire and Rutland Wildlife Trust
Katie Field	Leicestershire and Rutland Wildlife Trust
Helen Gregory	Oadby and Wigston Borough Council
Craig Howatt	Rutland County Council
Sue Timms	Leicestershire County Council
Kirsty Gamble	Leicestershire County Council
Mark Walton	Leicestershire County Council
Helen O'Brien	Leicester City Council
Chris Gordon	Natural England

In addition, Andy Lear of LRWT and Michael Jeeves, the BSBI Recorder for Vice-County 55, assisted with the review of the criteria.

1. What is a Local Wildlife Site (LWS)?

Local Wildlife Sites are the most important places for wildlife in Leicester, Leicestershire and Rutland together with legally protected land such as Sites of Special Scientific Interest (SSSIs). The previous term of SINC is no longer used, to fit in with the latest national guidance such as PPS9, DEFRA's guidance on Local Sites, and the Regional Spatial Strategy and Regional Biodiversity Strategy. A more formal definition is:

Local Wildlife Sites (LWS) are important reservoirs of rare, local and declining native species and are the best examples of typical Leicester, Leicestershire and Rutland habitats. LWS may also be areas of ecological interest that provide people with the opportunity to learn about, appreciate and experience habitats and species of the natural world.

LWS designation is non-statutory – i.e. LWS are not protected by any legislation. In this respect they differ from Sites of Special Scientific Interest (SSSI) which have legal protection through the Wildlife and Countryside Act 1981 (as amended) and the Countryside and Rights of Way Act 2000.

The primary purpose of the LWS system is to contribute to the implementation of the Leicester, Leicestershire and Rutland Biodiversity Action Plan, by identifying the most important sites where BAP actions can be focussed, and by disseminating information about

these sites. The criteria for designating LWS are closely linked to the priority habitats listed in the BAP.

Local Nature Reserves (LNR) are designated separately, although their boundaries may coincide with LWS. Regionally Important Geological Sites (RIGS) are not LWS but may be considered to be the geological equivalent. However, many RIGS will be LWS as well. Whereas SSSI are a national series of exemplars, the LWS schedule aims to be as full a list as possible of those sites which meet the following criteria.

2. Why do we need Local Wildlife Sites?

- The LWS system identifies sites of known importance for declining or endangered species and their habitats, and is a way of alerting planners, land managers and landowners and others concerned in land-use to the presence of sites and features of biodiversity importance.
- The LWS criteria identify sites known to contain habitats which are examples of local distinctiveness and deserve to be preserved as part of our natural and cultural heritage.
- The LWS system enables sites which meet LWS criteria to receive a measure of protection in Local Plans and Local Development Frameworks against unsuitable development, even though they may not meet the national criteria for selection as SSSIs which receive statutory protection.
- LWS can be prioritised for action within the Leicester, Leicestershire and Rutland Biodiversity Action Plan.
- The importance of the wider countryside for wildlife is now broadly recognised. LWS can act as a reservoir of vulnerable species which can recolonise areas from which they have disappeared. LWS can also complement or buffer statutory nature conservation sites (SSSIs) and help to identify and protect stepping stone habitats along strategic wildlife corridors, such as rivers. This may be especially important in the context of climate change, where wildlife corridors may provide a means of dispersal for species at a time of environmental change.
- Compared to many other Counties, Leicestershire and Rutland have a relatively low percentage of land – less than 2% - protected by statutory designation (SSSIs or by an international designation). The series of Local Wildlife Sites is therefore very important as a complement to the SSSI series.
- The LWS project aims to focus practical advice and funding on the best areas for wildlife. It strives to support LWS landowners, in order to reduce inappropriate management and neglect, two of the greatest threats to these sites.

3. Principles of LWS selection

- The system should be flexible and responsive to modern demands of the land-use planning system and biodiversity action planning process.
- All sites should have substantive nature conservation value.
- Landowner consultation is an important part of the process. Except in exceptional circumstance site owners will be identified and contacted for permission to survey and monitor sites. When submitting proposals to the Panel without landowner's permission, proposers must append a note explaining the circumstances and outlining the steps taken to try and identify a landowner, with reference to the Panel's Policy on Contact with Owners, Managers and Occupiers of SINCs [now LWS]. Site owners should also have the opportunity prior to formal designation as a LWS to make observations on whether the criteria have been applied correctly, as set out in DEFRA's national guidance on Local Sites.

- Every site should be appraised according to selection criteria which are written down and approved by a committee of nature conservation experts with local knowledge and experience.
- Evaluation and selection procedures need to be readily understood and usable by a wide range of people interested in nature conservation.
- These criteria should cover all features which could make a site valuable for wildlife. Many sites meet the criteria in several areas of consideration, but it is only necessary to meet one criterion to identify a LWS.
- Each criterion should have agreed threshold values. These should be numerical or quantified assessments (low - medium - high, for example) based on professional judgement.
- Thresholds should be set to meet the objectives of the Leicester, Leicestershire and Rutland Biodiversity Action Plan.
- Criteria and thresholds should relate as much as possible to established practice in order to minimise the need for an extensive re-evaluation programme.
- Exceptional sites which are below the minimum size criteria can be approved at the discretion of the Review Panel.

4. Timetable for implementation and Review

The selection of LWS is a continuing process as existing sites are lost and new information is applied to new sites. As the criteria develop they are applied as sites become due for review (normally on a 5 year or 10 year rotation) or as new sites are discovered. Until that time, LWS identified under the 'old' criteria remain recognised and defended according to those criteria. The criteria in this document will be applied to the appropriate sites from the first Panel meeting in 2012.

Criteria for LWS Selection

An individual LWS can be selected if it meets the criteria within at least one of the following five areas of consideration:

1 Habitat quality

- 1.1 The site contains a listed habitat (see habitat criteria) **and**
- 1.2 The site meets the primary criteria for that habitat.

2 Habitat diversity

- 2.1 The site contains two or more listed habitats in close association **and**
- 2.2 The combined area of these habitats amounts to 1ha or over **and**
- 2.3 At least two habitats meet the secondary criteria listed for each habitat.

3 Presence of Red Data Book species

- 3.1 The site supports an established population of a Leicestershire and Rutland Red Data Book or Rare Plant Register species **with the proviso that**
- 3.2 Red Data Book bird populations can only be used to select LWS according to the criteria used for their inclusion in the list (see Red Data Book species criteria for details).

4 Significant species assemblages

- 4.1 The site contains a species assemblage which meets one of the listed species assemblage criteria.

5 Use of site as a wildlife resource by the community

- 5.1 The site meets the secondary criteria for the habitat which it contains **and**
- 5.2 The site is accessible to and widely used by the local community (see community criteria for details) **or**
- 5.3 There is a sense of ownership of the site by the local community (see community criteria for details) **or**
- 5.4 The site is of value for education and raising public awareness (see community criteria for details) **or**
- 5.5 The site is of historical importance for its ecology (see community criteria for details).

Boundaries

The boundaries of LWS are normally set to follow existing traditional boundaries of hedges, banks, ditches or walls. Occasionally, they may be drawn on a 'best estimate' basis where fixed points on the ground or on maps are difficult to identify. The LWS system is essentially an alert to individuals and organisations of the value of an area of ground, especially for use in the planning process. The precise locations of valuable species and habitats may need to be established and marked on the ground when a particular site is under detailed consideration. The advantage of protecting whole, 'traditional', land parcels by LWS designation is that they tend to be managed in those terms, across the whole parcel. Even if some areas within a site are richer in species than others there is an assumption that, given the need for protecting and

enhancing biodiversity (under for example PPS9), it is better to protect the whole land parcel as it provides the opportunity for re-colonisation of the whole site. Linear sites may be usefully sub-divided into lengths between obvious markers, like bridges, inlets, overflows etc.

Habitat Criteria

1 Woodland

LLRBAP: broad-leaved woodland & wet woodland
UKBAP: wet woodland (priority habitat)
broad-leaved, mixed and yew woodland (broad habitat)

Woodland is an area with almost continuous tree and shrub cover, although grassy rides, ponds and buildings etc. may be present. In Leicestershire and Rutland, woodland is a rare habitat extending over about 4% of the counties. Only 1% is ancient woodland and a substantial proportion of that has been damaged by planting. All ancient woodlands are important because of their rarity and many plants and animals are confined or nearly so to ancient woodlands, including replanted ones. Large semi-natural secondary woodlands are also rare and therefore important.

The Leicester, Leicestershire and Rutland Biodiversity Action Plan identifies wet woodland and broad-leaved woodland as priority habitats for action.

Primary criteria

The wood meets one of the descriptions listed below:

Description	Size threshold
included in Leicestershire Inventory of Ancient Woodland	None
with at least 4 species from Ancient Woodland Indicator List Z1 which are Occasional, Frequent, Abundant or Dominant	≥2ha
naturally regenerated	≥ 5 ha
dominated by willow and/or alder with the water table seasonally near or above the surface	≥ 0.25 ha
contains colonies of <i>Hyacinthoides non-scripta</i> (native bluebells) ≥ 500m ²	≥2ha

Secondary criteria

The site contains blocks of semi-natural woodland totalling one hectare or more in extent. Woodland sites ≥1ha qualify where adjacent to an existing LWS.

Ancient Woodland Indicator List Z1

<i>Anemone nemorosa</i>	wood anemone
<i>Carex pendula</i>	pendulous sedge
<i>Carex strigosa</i>	thin-spiked wood sedge
<i>Chrysosplenium oppositifolium</i>	opposite-leaved golden saxifrage
<i>Galium odoratum</i>	woodruff
<i>Lamium galeobdolon</i>	yellow archangel
<i>Lathraea squamaria</i>	toothwort
<i>Luzula pilosa</i>	hairy wood-rush
<i>Luzula sylvatica</i>	great wood-rush
<i>Lysimachia nemorum</i>	yellow pimpernel

<i>Melica uniflora</i>	wood melick
<i>Milium effusum</i>	wood millet
<i>Oxalis acetosella</i>	wood sorrel
<i>Paris quadrifolia</i>	herb paris
<i>Quercus petraea</i>	sessile oak
<i>Sanicula europaea</i>	sanicle
<i>Sorbus torminalis</i>	wild service-tree
<i>Veronica montana</i>	wood speedwell

2 Scrub

LLRBAP: (no category)

UKBAP: (no category)

Although osier beds ceased to be commercially viable some time ago, many survive as areas of scrub of value for breeding birds and insects. Otherwise, there are very few local areas of outstanding interest as scrub. However, scattered scrub or small areas of scrub often form a valuable component of otherwise open habitats by providing diversity of vegetation structure. Individual bushes can serve as song-posts or nest sites for birds, while small blocks provide sheltered spots of value for flying insects.

Primary criteria

There are no primary criteria for scrub habitat. However, secondary criteria may be used to select sites containing scrub under Habitat Diversity or as a site of social significance under Community Criteria (see page 4).

Secondary criteria

The site contains one of the following features:

Feature	Size threshold
osier bed	≥ 0.25ha
predominantly native scrub species either scattered or closed canopy	≥ 1ha

3 Hedgerows

LLRBAP: hedgerows

UKBAP: ancient and/ or species-rich hedgerows (priority habitat)

Old hedges are of value for the same reasons as ancient woodlands – they support a greater diversity of plants and animals because of their age and long continuity. Old hedges may also be relics of ancient woodlands, and frequently support plants and animals that are typical of these habitats. Old hedges often have associated features such as banks, ditches, trees and deadwood habitats that add to their wildlife value.

Criteria related to structure are difficult to apply because these factors are usually determined by management regimes of cutting or laying. However, the continuous nature of the hedge and its normal height after management will probably remain constant within the review period of a LWS. Marginal hedges in terms of these factors should be reviewed more often.

Hedges are of most value if they are part of a habitat mosaic or associated with other habitats of value, such as mature trees and grasslands. They can be important wildlife corridors if they link habitats together, especially woodlands. Adjacent verges, ditches and field margins should be included within the LWS boundary. Start and end points of hedges can be any obvious fixed feature visible on the ground.

The Hedgerow Regulations 1997 should be referred to for definitions of hedgerows.

Primary criteria

The hedge must be at least 1.3m (4ft) high and continuous (breaks only at gateways or equivalent) **AND** have:

*6 locally native trees or shrubs from list A1 per 30 metres averaged out over length of hedge **OR**

*5 locally native trees or shrubs from list A1 per 30 metres average plus two associated habitat features from list A2.

Secondary criteria

The hedge fails to meet the primary criteria by one species of native tree or shrub.

** for hedges of a length that is not a multiple of 30m, the residue length of the hedge should not be included in the calculation of the average number of spp./30m, but should be included in the LWS.*

LIST A1 – Locally native hedgerow trees and shrubs	
<i>Acer campestre</i> , Field maple	<i>Rosa canina</i> , Dog rose
<i>Alnus glutinosa</i> , Alder	<i>Ribes rubrum</i> , Redcurrant
<i>Betula pendula</i> , Silver birch	<i>Ribes uva-crispum</i> , Gooseberry
<i>Betula pubescens</i> , Downy birch	<i>Salix alba</i> White willow
<i>Cornus sanguinea</i> , Dogwood	<i>Salix aurita</i> Eared willow
<i>Corylus avellana</i> , Hazel	<i>Salix caprea</i> Goat willow
<i>Crataegus laevigata</i> , Midland hawthorn	<i>Salix cinerea</i> Grey willow
<i>Crataegus monogyna</i> , Hawthorn	<i>Salix fragilis</i> Crack willow
<i>Daphne laureola</i> , Spurge laurel	<i>Salix pentandra</i> Bay willow
<i>Euonymus europaeus</i> , Spindle	<i>Salix purpurea</i> Purple willow
<i>Fraxinus excelsior</i> , Ash	<i>Salix triandra</i> , Almond Willow
<i>Frangula alnus</i> , Alder buckthorn	<i>Salix viminalis</i> , Osier
<i>Ilex aquifolium</i> , Holly	<i>Sambucus nigra</i> , Elder
<i>Ligustrum vulgare</i> , Wild privet	<i>Sorbus aucuparia</i> , Rowan
<i>Malus sylvestris</i> , Crab apple	<i>Sorbus torminalis</i> , Wild service
<i>Populus nigra</i> , Black poplar	<i>Tilia cordata</i> , Small-leaved lime
<i>Populus tremula</i> , Aspen	<i>Ulex europaeus</i> , Gorse
<i>Prunus avium</i> , Wild cherry	<i>Ulex gallii</i> , Western gorse
<i>Prunus spinosa</i> , Blackthorn	<i>Ulmus glabra</i> , Wych elm
<i>Quercus petraea</i> , Sessile oak	<i>Ulmus minor</i> , Small-leaved elm
<i>Quercus robur</i> , Pedunculate oak	<i>Ulmus procera</i> , English elm
<i>Rhamnus catharticus</i> , Buckthorn	<i>Viburnum lantana</i> , Wayfaring tree
<i>Rosa arvensis</i> , Field rose	<i>Viburnum opulus</i> , Guelder rose

LIST A2 – Additional habitat features of value
a ditch or stream (dry, damp or wet!) along one or both sides for half length of hedge
a bank supporting the hedge, along one or both sides for half length of hedge
a stone wall supporting the hedge, along one or both sides for half length of hedge
standard trees or pollards at average of two/100m of at least 15cm girth
dead wood/old layers along at least 10% of the hedge
a parallel hedge within 15m

4 Mature trees

LLRBAP: mature trees
UKBAP: (no category)

Mature trees are a priority habitat within the Leicester, Leicestershire & Rutland Biodiversity Action Plan. They are an important habitat resource for hole-nesting birds, roosting bats, fungi, lichens and saproxylic insects. Concentrations of mature trees are particularly valuable.

Primary criteria

Individual trees may be designated as LWS if they have the following physical characteristics:

Species	Girth (in m) at 1.3m above roots	Other features
Native oak species	3.77	dead branches or evidence of heart-rot in the form of visible rot, hollows or bracket fungi
beech	3.77	"
willow	3.77	"
sweet chestnut	3.77	"
lime	3.77	"
<i>Populus</i> sp.	3.77	"
horse chestnut	3.77	"
ash	3	"
elm	3	"

Designated trees may be living, dead or even fallen. Stumps should be at least 2m high.

Multi-stemmed trees with several main trunks (e.g. arising from a coppice stool or a fork lower than 1.3m) may be designated as LWS even if the largest stem does not meet the relevant size criterion for that species. It is impossible to derive robust and universally applicable criteria for measuring these trees, therefore the Panel will approve LWS designation for these on a case-by-case basis. The proposer will be required to provide a photograph of the specimen to inform the Panel's decision.

All mature tree LWS should include an area of a radius 4 times the circumference of the trunk it is centred on (a tree of 1m diameter would have a precautionary area of radius 12.56m).

A site may be designated a LWS if it contains a density of trees of the above species with evidence of heart-rot of 20 trees or more per hectare, or in a 300m linear habitat such as a hedgerow or riverbank.

Secondary criteria

The site contains trees of any species with evidence of heart-rot at a density of 10 or more per hectare.

5 Heathland

LLRBAP: heath-grassland
UKBAP: lowland heathland (priority habitat)
dwarf shrub heath (broad habitat)

Heath grassland is a priority habitat within the Leicester, Leicestershire & Rutland Biodiversity Action Plan and this includes heathland which is here defined as areas of semi-natural vegetation in which dwarf shrubs are prominent. Other types of heath grassland are covered by the criteria for selecting grassland LWS. Because of the degradation of pure heathland in Leicestershire, it is expected that most heathland sites will be selected using habitat diversity criteria rather than pure habitat quality criteria. However, this may change following heathland restoration and creation schemes, currently being carried out as part of the Biodiversity Action Plan.

Primary criteria

The site is an area of over 1 ha in which heather (*Calluna vulgaris*, *Erica cinerea*, *Erica tetralix*) or bilberry (*Vaccinium* sp.) either individually or in combination have at least 25% cover.

Secondary criteria

The site contains 1,000m² (0.1 ha) of heather and/or bilberry which either individually or in combination are present with at least 10% cover.

6 Early successional habitats

LLRBAP: (no category)

UKBAP: (no category)

Bare and sparsely vegetated ground is often an important feature of heathland, acid grassland, calcareous grassland and other habitats on nutrient-poor substrates, allowing colonisation by pioneer species of flowering plants, mosses and lichens. Quarries and other post-industrial sites together with urban demolition sites also support interesting communities of plants, insects and birds which are often characteristic of disturbed semi-natural habitats and which make an important contribution to local biodiversity. Bare ground retains heat especially on south-facing slopes, where it is used by insects such as bees, wasps and ground beetles. The ruderal plants associated with bare ground provide valuable nectar and seed resources for insects, while their floral diversity ensures a rich diversity of plant feeders.

Primary criteria

There are no criteria for the designation of sites purely as bare ground habitat. However secondary criteria may be used to select sites containing bare ground under Habitat Diversity or as a site of social significance under Community Criteria (see page 4).

Secondary criteria

The site contains scattered areas totalling over 200m² of bare ground on a nutrient-poor substrate supporting at least three species from list B:

LIST B - Plant species of early successional habitats	
<i>Aira caryophyllea</i>	Silvery Hair-grass
<i>Aira praecox</i>	Early Hair-grass
<i>Aphanes arvensis</i>	Parsley-piert
<i>Arenaria serpyllifolia</i> agg.	Thyme-leaved sandwort
<i>Catapodium rigidum</i>	Fern grass
<i>Centaureum erythraea</i>	Centaury
<i>Chaenorhinum minus</i>	Small toadflax
<i>Erigeron acris</i>	Blue Fleabane
<i>Erodium cicutarium</i>	Storksbill
<i>Erophila</i> sp.	Whitlow grass
<i>Filago vulgaris</i>	Common Cudweed
<i>Hypericum perforatum</i>	Perforate St John's-wort
<i>Linaria</i> sp.	Toadflax
<i>Oenothera</i> sp.	Evening primrose
<i>Ophrys apifera</i>	Bee Orchid
<i>Ornithopus perpusillus</i>	Birdsfoot
<i>Reseda</i> sp.	Weld / Wild mignonette
<i>Rumex acetosella</i>	Sheep's sorrel
<i>Trifolium striatum</i>	Knotted clover
<i>Verbascum</i> sp	Mullein
<i>Vulpia</i> sp	Rat's-tail / Squirrel-tail fescue

7 Rocks and built structures

LLRBAP: rocks and built structures/ urban habitat – Leicester
UKBAP: built up areas and gardens (broad habitat)
 urban (broad habitat)

Rock outcrops support interesting communities of plants, especially ferns and lichens. They can also be used by nesting birds such as the peregrine falcon. Natural rock outcrops occur mainly in Charnwood Forest, but natural rock is commonly exposed by quarrying and making cuttings for transport routes. Artificial rock surfaces, such as buildings, walls and gravestones can also be valuable. Old brick or stone structures can be important habitats for ferns. Consequently, all these features are identified as a priority habitat within the Leicester, Leicestershire & Rutland Biodiversity Action Plan. However, these criteria should not be applied to riverbank exposures which are addressed elsewhere.

The quality of any lichen flora is reduced by acid pollutants and the drift of agricultural nutrients which promote the growth of green algae. Candidate sites can be recognised by a combination of physical features: a continuity of exposed surfaces over at least 60 years, freedom from excessive shading by overhanging trees, freedom from obvious sources of air pollution, a surface not dominated by green algae and freedom from excessive trampling by humans or animals.

Primary criteria

The exposure supports one of the indicator lichens from list C or three of the species from list D:

LIST C - Lichen species of rocks and built structures		
<i>Baeomyces rufus</i>	<i>Lecanora subcircinata</i>	<i>Peltigera</i> sp. ⁵
<i>Cladonia</i> sp. ¹	<i>Leptogium</i> sp.	<i>Ramalina</i> sp.
<i>Collema</i> sp. ²	<i>Opegrapha</i> sp. ³	<i>Rhizocarpon geographicum</i>
<i>Dermatocarpon miniatum</i>	<i>Parmelia</i> sp. ⁴	<i>Solenopsora candicans</i>
<i>Diploschistes scruposus</i>	<i>Parmelia disjuncta</i>	<i>Stereocaulon</i> sp.
<i>Dinna stenhammeri</i>	<i>Parmelia loxodes</i>	<i>Toninia coeruleonigricans</i>
<i>Lasallia pustulata</i>	<i>Parmelia verruculifera</i>	<i>Umbilicaria</i> sp.

¹ except *C. chlorophaeum*, *C. fimbriata*, *C. furcata* and *C. didactyla*.

² except *C. tenax* and *C. crispum*.

³ on siliceous rocks only.

⁴ brown species only, but excepting *P. glabratula* ssp. *fuliginosa*.

⁵ except *P. hymenina*, *P. didactyla* and *P. membranacea*.

LIST D - Plant species of rocks and built structures	
<i>Aira caryophyllea</i> , Silver Hair-grass	<i>Catapodium rigidum</i> , Fern grass
<i>Aira praecox</i> , Early Hair-grass	<i>Erodium cicutarium</i> , Storksbill
<i>Aphanes arvensis</i> , Parsley-piert	<i>Erophila</i> sp., Whitlow grass
<i>Arenaria serpyllifolia</i> agg., Thyme-leaved sandwort	<i>Ornithopus perpusillus</i> , Birdsfoot
	<i>Trifolium striatum</i> , Knotted clover

Secondary criteria

The surface supports good populations (at least 50 individual plants) of at least one of the following species of ferns, or populations of at least three species:

LIST E - Fern species of rocks and built structures	
<i>Asplenium adiantum-nigrum</i> , Black spleenwort	<i>Asplenium ceterach</i> , Rustyback fern
<i>Asplenium ruta-muraria</i> , Wall rue	<i>Asplenium scolopendrium</i> , Hart's tongue
<i>Asplenium trichomanes</i> , Maidenhair spleenwort	<i>Polypodium vulgare</i> , Polypody

8 Grasslands

Changes in agricultural practices have severely reduced the herb-rich grassland that was once widespread in Leicestershire and Rutland. Consequently, calcareous and neutral grassland are both listed as priority habitats within the Leicestershire and Rutland Biodiversity Action Plan, while acid grassland is covered by the Heath Grassland Action Plan. With the demise of agricultural grasslands, roadside verges have become important refuges for some plant species and these are covered by the Roadside Verge Action Plan. Herb-rich grassland is a fragile habitat and, in most cases, impossible to recreate or restore once it has been damaged. Consequently, the protection of grassland LWS is an essential component of any nature conservation strategy.

There are several types of grassland represented in Leicestershire and Rutland, but some have survived agricultural changes better than others and so require different site size thresholds. Grass verges often support the only herb-rich grassland left in an area. These linear grasslands are often small in extent - less than 10 metres wide - but are rich in species. Roadside verges are particularly important for calcareous grassland. Many have been designated as roadside verge nature reserves.

LLRBAP: **neutral grassland**
UKBAP: **lowland meadows (priority habitat)**
 neutral grassland (broad habitat)

Mesotrophic or Neutral grassland is the commonest grassland in Leicestershire and Rutland and is found over neutral and nearly neutral soils throughout the two counties. Traditionally, much of this grassland would have been managed as hay meadow, resulting in a very rich and diverse flora. However, species-rich mesotrophic grassland can also occur in permanent pasture, churchyards, golf courses or even infrequently managed rough grassland. The most important factor governing the richness of mesotrophic grasslands is their sensitivity to agricultural and horticultural improvements such as ploughing, re-seeding, drainage and the application of herbicides, pesticides and inorganic fertilisers.

LLRBAP: **(no category)**
UKBAP: **coastal and floodplain grazing marsh (priority habitat)**

Wet grassland is found in floodplains or where there is impeded drainage. It is also frequently associated with springs and flushes. It is often less rich in plant species than drier grasslands, but nevertheless, it is valuable for its own specialist flora.

LLRBAP: **(no category)**
UKBAP: **acid grassland (broad habitat)**

Acid grassland in Leicestershire is naturally poor in plant species. It may occur in association with bare ground and rock outcrops. It may also contain heather and other ericaceous shrubs and can grade into heathland. Although invasion by bracken has led to losses of this habitat, it can survive amongst bracken.

LLRBAP: calcareous grassland
UKBAP: lowland calcareous grassland (priority habitat)
 calcareous grassland (broad habitat)

Most **calcareous grassland** in Leicestershire and Rutland is of recent origin and is associated with quarries, railway embankments and other post-industrial sites. It is often found in a mosaic with mesotrophic grassland, bare ground and early successional communities.

LLRBAP: (no category)
UKBAP: (no category)

Mixed grassland may support a mosaic of mesotrophic, wet, acid and calcareous grassland types depending on the underlying substrate, hydrology, aspect and other physical features of the site. Quarries, spoil tips, railways and other post-industrial sites often support mixed grassland habitats of great diversity.

As well as being important for plants, herb-rich grasslands support valuable animal populations which often depend on the surrounding hedges for nesting and hibernation sites. Consequently, surrounding hedges should be included in the LWS boundary.

The DAFOR values used in these criteria correspond to the following ranges of percentage cover:

D	75-100% cover
A	25-74% cover
F	10-24% cover
O	5-9% cover
R	<5% cover and < 5 individuals / clumps within the survey unit

Primary criteria

Mesotrophic grasslands should be at least 2500m² or 200m of linear habitat in extent in which at least 7 species from list F should be Occasional, Frequent, Abundant or Dominant or at least 10 species from grassland list F should be present.

LIST F - Mesotrophic grassland species	
<i>Agrimonia eupatoria</i>	Agrimony
<i>Alchemilla</i> sp.	Lady's mantle
<i>Betonica officinalis</i>	Betony
<i>Campanula rotundifolia</i>	Harebell
<i>Carex binervis</i>	Green-ribbed Sedge
<i>Carex caryophyllea</i>	Spring-sedge
<i>Carex flacca</i>	Glaucous Sedge
<i>Carex nigra</i>	Common Sedge
<i>Carex leporina</i>	Oval Sedge
<i>Carex pallescens</i>	Pale Sedge
<i>Carex panicea</i>	Carnation Sedge
<i>Carex spicata</i>	Spiked Sedge
<i>Centaurea nigra</i>	Knapweed
<i>Conopodium majus</i>	Pignut
<i>Filipendula ulmaria</i>	Meadow sweet
<i>Filipendula vulgaris</i>	Dropwort
<i>Galium verum</i>	Lady's bedstraw

<i>Knautia arvensis</i>	Field scabious
<i>Lathyrus pratensis</i>	Meadow vetchling
<i>Leontodon hispidus</i>	Rough Hawkbit
<i>Leucanthemum vulgare</i>	Ox-eye daisy
<i>Lotus corniculatus</i>	Birdsfoot trefoil
<i>Luzula campestris</i>	Field woodrush
<i>Ononis</i> sp.	Rest-harrow
<i>Pimpinella saxifraga</i>	Burnet saxifrage
<i>Potentilla erecta</i>	Tormentil
<i>Primula veris</i>	Cowslip
<i>Ranunculus acris</i>	Meadow buttercup
<i>Ranunculus bulbosus</i>	Bulbous buttercup
<i>Rhinanthus minor</i>	Yellow rattle
<i>Rumex acetosa</i>	Sorrel
<i>Sanguisorba officinalis</i>	Great burnet
<i>Saxifraga granulata</i>	Meadow saxifrage
<i>Scorzonoides autumnalis</i>	Autumnal Hawkbit
<i>Silaum silaus</i>	Pepper saxifrage
<i>Succisa pratensis</i>	Devil's-bit scabious
<i>Trifolium pratense</i>	Red clover

Wet grasslands should be seasonally flooded and at least 2500m² in extent in which at least 6 species from grassland lists F and G combined should be present.

LIST G - Wet grassland species	
<i>Achillea ptarmica</i>	Sneezewort
<i>Angelica sylvestris</i>	Wild Angelica
<i>Caltha palustris</i>	Marsh Marigold
<i>Cardamine pratensis</i>	Cuckoo flower or Lady's Smock
<i>Carex acuta</i>	Slender Tufted-sedge
<i>Carex acutiformis</i>	Lesser Pond-sedge
<i>Carex disticha</i>	Brown Sedge
<i>Carex otrubae</i>	False Fox-sedge
<i>Carex riparia</i>	Greater Pond-sedge
<i>Cirsium palustre</i>	Marsh Thistle
<i>Galium palustre</i>	Marsh Bedstraw
<i>Juncus acutiflorus</i>	Sharp-flowered Rush
<i>Juncus articulatus</i>	Jointed Rush
<i>Juncus bufonius</i>	Toad Rush
<i>Juncus bulbosus</i>	Bulbous Rush
<i>Juncus conglomeratus</i>	Compact Rush
<i>Juncus effusus</i>	Soft-rush
<i>Juncus inflexus</i>	Hard Rush
<i>Juncus tenuis</i>	Slender Rush
<i>Lotus pedunculatus</i>	Greater bird's-foot trefoil
<i>Silene flos-cuculi</i>	Ragged robin
<i>Oenanthe fistulosa</i>	Tubular water dropwort
<i>Pulicaria dysenterica</i>	Common fleabane
<i>Ranunculus flammula</i>	Lesser spearwort
<i>Thalictrum flavum</i>	Common meadow rue
<i>Triglochin palustre</i>	Marsh arrow-grass

Acid grasslands should be at least 1000m² in extent, in which at least 3 of the species in table H should be Frequent, Abundant or Dominant or at least 5 species should be present.

LIST H - Acid grassland species	
<i>Agrostis capillaris</i> , Common bent	<i>Juncus squarrosus</i> , Heath rush
<i>Calluna vulgaris</i> , Ling	<i>Lathyrus linifolius</i> var. <i>montanus</i> , Bitter vetch
<i>Campanula rotundifolia</i> , Harebell	<i>Luzula multiflora</i> , Heath woodrush
<i>Danthonia decumbens</i> , Heath grass	<i>Nardus stricta</i> , Mat grass
<i>Deschampsia flexuosa</i> , Wavy hair-grass	<i>Potentilla erecta</i> , Tormentil
<i>Erica tetralix</i> , Cross-leaved Heath	<i>Rumex acetosella</i> , Sheep's sorrel
<i>Festuca ovina</i> , Sheep's fescue	<i>Vaccinium myrtillus</i> , Bilberry
<i>Galium saxatile</i> , Heath bedstraw	

Calcareous grasslands should be at least 2500m² or 200m of linear habitat in extent, in which at least 5 of the species in list J should be present.

LIST J - Calcareous grassland species	
<i>Agrimonia eupatoria</i> , Agrimony	<i>Inula conyzae</i> , Ploughman's spikenard
<i>Anacamptis pyramidalis</i> , Pyramidal orchid	<i>Knautia arvensis</i> , Field scabious
<i>Anthyllis vulneraria</i> , Kidney vetch	<i>Linum catharticum</i> , Purging flax
<i>Blackstonia perfoliata</i> , Yellow-wort	<i>Ononis</i> sp., Rest-harrow
<i>Campanula glomerata</i> , Clustered bellflower	<i>Ophrys apifera</i> , Bee orchid
<i>Centaurea scabiosa</i> , Greater knapweed	<i>Origanum vulgare</i> , Marjoram
<i>Clinopodium vulgare</i> , Wild basil	<i>Orobanche elatior</i> , Knapweed broomrape
<i>Echium vulgare</i> , Viper's bugloss	<i>Pimpinella saxifraga</i> , Burnet saxifrage
<i>Erigeron acer</i> , Blue fleabane	<i>Plantago media</i> , Hoary plantain
<i>Euphrasia</i> sp., Eyebright	<i>Poterium sanguisorba</i> , Salad burnet
<i>Gentianella amarella</i> , Autumn gentian	<i>Scabiosa columbaria</i> , Small scabious
<i>Helianthemum nummularium</i> , Rock-rose	<i>Thymus</i> sp., Thyme

Mixed grasslands should be at least 2500m² or 200m of linear habitat in extent, in which at least 10 species from lists F, G, H and J combined should be present.

Secondary criteria

The site is at least 2500m² in extent, in which at least 8 species from lists F, G, H and J combined should be present.

9 Wetlands

Fast-flowing streams form the subject of a habitat action plan within the Leicester, Leicestershire and Rutland Biodiversity Action Plan. Large rivers have also been identified as a priority habitat. Despite the large human impact on large rivers in the region, they still retain many natural features and associated biodiversity. Other types of flowing water are also of substantive interest, such as the stretch of the River Eye which has been designated as a SSSI. Rivers are of great value not only for their aquatic flora and fauna, but also for riparian wildlife. At a larger scale, the major river valleys represent valuable concentrations of semi-natural habitat in an otherwise intensively cultivated or urban landscape. The Local Environment Agency Plans for each catchment recognise the link between main rivers and their catchments and take a strategic approach to their management which integrates ecological and other objectives.

The number of static water bodies in Leicestershire and Rutland has steadily increased due to mineral extraction, the creation of fishing lakes and the construction of garden ponds and other ornamental features. Many of these new sites attract a diverse flora and fauna and are of great value for wildlife. By contrast, several more traditional habitat types of value for nature conservation are in decline. Because of this, springs and flushes, sphagnum ponds, field ponds and floodplain wetlands are prioritised for action within the Leicester, Leicestershire and Rutland Biodiversity Action Plan. Reedbeds are prioritised primarily for their value to birds. A further priority habitat, mesotrophic lakes, is represented purely by existing SSSIs.

Wetland habitats are difficult to classify into discrete end-groups requiring separate criteria. These difficulties are compounded by the large scale human modifications to these habitats in Leicestershire and Rutland. Criteria are given for three main wetland types, but there is necessarily some overlap between these groups. It is not currently possible to give primary criteria for recognising habitat quality in ponds and spring-fed flushes using physical features or indicator species. Where they occur outside of habitat mosaics, they should be evaluated using Red Data Book species and species assemblages as appropriate.

9.1 Streams and smaller rivers

LLRBAP: fast-flowing streams
UKBAP: rivers and streams (broad habitat)

LWS boundaries should be set so as to exclude stretches of 0.5km in length without these natural features. A riparian zone of at least 6 metres should be included around the water feature and within each LWS.

Primary criteria

The stream contains one of the following features:

Feature	Size threshold
rifle and pool system	none
braided channel	none
gravel substrate	20m stretch
sedimentary bar exposed in periods of low flow and not subject to excessive trampling	4m ²
earth cliff eroded by water course	1m high
waterfall	1.5m high
moss-covered bedrock or boulders	none
riparian trees with exposed roots and overhanging branches on rivers wider than three metres	trees ≥ 10m high
presence of <i>Potamogeton</i> sp., Pondweed (except <i>P. pectinatus</i>), or <i>Ranunculus fluitans</i> , River water crowfoot or <i>Ranunculus penicillatus</i> , Stream water-crowfoot	none

Secondary criteria

The stream contains one of the following features:

Feature	Size threshold
meanders	none
sedimentary bar exposed at low flow	4m ²
backwaters or cut off oxbows	none
weirs	1m high

9.2 Large rivers and canals

LLRBAP: flood plain wetland/ eutrophic standing water
UKBAP: eutrophic standing water (priority habitat)
 rivers and streams (broad habitat)

LWS boundaries should be set so as to exclude stretches of 1km in length without these features. A riparian zone of at least 6 metres should be included around the water feature and within each LWS. It is recommended that key features and species are mapped.

Primary criteria

The stretch contains one of the following features:

Feature	Size threshold
sedimentary bar exposed in periods of low flow and not subject to excessive trampling	20m ²
earth cliff eroded by water course	1.5m high
riparian trees with exposed roots and overhanging branches	trees ≥ 10m high
presence of <i>Potamogeton</i> , Pondweed, (except <i>P. pectinatus</i>), <i>Ranunculus fluitans</i> , River water crowfoot, or <i>Ranunculus penicillatus</i> , Stream water-crowfoot or <i>Myriophyllum</i> sp., Water milfoil	none
fringes of emergent vegetation along 75% of one bank	per 1 km stretch
stands or fringes of at least five of the species in list K	per 1 km stretch
mats of floating vegetation of one or more species in list L	500m ² per 1km stretch

LIST K - Emergent wetland species	
<i>Carex</i> sp., Sedge	<i>Rumex hydrolapathum</i> , Water dock
<i>Eleocharis palustris</i> , Common spike-rush	<i>Schoenoplectus lacustris</i> , Bulrush
<i>Equisetum fluviatile</i> , Water horsetail	<i>Sparganium erectum</i> , Branched bur-reed
<i>Glyceria maxima</i> , Reed sweet-grass	<i>Typha angustifolia</i> , Lesser Reedmace
<i>Phragmites australis</i> , Reed	<i>Typha latifolia</i> , Reedmace
<i>Rorippa amphibia</i> , Great yellow cress	

LIST L - Floating wetland species	
<i>Nuphar lutea</i> , Yellow water lily	<i>Ranunculus</i> spp., Water crowfoot
<i>Persicaria amphibia</i> , Amphibious bistort	<i>Sparganium emersum</i> , Unbranched bur-reed

Secondary criteria

The stretch contains one of the following features:

Feature	Size threshold
sedimentary bar exposed at low flow	20m ²
backwaters or oxbows	None

9.3 Standing water bodies, swamps, fens and ditches

LLRBAP:	flood plain wetland eutrophic standing water sphagnum ponds springs and flushes
UKBAP:	eutrophic standing water (priority habitat) fens (priority habitat) rivers and streams (broad habitat) fen, marsh and swamp (broad habitat)

A riparian zone of at least 6 metres around each open water body should be included within the LWS.

Primary criteria

The site contains one of the following features:

Feature	Size threshold
presence of <i>Potamogeton</i> , Pondweed (except <i>P. pectinatus</i>), <i>Sphagnum</i> sp. or <i>Myriophyllum</i> sp., Water milfoil	none
stand of <i>Carex</i> sp., Sedge (except <i>C. hirta</i>); <i>Typha angustifolia</i> , Lesser reedmace	200m ²
<i>Phragmites</i> , Reed bed	500m ²
stands of emergent vegetation	1,000m ²
stands of at least five of the species in list K (see above)	none
mats of floating vegetation of one or more species in list L (see above)	500m ²
floating rafts of <i>Glyceria maxima</i> , Reed sweet-grass, <i>Phragmites</i> , Reed or <i>Typha</i> , Reedmace	100m ²
presence of a draw-down zone with <i>Rumex maritimus</i> , Golden dock	1,000m ²
a recently unmodified spring in woodland that has been established for over 50 years	none
A ditch with 8 spp from Lists G,K and L combined (see above) present in channel and on banks	50m

Secondary criteria

The site fits at least one of the following descriptions:

Description	Size threshold
flush fed by natural spring	none
located in floodplain and seasonally flooded from an adjacent watercourse (NB - watercourse should be identified in the site notification form)	none
permanent or temporary field pond	None
A ditch with 6 spp from Lists G,K and L combined (see above) present in channel and on banks	50m

10 Field Margins (Arable Plant Communities)

LLRBAP: field margins
UKBAP: cereal field margins (priority habitat)
 arable and horticulture (broad habitat)

Arable field margins act as a buffer zone between the field boundary and the crop or road, and form important wildlife corridors. Arable plant species and communities have been undergoing national declines for over 60 years. Many species typical of arable land-use are now rare nationally and in Leicestershire and Rutland. Arable plants are a distinctive part of our flora and culture and often provide a valuable food source for farmland invertebrates, birds and mammals.

Designating fields or parts of fields that support elements of this flora as Local Wildlife Sites has not previously been undertaken in Leicestershire and Rutland, although sites have been designated elsewhere in the UK. The transitory nature of some of these weeds creates problems in the selection of sites and good sites may vary from year to year depending upon management and physical conditions. Most arable plant species benefit from seeds that remain viable, yet dormant, in the soil seed bank over decades. Though they may appear to be absent during an unfavourable season, most will reappear when conditions improve.

Primary criteria

The site meets the following criteria:

Limestone soil with at least 8 species that are Dominant, Abundant or Frequent (D,A,F) from List M below
Clay soil with at least 6 species that are Dominant, Abundant or Frequent (D,A,F) from List M below
Sandy or freely draining acidic soil with at least 6 species from List M that are Dominant, Abundant or Frequent (D,A,F) below

There is no minimum size criterion for either of the above.

Any arable plant community present within a field or field margin that meets the above guideline can be selected. The whole field will be selected as a Local Wildlife Site, not just the field margin in which the species have been recorded. Arable plants should ideally be present as part of an agricultural crop rotation system that allows the community to persist. Community composition may change during the course of the crop rotation.

List M: Arable plants	
<i>Anagallis arvensis</i>	Scarlet pimpernel
<i>Aphanes arvensis</i> agg	Parsley-piert
<i>Arenaria serpyllifolia serpyllifolia</i>	Thyme-leaved sandwort
<i>Carduus nutans</i>	Nodding thistle
<i>Chenopodium ficifolium</i>	Fig-leaved goosefoot
<i>Chenopodium hybridum</i>	Maple-leaved goosefoot
<i>Chenopodium polyspermum</i>	Many-seeded goosefoot
<i>Euphorbia exigua</i>	Dwarf spurge
<i>Euphorbia helioscopia</i>	Sun spurge
<i>Fallopia convolvulus</i>	Black bindweed
<i>Fumaria officinalis</i>	Common fumitory
<i>Galeopsis tetrahit</i>	Common hemp-nettle

<i>Geranium pusillum</i>	Small-flowered crane's-bill
<i>Kickxia spuria</i>	Round-leaved fluellen
<i>Lamium amplexicaule</i>	Henbit dead-nettle
<i>Mentha arvensis</i>	Corn mint
<i>Papaver dubium</i>	Long-headed poppy
<i>Papaver rhoeas</i>	Common poppy
<i>Raphanus raphanistrum</i>	Wild radish
<i>Sherardia arvensis</i>	Field madder
<i>Sinapis arvensis</i>	Charlock
<i>Thlaspi arvense</i>	Field pennycress
<i>Urtica urens</i>	Small nettle
<i>Viola arvensis</i>	Field pansy

Secondary criteria

There are no secondary criteria for field margins habitat.

Sites which support Red Data Book species qualify under the Red Data Book Criteria, see List N on page 27.

Red Data Book Species Criteria

1. Definition of Local RDB species

LWS can be selected for the presence of Leicestershire and Rutland Red Data Book Species in the following circumstances:

Bryophytes: Sites with validated records, in accordance with the criteria within the *Leicestershire and Rutland Red Data Book: Bryophytes (1997)* as updated by the *Leicestershire Bryophyte Flora 2004*, and any future revisions.

Flowering plants, ferns, clubmosses and horsetails: Sites with validated records, in accordance with the criteria within the most recent Checklist and Rare Plant Register 2010, and any future revisions. Plants must have been recorded within the last 15 years. If a species has not been present on the site for 5 consecutive visits, the species cannot be used to select a LWS.

Birds: Sites with significant and established populations of L&R RDB Bird species can be selected as LWS.

- L&R RDB birds are defined as uncommon, scarce, rare or very rare breeding or wintering species within a current LROS County list, OR species listed in the latest BOCC as a 'red' or 'amber' species, OR a current UKBAP or LBAP priority species.
- Bird populations can only be used to select LWS according to the criteria used for their inclusion in the current LROS County List (*e.g. rare breeding birds should only be used to select breeding sites; rare winter visitors should only be used to select wintering sites.*)
- A significant population is defined as supporting at least 10% of the usual range of occurrence for that species within a current LROS County list (*e.g. for an uncommon breeding species, a LWS would need to support 10 breeding pairs; for a scarce species, 1 breeding pair would be sufficient; for a common bird, 100 breeding pairs would be required*).
- An established population is where the species has been recorded in significant number on 5 occasions within the last 15 years.
- The LROS Records Committee require either descriptions or records from three or more observers before some species records can be validated.
- Refer to the LROS website for more details: www.lros.org.uk

Mammals, Reptiles, Amphibians and Fish: Sites supporting significant and/or established populations of species listed in the *Leicestershire Red Data Book: Mammals, Reptiles, Amphibians & Fish (1997)*, until the end of 2012 only, and any future revisions. Species should have been recorded in their breeding, roosting, feeding or hibernation habitat within the previous 15 years.

Other species: Sites with validated records of significant/established populations of species in the following categories:

- in accordance with national RDB criteria for that species; OR
- in accordance with recent published local guidance, endorsed by the relevant County Recorder/Co-ordinator or Recording Group; OR
- in accordance with the criteria within the *Inventory of Key Species in Leicestershire and Rutland (1997)*; OR
- listed in the UKBAP or local BAP as of priority conservation concern.

Note: Some nationally scarce invertebrate species can be widespread in Leicestershire and Rutland. It is not envisaged that these species will be used to select habitats which are otherwise of low value or of a transient or ephemeral nature.

2. Valid records

Critical species records must be validated by the County Recorder or a National Recorder. Critical species are defined as those listed as such in local or national checklists and publications. If a recent critical list for our area does not exist for a species' group, the record must be validated.

County Recorders/Co-ordinators should be notified if local RDB species are recorded. An up-to-date list of County Recorders/Co-ordinators and their contact details can be obtained from LRERC. Note that some County Recorders require voucher specimens before validating a record.

Highly mobile and/or colonising species: (e.g. many birds, larger mammals, some invertebrates): must be recorded in at least 5 of the last 15 years

Mobile species: (some birds, most smaller mammals, amphibians, many invertebrates): must be recorded in at least 5 of the previous 25 years

Sedentary or non-mobile species: (many invertebrates, plants, mosses, lichens and fungi): must be recorded at least twice in the last 30 years.

3. Other information required on the LWS notification form

- Grid references for local RDB species - a 6-fig reference is adequate (e.g. SK123456) for mobile species or for large or dispersed populations within a site; an 8-fig grid reference (e.g. SP12345678) is needed for individual plants or for small isolated populations of non-mobile species.
- If appropriate, the location of the species record should be marked on the accompanying map. This is not necessary for highly mobile species, or for sensitive records.
- Approximate numbers of individuals, or an estimate of abundance.
- Recording date (month and year is sufficient).
- Recorder - if this is not the proposer of the LWS, the Recorder's position should be noted also (e.g. Volunteer Ranger, LRWT Field surveyor, Heritage Warden, Ecological consultant)
- Validator's name and validation date, if relevant

Species Assemblage Criteria

1 Breeding bird assemblages

Important assemblages of breeding bird species occur in a limited number of habitats in Leicester, Leicestershire and Rutland. Scores have been assigned as follows to each species according to their estimated populations according to the Leicestershire Red Data Book of birds:

- 1 = 10,000+ pairs
- 2 = 1,001 - 10,000 pairs
- 3 = 101 - 1,000 pairs
- 4 = 11 - 100 pairs
- 5 = 1 - 10 pairs
- 6 = less than annual

A site meets the criterion for LWS selection, if the sum of its individual species scores is equal to or greater than the threshold value given for the appropriate habitat. There has to be evidence that a species is breeding for its score to be included in the sum. It should be noted that sites which support species categorised as 'rare' already meet the Red Data Book species criteria for LWS selection, but they are still listed below and marked with an asterisk.

Open waters and their margins

The threshold value for these habitats is 30 based on the following species scores:

Little Grebe	4	Pochard*	6	Common Tern*	4
Great Crested Grebe	4	Tufted Duck	4	Cuckoo	3
Black-necked Grebe*	5	Water Rail*	5	Kingfisher	3
Cormorant	4	Moorhen	2	Sand Martin*	4
Grey Heron	4	Coot	3	Yellow Wagtail	3
Mute Swan	4	Oystercatcher*	5	Grey Wagtail	5
Shelduck*	5	Little Ringed Plover*	4	Grasshopper Warbler	4
Gadwall*	5	Ringed Plover*	5	Sedge Warbler	3
Teal*	6	Lapwing	3	Reed Warbler	4
Mallard	3	Snipe*	5	Willow Tit	2
Garganey*	6	Redshank*	5	Reed Bunting	2
Shoveler*	6	Black-headed Gull*	4		

Woodland, scrub, parkland, allotments and golf courses

The threshold value for these habitats is 40 based on the following species scores:

Sparrowhawk	3	Redstart*	5	Nuthatch	3
Kestrel	3	Blackbird	1	Treecreeper	2
Hobby*	4	Song Thrush	2	Jay	2
Pheasant	2	Mistle Thrush	2	Magpie	2
Woodcock*	4	Grasshopper Warbler	4	Jackdaw	2
Stock Dove	2	Lesser Whitethroat	3	Rook	1
Woodpigeon	1	Whitethroat	2	Carrion Crow	2
Turtle Dove	4	Garden Warbler	2	Starling	1
Cuckoo	3	Blackcap	2	Tree Sparrow	3
Tawny Owl	2	Wood Warbler*	5	Chaffinch	1
Long-eared Owl*	5	Chiffchaff	2	Greenfinch	2
Nightjar*	6	Willow Warbler	1	Goldfinch	2
Green Woodpecker	3	Goldcrest	2	Linnet	2
Gt. Sp. Woodpecker	3	Spotted Flycatcher	3	Redpoll	4
L. Sp. Woodpecker	4	Long-tailed Tit	2	Common Crossbill*	6
Tree Pipit*	4	Marsh Tit	2	Bullfinch	2
Wren	1	Willow Tit	2	Hawfinch*	5
Dunnock	1	Coal Tit	2	Yellowhammer	2
Robin	1	Blue Tit	1	Reed Bunting	2
Nightingale*	5	Great Tit	1		

2 Wintering bird assemblages

Open water sites sometimes hold large numbers of a variety of species of wintering wildfowl. Sites regularly holding a total of more than 750 birds made up of the following species should be selected as LWS:

Little Grebe	Gadwall	Shoveler	Goldeneye
Great Crested Grebe	Teal	Pochard	Coot
Mute Swan	Mallard	Tufted Duck	Moorhen
Wigeon	Pintail	Goosander	

3 Amphibian assemblages

A site should be selected as a LWS if it contains a population of any one amphibian species which meets the thresholds listed below or if it contains populations of two species at half the listed threshold.

Common Frog	50 spawn clumps counted
Common Toad	100 adults counted
Smooth Newt	30 adults trapped, netted or counted at night

4 Lichen assemblages on mineral substrata

The chemistry and texture of the substrate greatly influences the species richness of its lichen flora. Therefore substrates should first be classified as calcareous or siliceous.

Calcareous substrata	Siliceous substrata
limestone concrete and mortar asbestos cement	slate granite volcanic ash and tuff sandstone brick and asphalt

A site should be selected as a LWS if it supports the number of lichen species listed below. If a site contains both calcareous and siliceous substrata, the individual rock-type totals should be used, not the combined total.

Habitat type	Siliceous substrata	Calcareous substrata
hill tops and cliff outcrops	20	25
quarries	20	25
river banks	20	20
shingle	20	20
buildings	25	40
walls	25	40
monuments	15	20
churchyards	25	40
derelict sites	15	15

5 Grassland fungi

Grassland fungi are especially vulnerable to agricultural improvement and have declined dramatically in recent years. Although many grassland sites will be identified as Local Wildlife Sites because of their vascular plant interest, steps should be taken to ensure sites important for fungi are also identified.

To assess whether a particular area of grassland meets the LWS criteria for grassland fungi, the CHEG profile developed by Rotheroe (Rotheroe et al, 1996) is used. The evaluation of grassland sites with fungal conservation value is based on the following four fungi groups: -

A site should be selected as a LWS if it has at least 8 species from the following list of rare or endangered fungus species of semi-natural grassland:

<u>Clavaroid fungi : the Fairy Clubs</u>	
<i>Clavaria zollingeri</i>	<i>Clavulinopsis umbrinella</i>
<u>Hygrocybes : the Waxcaps</u>	
<i>Hygrocybe aurantiosplendens</i>	<i>Hygrocybe lacmus</i>
<i>Hygrocybe calyptriformis</i>	<i>Hygrocybe nitrata</i>
<i>Hygrocybe citrinovirens</i>	<i>Hygrocybe ovina</i>
<i>Hygrocybe colmanniana</i>	<i>Hygrocybe punicea</i>
<i>Hygrocybe flavipes</i>	<i>Hygrocybe quieta</i>
<i>Hygrocybe fornicata</i>	<i>Hygrocybe spadicea</i>
<i>Hygrocybe helobia</i>	<i>Hygrocybe splendidissima</i>
<i>Hygrocybe ingrata</i>	<i>Hygrocybe vitellina</i>
<i>Hygrocybe irrigata</i>	<i>Porpoloma metapodium</i>
<i>Hygrocybe intermedia</i>	
<u>Entolomas : the Pinkgills</u>	
<i>Entoloma bloxamii</i>	<i>Entoloma prunuloides</i>
<i>Entoloma incanum</i>	
<u>Geoglossaceae : the Earth Tongues</u>	
All species except <i>Geoglossum fallax</i> (the most common).	<i>Microglossum olivaceum</i>

6 Dragonflies and Damselflies

- A site will meet the criteria if it supports breeding populations of 8 or more species of Odonata.
- A site will meet the criteria if it supports a breeding population of any of the following species:

<i>Coenagrion pulchellum</i>	Variable Damselfly
<i>Lestes sponsa</i>	Emerald Damselfly
<i>Platycnemis pennipes</i>	White-legged Damselfly
<i>Brachytron pratense</i>	Hairy Dragonfly
<i>Libellula quadrimaculata</i>	Four-spotted Chaser
<i>Sympetrum sanguineum</i>	Ruddy Darter

For the purposes of these guidelines exuviae, larvae, pre-flight emergents or oviposition are recognised as evidence of breeding, as outlined by British Dragonfly Society, Dragonfly Conservation Group (Taylor, 2003).

Breeding records should have been observed within 5 years of the designation.

Variable Damselfly has been selected due to its listing in the British Odonata Red Data Book (2008). The remaining species are selected because they are considered to be scarce in Leicestershire and Rutland, and favour good quality habitats.

The 'Guidelines for selection of biological SSSIs' regard 12 *Odonata* species as representing an outstanding assemblage for this region (based on 60% of the breeding species). 40% (8 species) has been agreed for a LWS designation as being a reasonable number for selecting locally outstanding assemblages.

LWS designated under this criterion should include networks of water bodies. Watercourses should be at least 0.5km long.

Community Criteria

Many wildlife sites are valuable because they give access to the public to see and enjoy wildlife. Our quality of life is enhanced by everyday contact with wildlife. Having access to wildlife sites close at hand increases our opportunities to study and learn about ecology and the natural world.

The importance of wildlife sites for people has been recognised for many years. Command 7122, Conservation of Nature in England Wales, published in 1947, stated that the purposes of nature conservation are '*...conservation, biological survey and research, experiment, education and amenity*'. Planning policy guidance published by central government (PPS9) states that '*...sites of local conservation ...are important to local communities, often affording people the only opportunity of direct contact with nature, especially in urban areas*'.

Community criteria apply not only to urban areas, but also to Country Parks, churchyards and any places in the town, countryside or urban fringe where people can experience wildlife. These criteria assess the social value derived from the enjoyment and understanding of wildlife and natural features on site. Therefore, to be selected, a site must be demonstrated to have substantive value for wildlife by at least meeting secondary criteria described in other sections.

Indicators of value to the community are assessed at three levels (High, Medium and Low). A quantitative assessment is not possible for all factors. It is important in these instances to collate documentary evidence to support the assessment.

1 Accessibility and usage

Accessibility and usage should be assessed by a single site survey looking for evidence of human activity. Use of a site varies according to time of day, season and weather. In addition, activity will increase at the weekend and during holidays. For this reason, only hard evidence in the form of physical features seen on the site should be used; observed use by people is not a reliable indicator because it will be affected by too many factors. A human use map showing the path network, access points, links to other facilities and locations of main features such as areas for informal children's play, should be documented as part of the assessment.

Criteria

The site is a public open space or freely open to the public most of the time and is either rated H for two of the following indicators or M for three of the indicators:

Indicator	Score	Notes
Proportion of site covered by paths and their level of use.	H/M/L	Informal desire lines represent evidence equivalent to formal hard-core paths. Vegetation encroachment, very narrow paths and significant areas of the site with no paths all indicate low usage.
Number of formal and informal access points.	H/M/L	
Ease of access for less able people or wheelchair users.	H/M/L	Positive features include low gradients; good bound surfaces; absence of steps, kerbs, ruts and muddy patches; kissing gates or open access points; seating places; handrails.
Evidence of use by children for informal play using natural features.	H/M/L	Positive features include signs of tree climbing; building dens; stream dams; swings.

Alternatively, over 50% of the site can be seen from adjacent land which is freely open to public access (such as a park, public open space, canal towpath, public right of way or highway). This criterion is applicable to sites such as lakes, reservoirs and sewage treatment works used by birdwatchers where physical access is not feasible.

2 Education and awareness

The use of a site for informal education and awareness-raising of the general public needs to be considered as well as its formal use by educational establishments.

Criteria

The site is rated H for one or M for two of the following indicators:

Indicator	Score	Notes
Level of use by schools and education establishments for studying wildlife and the environment.	H/M/L	H = regularly used for core curriculum; M = irregularly used for core curriculum.
Provision at the site of a ranger or warden service whose remit includes helping the public to understand and appreciate the wildlife of the site.	H/M/L	H = full-time rota of paid staff or volunteers, M = part-time service.
Facilities to help visitors understand and appreciate the site's wildlife. These facilities must be available to all sectors of the community.	H/M/L	Facilities could include a visitor centre and interpretative leaflets or panels. H = freely available on site for most of the time, M = accessible at weekends or off site.
Level of use for community development and training on an environmental theme.	H/M/L	Links with British Trust for Conservation Volunteers, Groundwork and Urban Fringe Countryside Management Project would be applicable here. H = 12+ events per year, M = 3+ events per year.

3 Sense of ownership

Sites of importance to the local community may be 'adopted' by a group of people either informally or by agreement with the owner. It is not necessary for the site to be accessible to a group for them to feel ownership of it.

Criterion

There is a group of people who have been actively and voluntarily involved in the care and management of the wildlife of the site or actively campaigning for the site for some time.

Group activities may include voluntary wardening, species recording, practical nature conservation management, habitat creation, guided walks and organising events. Groups do not need to be solely responsible for a site, but can be actively involved in a partnership with other agencies.

4 History

Sites may be of value to the community because they played an important historic role in natural history or because they are associated with a well-known naturalist. Other sites may continue to play an important role as part of a monitoring scheme.

Criteria

The site is associated with an historic event of significance to the study of wildlife and the environment. For example, the site may have been featured in an important publication, studied by a famous naturalist or was a key site in the development of ecological understanding, whether in a local or wider context.

or

There is an historical record of past management and wildlife on the site. The historical record must be extensive and systematic so that it can provide a genuine and scientific basis for site monitoring.

Selection and Notification Procedure

The purpose of the procedure is:

- to ensure that there is a consistent approach to LWS identification across Leicester, Leicestershire and Rutland and that this is compatible with others in the East Midland Region and with DEFRA's national guidelines on Local Sites;
- to ensure that all LWS identified under this system are of consistently high quality;
- to ensure that LWS and LWS selection criteria are reviewed at appropriate intervals;
- to ensure that LWS are identified by a consensus of local nature conservation experts;
- to provide a forum of advice on the interpretation of LWS selection criteria;
- to ensure that the identification of LWS is transparent and open to public scrutiny.

1 How can LWS be proposed?

A draft notification form for each proposed LWS must be submitted to the Chair of the LWS Review Panel for discussion at their next half yearly meeting. The current Chair is:

Sue Timms, Principal Ecologist
Leicestershire County Council
County Hall
Glenfield

The Panel members are local ecological experts from Natural England; Leicestershire and Rutland Wildlife Trust; Leicester, Leicestershire County Council Historic and Natural Environment Team; Leicester City Council; Rutland County Council, Oadby and Wigston Borough Council and Charnwood Borough Council. Further members may be co-opted by the Panel. A Chair is elected from the Panel.

A sample form to be used in the submission is appended. It should be clearly marked 'Draft'. Supporting information in the form of an accurate location map and survey reports must be included with the submission. A non-technical summary and site description, suitable for sending to the landowner, should also be submitted. The brief site description should include:

- a note on evidence of current or past management (such as grazing, coppicing, hedge laying, etc.)
- some management suggestions
- a note on threats to the sites (such as over-grazing, scrub, development, shading)
- a note on general condition (e.g. Good, Reasonable, Poor)
- an assessment of whether the site is likely to improve, decline or stay the same (e.g. improving, declining, unchanging)

Information submitted less than one month before a LWS Review Panel meeting cannot be considered except in special circumstances.

2 Who can propose new LWS?

Any organisation or individual can propose a LWS, but the proposal should be discussed beforehand with one of the LWS Review Panel members. These members will be able to advise on the interpretation of the LWS criteria and, if appropriate, will help with the submission of the information to the Review Panel.

Whenever possible, the LWS proposal should be discussed with the appropriate landowner, occupier or manager.

3 The LWS Review Panel meeting

The Chair of the LWS Review Panel will send copies of the proposals to the other Panel members, and to the appropriate land-owners, for discussion at each half yearly meeting. The meeting will usually take place in March and October. In some circumstances, a special meeting of the Panel could be called.

The members of the Panel in attendance at the meeting will arrive at a consensus decision about the proposed LWS. A quorum of 4 members is required. The proposal will either be accepted or rejected, or a request for additional information will be made.

Sometimes a request for verification of the supporting information, especially of Red Data Book species, may be made. It is recommended that these species records are verified beforehand by the appropriate regional or national authority.

The Panel will give a clear explanation of the reasons for any rejection, and the forms will be kept by the Chair for future reference. There is no appeals procedure, but the proposed LWS can be re-submitted if further information becomes available.

4 Additional information

The Panel will specify what information will be required, and how it should be submitted. To avoid delays, it will not always be necessary to report back to the next Panel meeting, once this information is submitted to the Chair. If the nature of the required information is fairly straightforward, the Chair will use his discretion (after consultation with other Panel members if necessary) to decide on a final acceptance or rejection. However, if the additional information needed is extensive or complex, then the proposal may need to be re-submitted at the next half yearly meeting of the Panel.

5 Formal notification

Once a new LWS is accepted, a final notification form will be completed. This, together with the necessary supporting information, will be sent within one month to the relevant planning authority, to the originating organisation or individual, and to the members of the LWS Review Panel.

6 Informing owners and managers

In addition, a standard letter will also be sent to the landowner, occupier or manager explaining the purpose and status of LWS and of the importance of the particular site within their care. This will include the non-technical site description, a location map and a summary of the reasons for the notification which should be drafted by the proposer, or by the proposer's supporter from the LWS Review Panel. A contact name for further advice will also be given.

7 Development plans

The LWS Review Panel will request that planning policies give adequate protection to LWS and encourage the taking of opportunities for their enhancement through development schemes. The Panel will monitor the effectiveness of the LWS system in influencing Development Plans.

8 Review

Existing LWS will be subject to periodic reviews. At notification, a suitable date for review will be recommended; this will not be the same for all sites. For example, marginal or vulnerable sites may need to be reviewed after 3 to 5 years, whereas well-established sites or robust habitats like woodlands may not need review until after 10 to 15 years.

The review target date is a guideline only. A site will continue to be regarded as a LWS even if the recommended review date has passed.

A review of an existing LWS follows the same procedure as for a new proposal. The supporting information should summarise any substantive changes since the original notification.

If a site is known to have suffered a serious loss of interest which is not recoverable through time, restoration, re-creation or beneficial management (such as permanent loss to building development), then it could be reviewed before its recommended review is due; but in most cases, this should not happen until the agreed review date is reached.

9 De-notification

Sites that, on review, no longer meet the selection criteria will be de-notified. The procedure is similar to that for notification. A consensus of the Panel should be reached, the reasons for de-notification must be clearly stated, and the original proposer, the landowner, occupier or manager and the local planning authority will be informed within one month of the decision.

10 Public availability

LWS notification forms and supporting information will be made available to the public on request at the offices of the Panel members. The notes of the meetings of the LWS Review Panel will also be available for public scrutiny at Leicestershire County Council. Some items of sensitive information (such as locations of rare and protected species, addresses of owners etc.) may not be publicly available.

11 Review of criteria

The Panel will review the criteria every five years. The next review is due to start in 2016.

Summary: Procedure for Identifying LWS

- 1 Discuss proposed LWS informally with a member(s) of the LWS Review Panel; enlist help if necessary.
- 2 Complete Draft Notification Form, non-technical summary and site description and collate supporting information; check that critical species have been verified; inform landowner, occupier or manager where possible.
- 3 Check date of next Panel meeting; submit form and information to the Chair at least one month before that date.
- 4 The proposal is accepted - go to step 7.
OR
The proposal is rejected.
OR
Additional information is needed - go to next step.
- 5 Collect additional information with the assistance of Panel members, if appropriate, and send to Chair.
- 6 Proposal is accepted either at a further Panel meeting or at the discretion of the Chair - go to next step.
OR
The proposal is rejected.
- 7 The LWS Review Panel informs the relevant planning authority of the LWS notification.
- 8 The LWS Review Panel informs the landowner, occupier or manager.
- 9 The LWS notification form and supporting information is made available for public scrutiny with safeguards for protecting the confidentiality of sensitive information.
- 10 The LWS is reviewed by the Panel.

Summary: Roles and Responsibilities of the LWS Review Panel

- 1 Comprises ecological experts from Natural England, Leicestershire and Rutland Wildlife Trust, Leicestershire County Council Historic and Natural Environment Team, Leicester City Council, Rutland County Council, Oadby and Wigston Borough Council and Charnwood Borough Council.
- 2 Meets once or twice a year in March and/or October.
- 3 Advises other organisations and individuals who want to propose LWS, especially on the interpretation of the criteria, in order to establish that the required information is available for a proper decision.
- 4 Achieves a consensus decision on proposed LWS.
- 5 Requests additional information if necessary.
- 6 Prepares the notification documents - a standard form, a map and supporting information - and notifies the relevant planning authority.
- 7 Prepares non-technical advice on the purpose and status of LWS to inform landowners, occupiers and managers.
- 8 Prepares non-technical summaries and site descriptions for landowners, occupiers and managers.
- 9 Explains the reasons for rejection of proposals.
- 10 Reviews existing LWS.
- 11 De-notifies LWS that fail on review, and informs the planning authority, landowner, occupier or manager and the originator of the LWS proposal of the decision.
- 12 Reviews the LWS criteria.
- 13 Requests that LWS are shown on Development Plans and monitors the effectiveness of this.
- 14 The responsibilities of the Chair are to arrange annual meetings, minute taking and the distribution of the papers, to encourage consensus, and to use discretion to decide if any requested additional information is acceptable.

Leicester, Leicestershire and Rutland

Site name:			DRAFT/FINAL Local authority:	
Notification of Local Wildlife Site (previously SINC)			Ref no.:	
Grid ref.	Date of original notification:	Date of present notification:	Form completed by:	
Areas of consideration used in notification <i>(sites only need to meet the criteria within one area of consideration, but tick all those met)</i>			Site area: (hectares)	Landowner consulted?
1	Habitat quality		Main habitats:	
2	Habitat diversity			
3	Presence of Red Data Book species			
4	Significant assemblages of species			
5	Use by communities			
Rationale for notification <i>(List reasons for ticking each of the above)</i>				
Site description and notes				
• evidence of current/past management, management suggestions, threats • general condition: Good, Reasonable, Poor, Improving/Declining/Unchanging				
Recommended review period				
Additional information				
☐ Continuation sheet? Form amended by ST, 2009				

Continuation sheet ()

<i>Site name</i>	<i>Ref. No</i>
<i>Rationale continued:</i>	

References:

Ballard, D and Fletcher, A. (1997) *Leicestershire and Rutland Red Data Book: Bryophytes* LMARS/LRWT

Biodiversity Challenge: An Action Plan for Leicester, Leicestershire and Rutland (1998)
LRWT www.lrwt.org.uk

Dawson, J. & Heaton, A. (1997) *Leicestershire Red Data Book: Mammals, Reptiles, Amphibians & Fish* LMARS

Everett, I. & Robinson, D.P. (1990) *Leicestershire Inventory of Ancient Woodland*. NCC

The Hedgerow Regulations (1997) Department of the Environment

Jeeves, M.B. (2007) *Leicestershire and Rutland Rare Plant Register*. LRWT

Jeeves, M.B. (1996a) *Leicestershire Red Data Book: Birds*. LRTNC

Leicestershire and Rutland Ornithological Society www.lros.org.uk

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Lott, D. (1995) *Leicestershire Red Data Book: Beetles*. LMARS

Lott, D. (1997) *An Inventory of Key Species in Leicestershire and Rutland*. LMARS

McPhail, J. & Morris, R. (1997) *Leicestershire Red Data Book: Butterflies and Moths*. LMARS

Planning Policy Statement 9: Biodiversity and Geological Conservation (2005) ODPM

Putting Wildlife Back on the Map - A Biodiversity Strategy for the East Midlands (2006) East Midlands Biodiversity Forum

Regional Spatial Strategy for the East Midlands (RSS8) (2005) ODPM

Rotheroe, M., Newton, A., Evans, S. & Feehan, J. 1996. Waxcap-grassland survey. *Mycologist*, **10** (1): 23-25.

Taylor, 2003. British Dragonfly Society, Dragonfly Conservation Group

UK Biodiversity Action Plan www.ukbap.org.uk

APPENDIX 3

eDNA Test Results

Folio No: E7396
Report No: 1
Purchase Order: JS/8936
Client: ECOLOGY SOLUTIONS LTD
Contact: Josef Saunders

TECHNICAL REPORT

ANALYSIS OF ENVIRONMENTAL DNA IN POND WATER FOR THE DETECTION OF GREAT CRESTED NEWTS (TRITURUS CRISTATUS)

SUMMARY

When great crested newts (GCN), *Triturus cristatus*, inhabit a pond, they continuously release small amounts of their DNA into the environment. By collecting and analysing water samples, we can detect these small traces of environmental DNA (eDNA) to confirm GCN habitation or establish GCN absence.

RESULTS

Date sample received at Laboratory: 16/05/2020
Date Reported: 21/05/2020
Matters Affecting Results: None

Lab Sample No.	Site Name	O/S Reference	SIC	DC	IC	Result	Positive Replicates
2362	p1, Coppice, Burbage	-	Pass	Pass	Pass	Negative	0

If you have any questions regarding results, please contact us: ForensicEcology@surescreen.com

Reported by: Chris Troth

Approved by: Chris Troth



METHODOLOGY

The samples detailed above have been analysed for the presence of GCN eDNA following the protocol stated in DEFRA WC1067 'Analytical and methodological development for improved surveillance of the Great Crested Newt, Appendix 5.' (Biggs et al. 2014). Each of the 6 sub-sample tubes are first centrifuged and pooled together into a single sample which then undergoes DNA extraction. The extracted sample is then analysed using real time PCR (qPCR), which uses species-specific molecular markers to amplify GCN DNA within a sample. These markers are unique to GCN DNA, meaning that there should be no detection of closely related species.

If GCN DNA is present, the DNA is amplified up to a detectable level, resulting in positive species detection. If GCN DNA is not present then amplification does not occur, and a negative result is recorded.

Analysis of eDNA requires scrupulous attention to detail to prevent risk of contamination. True positive controls, negative controls and spiked synthetic DNA are included in every analysis and these have to be correct before any result is declared and reported. Stages of the DNA analysis are also conducted in different buildings at our premises for added security.

SureScreen Scientifics Ltd is ISO9001 accredited and participate in Natural England's proficiency testing scheme for GCN eDNA testing. We also carry out regular inter-laboratory checks on accuracy of results as part of our quality control procedures.

INTERPRETATION OF RESULTS

- SIC:** **Sample Integrity Check** [Pass/Fail]
When samples are received in the laboratory, they are inspected for any tube leakage, suitability of sample (not too much mud or weed etc.) and absence of any factors that could potentially lead to inconclusive results.
- DC:** **Degradation Check** [Pass/Fail]
Analysis of the spiked DNA marker to see if there has been degradation of the kit or sample between the date it was made to the date of analysis. Degradation of the spiked DNA marker may lead indicate a risk of false negative results.
- IC:** **Inhibition Check** [Pass/Fail]
The presence of inhibitors within a sample are assessed using a DNA marker. If inhibition is detected, samples are purified and re-analysed. Inhibitors cannot always be removed, if the inhibition check fails, the sample should be re-collected.
- Result:** **Presence of GCN eDNA** [Positive/Negative/Inconclusive]
Positive: GCN DNA was identified within the sample, indicative of GCN presence within the sampling location at the time the sample was taken or within the recent past at the sampling location.
Positive Replicates: Number of positive qPCR replicates out of a series of 12. If one or more of these are found to be positive the pond is declared positive for GCN presence. It may be assumed that small fractions of positive analyses suggest low level presence, but this cannot currently be used for population studies. In accordance with Natural England protocol, even a score of 1/12 is declared positive. 0/12 indicates negative GCN presence.
Negative: GCN eDNA was not detected or is below the threshold detection level and the test result should be considered as evidence of GCN absence, however, does not exclude the potential for GCN presence below the limit of detection.



APPENDIX 4

Biodiversity Net Gain Assessment

Ecology Solutions Limited
Cokenach Estate
Barkway
Royston
Hertfordshire
SG8 8DL

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east@ecologysolutions.co.uk
www.ecologysolutions.co.uk



8936: THE COPPICE, BURBAGE, LEICESTERSHIRE

BIODIVERSITY NET GAIN ASSESSMENT USING BIODIVERSITY METRIC 2.0

Introduction

1. This note has been produced in relation to the provision of measurable biodiversity net gain for the proposed development site at The Coppice, Burbage, Leicestershire.
2. This note should be read in conjunction with the Ecological Assessment produced by Ecology Solutions (8936.EcoAs.vf2), and the Ecological Mitigation and Enhancement Plan produced by Ecology Solutions (8936.EMEP.vf5). The appraisal details results of habitat surveys which are referenced within this note.
3. In order to demonstrate that the development will deliver net gains in biodiversity, an assessment has been made against the current landscape proposals (see Appendix 1).
4. In order to demonstrate measurable net gains (as required within the National Planning Policy Framework), an assessment was made using the Biodiversity Metric 2.0, which is still in its beta phase.

Biodiversity Metric 2.0

5. The Biodiversity Metric 2.0 uses habitat features as a proxy measure for capturing the value and importance of nature. It uses calculations to assess the importance of each habitat based on its size, ecological condition, location and its connectivity.
6. Measurements for habitats pre-development were calculated using Google Earth Pro. Information regarding the habitats present as well as their condition was based on survey information obtained by Ecology Solutions during habitat surveys undertaken in May 2020. The Biodiversity Technical Supplement, as well as professional judgement, was used to inform the habitats condition criteria, as well as its connectivity score.

Site Baseline

7. The site baseline has been established using survey data obtained in May 2020. Detailed descriptions of each habitat including the species present can be found within the Ecological Assessment, dated June 2020. The habitats recorded

present on site have been classified using the UK habitat classification system for the purpose of the metric.

8. A summary of the habitats present on site along with the habitat units assigned to each habitat through the metric is summarised in Table 1 below.

Habitat Type	Area (ha)	Total Habitat Units
Grassland – Other Neutral Grassland	1.11	6.92
Lakes – Pond (Non-priority)	0.02	0.15
Woodland and forest – Wet Woodland	0.33	4.79
Heathland and Scrub – Bramble Scrub	0.1	0.40

Table 1. Summary of Baseline Habitat Information.

9. Table 2 summarises the linear features (in this case hedgerows) along with hedgerow units assigned to each hedgerow through the metric.

Hedgerow Type	Length (km)	Total Hedgerow units
Native Hedgerow with trees	0.08	0.32
Native Hedgerow with trees	0.9	3.6
Line of Trees	0.1	0.8
Hedge Ornamental Non-Native	0.02	0

Table 2. Summary of Hedgerow Baseline.

Post-Development

10. The post-development habitats have been based on the current landscape proposals (see Appendix 1)
11. The total site area is approximately 1.5ha. The site will support approximately 0.7ha of hardstanding, buildings and vegetated gardens post-development. Grass verges that are present between the residential properties will be formed by retained areas of grassland currently present on site. Therefore only a small amount of habitat is lost to the development with large areas of habitat being retained and enhanced.
12. In order to achieve a net gain of over 10% for linear features, existing native hedgerows and the treeline will be subject to enhancement measures.
13. The tables below summarise the habitats created and enhanced as part of the development of the site.

Habitat Type	Area (ha)	Total habitat Units
Urban – Developed land	0.43	0
Urban – Vegetated Gardens	0.23	0.44
Heathland and Shrub – mixed scrub	0.03	0.22
Urban – Street Tree (medium size)	0.01	0.02
Urban- Introduced Shrub	0.02	0.04
Lakes – Ponds (non-priority)	0.01	0.17

Table 3. Summary of Created Habitats

Baseline Habitat Type	Enhanced Habitat Type	Baseline condition	Area to be enhanced (ha)	Total Habitat Units
Woodland and Forest – Wet Woodland	Woodland and Forest – Wet Woodland	Moderate	0.33	5.73
Lakes – Pond (non-priority)	Lakes – Pond (non-priority)	Poor	0.02	0.39
Grassland – Other Neutral Grassland	Grassland – Lowland Meadows	Moderate	0.17	2.42
Grassland – Other Neutral Grassland	Grassland – Lowland Meadows	Poor	0.17	1.98
Heathland and Scrub – Bramble Scrub	Woodland and Forest – Wet Woodland	Poor	0.09	0.76
Grassland – Other Neutral Grassland	Grassland – Other Neutral Grassland	Poor	0.02	0.14

Table 4. Enhanced Habitats

Baseline Habitat Type	Enhanced Habitat Type	Length (km)	Pre-Development Condition	Post-Development Condition	Total Habitat Units
Native Hedgerow with trees	Native Species Rich Hedgerow with trees	0.08	Moderate	Good	0.53
Native Hedgerow with trees	Native Species Rich Hedgerow with trees	0.9	Moderate	Good	0.6.98
Line of Trees	Native Species Rich Hedgerow with Trees	0.1	Moderate	Good	0.89

Table 5. Enhanced Linear Features

Summary

14. Overall gains have been achieved in both habitat units and hedgerow units. Table 7 summarises the overall gain of the site

Onsite Baseline	Habitat Units	12.26
	Hedgerow Units	4.72
Onsite Post-intervention	Habitat units	12.62
	Hedgerow Units	8.40
Total net change (%)	Habitat Units	2.94
	Hedgerow units	77.98

Table 7. Summary of Gains

15. The level of gains demonstrates that to the development will achieve an overall net gain in biodiversity.

Appendices:

Appendix 1 – Landscape Masterplan

APPENDICES

APPENDIX 1

Landscape Masterplan

Key

- Existing buildings
- Existing tree cover to be retained
- Existing vegetation cover to be retained
- Existing public rights of way
- Existing tree cover to be removed
- Proposed dwellings
- Proposed specimen tree planting
- Proposed hedgerow planting to plot frontages
- Proposed amenity planting to dwellings
- Proposed access footpath on pavement
- Proposed mown footpath on grass
- Proposed timber bench and interpretation board
- Proposed timber bridge
- Proposed 450mm high timber bollards
- Proposed maintenance access gate
- Proposed hedgerow maintenance access strip
- Existing hedgerow to be retained and reinforced with native in-fill planting mix
- Areas to be retained and maintained as species rich grassland in accordance with the Ecological Assessment. Over seeding will be carried out using an appropriate species mix

PLANTING PROPOSALS

Specimen Tree Planting

Alnus glutinosa	EHStd	425/650	14/16-18/20
Acer campestre	EHStd	425/650	14/16-18/20
Betula pendula	EHStd	425/650	14/16-18/20
Prunus avium	EHStd	425/650	14/16-18/20
Quercus robur	EHStd	425/650	14/16-18/20
Sorbus aucuparia	EHStd	425/650	14/16-18/20

Specimen trees are to be planted within the areas of central open space relating to the new properties and their frontages. Smaller species will be planted in closer proximity to the new houses and larger trees within the open space to allow for future growth.

Structural Tree Planting

Trees planted in mixed groups of 3 to 5			
Acer campestre	Std-HStd	250/425	12/14-14/16
Betula pendula	Std-HStd	250/425	12/14-14/16
Prunus avium	Std-HStd	250/425	12/14-14/16
Quercus robur	Std-HStd	250/425	12/14-14/16
Sorbus aucuparia	Std-HStd	250/425	12/14-14/16

Transplanted stock mix planted at 1m centres

Acer campestre	Stock	Height (cm)	Mix (%)
Betula pendula	T 1+1	60/90	15
Corylus avellana	T 1+1	60/90	10
Crataegus monogyna	T 1+1	60/90	25
Ilex aquifolium	2L	40/60	5
Malus sylvestris	T 1+1	60/90	5
Prunus avium	T 1+1	60/90	5
Prunus spinosa	T 1+1	60/90	10
Sorbus aucuparia	T 1+1	60/90	10
Viburnum opulus	T 1+1	60/90	5

Structural tree and shrub planting will be used within the wider green space to the south and east of the new dwellings to provide reinforcement to the existing framework of vegetation cover and succession to the existing tree stock.

Hedge Planting to Houses

Fagus sylvatica	Stock	Height (cm)	Ctrs (m)
Ligustrum ovalifolium	Fhd	150/175	0.30
	1DL	80/100	0.40

These hedgerows will secure a landscaped boundary to the new green space network, highlighting the transition from public to private space.

Hedgerow In-Fill Mix

Corylus avellana	Stock	Height (cm)	Mix (%)
Crataegus monogyna	1+1	60/80	10
Ilex aquifolium	2L	60/80	40
Prunus spinosa	1+1	60/80	15
Rosa canina	1+1	60/80	25

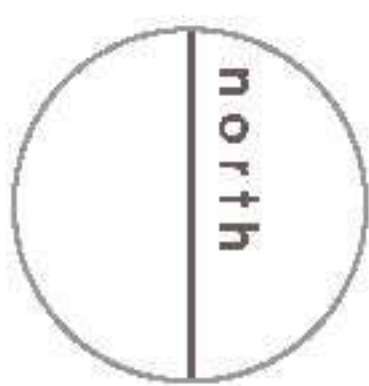
The hedgerow in-fill mix will be used alongside new tree planting measures to reinforce and rejuvenate the retained hedgerow at the southern boundary of the site.



Project
Land Rear of 5 to 10
The Coppice, Burbage
Drawing title
Landscape Masterplan

Client
Springbourne Homes

Scale
1:500 @ A1
Checked
SG
Date
18/04/2021
Number/Figure
GL1494 09





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APPENDIX 5

Ecological Mitigation and Enhancement Plan



ECOLOGY SOLUTIONS

Part of the E.S. Group

THE COPPICE,
BURBAGE, LEICESTERSHIRE

Ecological Mitigation and Enhancement Plan

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PLANS

PLAN ECO1	Site Location
PLAN ECO2	Ecological Mitigation and Enhancement Plan

APPENDICES

APPENDIX 1	Bat Box and Bat Tube Specifications
APPENDIX 2	Hedgehog Gateway Specification
APPENDIX 3	Hedgehog House Specifications
APPENDIX 4	Bird Box Specifications
APPENDIX 5	Reptile Hibernacula Specification
APPENDIX 6	Invertebrate Nesting Aid Specifications

1. INTRODUCTION

- 1.1. Ecology Solutions was commissioned by Springbourne Homes in March 2020 to prepare an Ecological Mitigation and Enhancement Plan (EMEP) to support a planning application for a small-scale residential development at The Coppice, Burbage (see Plan ECO1).
- 1.2. The site lies to the south-east of the town of Hinckley and falls within a designated green wedge. The proposals for the site comprise nine residential units with access and landscaping. The land adjacent to the site, and under the control and ownership of the applicant, shall be promoted for ecology and biodiversity.
- 1.3. An Ecological Assessment has been undertaken by Ecology Solutions; the results of this assessment have been used to inform this EMEP.
- 1.4. The Ecological Assessment and supporting EMEP have been drafted in support of the sustainable small-scale (eight unit) development.
- 1.5. This report sets out the management of features of ecological interest to be retained and created and describes the wildlife enhancements to be implemented as part of the small-scale development proposals.
- 1.6. This EMEP has been written with reference to published guidance from the Chartered Institute of Ecology and Environmental Management (CIEEM)¹ and with regard to Natural England and other relevant guidelines for protected species.

¹ CIEEM (2018). *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine*. Version 1.1 – Updated September 2019. Chartered Institute of Ecology and Environmental Management, Winchester.

2. VISION AND CONSERVATION OBJECTIVES

2.1 This section sets out the vision and conservation objectives for the site strategy.

The vision for the strategy is to provide a framework for mitigation and enhancement across the site such that demonstrable net gains for biodiversity are achieved.

2.2 Defining the Conservation Objectives

2.2.1 Defining a set of objectives for biodiversity at the site is central to the effectiveness of this strategy, given that it is intended to provide a framework that will safeguard existing nature conservation interest and provide guidance on enhancement and future management.

2.2.2 Specific objectives for the conservation of particular species or groups and particular habitats of nature conservation interest are set out in the relevant sections to follow. The nature of these objectives has been guided by the principles set out in UK and European wildlife legislation, notably the Wildlife & Countryside Act 1981 (as amended) and the Conservation of Habitat and Species Regulations 2017. Furthermore, the formulation of these objectives has also been influenced by national and local biodiversity and conservation targets, as set out in the UK Post-2010 Biodiversity Framework and the Leicester, Leicestershire and Rutland Biodiversity Action Plan (BAP).

2.2.3 The overarching objectives for nature conservation are as follows:

Objective 1

To safeguard species important in the national and local context, and to maintain or enhance their conservation status as appropriate.

Objective 2

To ensure that the site continues to support a similar complement of species to that already existing.

Objective 3

To enhance the biodiversity of the site, where this is compatible with the above objectives.

2.3 Achieving the Objectives

2.3.1 Information on the existing situation at the site and its environs with regard to any habitats of ecological interest and the presence of protected species has been collated as part of the preparation of this document and it is upon this foundation that the specific enhancements and management prescriptions to follow are based.

2.3.2 These initiatives fall into two broad categories:

- Conservation and enhancement measures for a particular area of nature conservation interest and general measures for the creation and management of proposed habitats; and
- Species-specific or group-specific measures designed to conserve particular species of interest (such as bats and birds) and enhance the site for these.

2.3.3 Where appropriate, specific objectives are defined in the sections to follow.

3. HABITATS

3.1 Baseline Conditions

- 3.1.1 The site is formed by principally a single field that was subject to a previous horse grazing regime; the field does not appear to receive any formal management currently although Rabbit *Oryctolagus cuniculus* grazing is noted in areas which is restricting the growth of the sward. The site supports MG1 and MG9 grassland communities both of which are common and widespread across the UK. Relatively species-poor hedgerows, scrub and tree line bound the site. A small woodland with wet conditions in parts, hedgerows, scrub and pond are present within land under the control of the applicant.

3.2 Conservation Objectives

To avoid adverse effects on retained habitats and newly establishing habitats through direct encroachment, and to establish high quality new habitats using appropriate native species mixes.

3.3 Construction Phase Mitigation

Fencing of Retained Habitats

- 3.3.1 Appropriate Heras or similar fencing and signage will be installed around retained habitats for the duration of construction. Tree Root Protection Areas (RPAs) will be safeguarded through fencing complying with the British Standard 5837 2012. Site personnel will be briefed as to the presence of these retained areas. No storage of materials will be permitted within 10m of retained habitats, and vehicle movements within these areas will be for essential works only.

3.4 Retention & Enhancements

- 3.4.1 New planting undertaken as part of the infrastructure of the site will include native species with an emphasis on trees and plants of known value to wildlife. The south-western boundary shall be bolstered with native shrub species to complement the existing Lime trees.
- 3.4.2 The off-site pond is currently in a poor condition holding limited water due to the existing profile with significant accumulations of leaf litter and silt. As part of the proposals the pond shall be subject to sensitive and positive management to enhance its nature conservation interest. Elements of the existing and surrounding trees will be subject to carefully considered management to allow for increase light levels to reach the pond facilitating the opportunities for aquatic, marginal and emergent plants which the pond current lacks. Furthermore, the profile of the pond will be modified to offer greater water depths with a clearance of the existing high levels of leaf litter and siltation. To expedite the established of new species a diverse range of native marginal, emergent and aquatic species will be introduced to diversify the habitat.
- 3.4.3 The existing grassland comprises common and widespread species but certain areas within the context of the site are noted of being of higher floristic diversity and interest.

- 3.4.4 A number of rarer (and LWS indicator) species are present on site, however, these species have been planted on site to deliberately and purposely artificially elevate the site's botanical interest and have therefore been removed from the assessment. The amended scheme for the site will allow for a significant area (c0.3ha) of the existing grassland habitat to be both protected and retained. Moreover, through appropriate management it is envisioned that a greater sward diversity can be established and maintained for the long-term. Where areas of grassland of identified greater interest with the context of the site are to be lost to the proposals a review of potentially retaining of the sward diversity and seed banks on site through a grassland translocation exercise shall be considered.
- 3.4.5 The management prescriptions may include the scarification of the existing grassland with locally sourced native wildflower seed, together with the employment of a management regime whereby the herbaceous element of the grassland would be encouraged to flourish and the more aggressive and dominated coarse grasses checked and reduced in their vigour.
- 3.4.6 Existing areas of garden waste within the site and wider area would be addressed and removed preventing undesirable species escaping into the wild at the detriment to ecology and nature conservation.
- 3.4.7 A new wildlife pond will be created within the area that previously supported marshy grassland. This pond will be created to enhance the habitat mosaic on site, and will be profiled in such a way as to encourage the development of a marshy grassland habitat around the edges of the pond.

3.5 Targeting Local Conservation Priorities

- 3.5.1 The Leicestershire and Rutland Environmental Records Centre (LRERC) have produced a number of habitat action plans relevant to the site and adjacent land in their Space for Wildlife² document, and this strategy is in accordance with the aims of these plans.
- 3.5.2 The LRERC have produced habitat action plans in relation to broad-leaved woodland and wet woodland. The action plans detail the objectives and includes preventing further loss of woodland, restoring existing woodland and planting new woodland.
- 3.5.3 Similarly, a habitat action plan for mature trees has been produced. The objectives of which are to promote tree pollarding as a management option for mature trees, encourage public appreciation of mature trees, and compile and maintain a register of mature trees.
- 3.5.4 Additionally, a habitat action plan for hedgerows has been produced. The objectives of the action plan are to promote planting of new hedgerows, promote sympathetic management of existing ancient and species-rich hedgerows and prevent further loss of ancient and species-rich hedgerows.
- 3.5.5 Furthermore, the LRERC have produced an action plan for neutral / mesotrophic grassland. The objectives of the action plan are to prevent

² LRERC (2016) *Space for Wildlife – Leicester, Leicestershire and Rutland Biodiversity Action Plan 2016 -2026*.
Leicestershire and Rutland Environmental Records Centre

further loss of existing neutral grassland, encourage positive management of neutral grassland and create new neutral grassland habitat.

3.6 Meeting the Objectives of the Strategy

- 3.6.1 The measures contained in this section safeguard habitats of interest within the site, to the extent that these are present, and ensure that the existing interest will be maintained and enhanced in line with local priorities.
- 3.6.2 The existing trees, particularly the mature specimens, within the site and adjacent area would be protected and retained under the proposals. It is noted that a number of the mature trees in the vicinity of the pond contained areas of dead-wood. The dead-wood provides an important habitat and would be retained under the proposal wherever possible and in keeping with health and safety requirements.
- 3.6.3 The additional areas of land under the applicant's control but outside of the application boundary can be subject a number of positive habitat enhancements, habitat creation and management measures to improve the overall nature conservation value of the area. These include the restoration of the existing pond to significantly increase its value, management to the scrub that is establishing to the east allowing a habitat mosaic of higher ecological value to be established, creating margins of species-rich wildflower grassland, and establishing an additional pond within the former marshy grassland woodland glade with shallow margins to allow for marshy grassland communities to develop.
- 3.6.4 Overall, there will be a net gain for biodiversity through the retention and restoration of high-quality habitats of ecological interest, with a greater diversity than is currently present. The test of the scheme achieving biodiversity gains has been assessed through Natural England's Biodiversity Metric 2.0 with a net gain (+2%) position achieved.
- 3.6.5 The sensitive development with the retention of areas of grassland within the scheme and nature conservation benefits to be secured across the wider area will ensure the functionality of the site for wildlife is not compromised, moreover, significant gains shall be delivered.
- 3.6.6 The retention and enhanced area in the wider area is likely to provide an opportunity for community participation in nature conservation education and management.

4. BADGERS

4.1 Baseline Conditions

- 4.1.1 A check survey of the site and adjacent areas by Ecology Solutions in March and May 2020 found there to be no active Badger *Meles meles* setts present.
- 4.1.2 It is considered that the previously identified potential Badger sett in the centre of the site is solely attributed to Rabbit *Oryctolagus cuniculus* with the ground conditions allowing for favourable excavation, and over time has allowed entrances to collapse and be widened.
- 4.1.3 During the check survey in March 2020 a Badger footprint was recorded in the wider area (outside of the site), together with areas of foraging / snuffle holes, and hence it is clear there is a local social group within the local vicinity.
- 4.1.4 The site and adjacent land offers suitable foraging and dispersal opportunities for Badgers, together with opportunities for sett building.

4.2 Conservation Objectives

To avoid potential impacts during construction, and maintain suitable foraging and dispersal habitat for Badgers within the site.

4.3 Construction Phase Mitigation

- 4.3.1 All retained habitats will be fenced using Heras fencing or similar. This will avoid the possibility of direct encroachment on principal Badger habitats. Signs positioned on the fencing will inform any contractors of the sensitivities and prevent their movement or potential encroachment.
- 4.3.2 Badgers are an especially mobile species that often extend existing setts and excavate new ones in areas of suitable habitat. New setts may be excavated within construction area during the period between the survey work undertaken and the commencement of site clearance and construction works. Were construction to proceed directly, involving the use of heavy machinery, newly excavated setts or entrances may be adversely affected, leading to collapse of entrances and tunnels and possible Badger injury or mortality.
- 4.3.3 In addition, the potential exists for Badgers to roam into areas where construction is underway and become trapped in trenches, excavate new setts in piles of subsoil or disturb chemicals that may be being used for development.
- 4.3.4 Checks will be undertaken by an ecologist prior to the commencement of any works within the site to ensure no new setts have been established.
- 4.3.5 In the event that a sett is recorded the project ecologist would take a view as to whether a Natural England licence will be required to close it. This licence would be obtained from Natural England and appropriate mitigation measures implemented according to the particular requirements of the situation. There is no evidence to suggest that such a licence will be required at the time of writing.

4.3.6 The following measures will be followed throughout the construction phase of development.

- All site personnel will be made aware of the presence of this species and the appropriate steps required to ensure the safety of the Badgers while on site;
- Inclines and mounds of loose soil present ideal habitats for Badgers seeking to establish new setts; therefore, during the construction process, all dug ground and loose soil will be levelled and compacted wherever possible. This will prevent Badgers from attempting to excavate setts prior to completion of the works and causing potential disruption;
- Any mounds of material will be regularly checked for signs of Badgers, especially before disturbance or movement;
- Planks will be left in any uncovered trenches to provide any Badger that may stray onto the site with an escape route;
- Any open trenches will be checked at the beginning of each day, to ensure that Badgers are not present, and at the end of each day, to ensure that the means of escape remain in place;
- Tools and loose materials will be stored in an appropriate container in order to reduce the risk of Badgers coming onto site and injuring themselves;
- No fires or chemicals should be left unsupervised anywhere on the site;
- Any open pipework greater than 150mm outside diameter will be blanked off at the end of each working day to prevent Badgers from entering the pipework;
- Driven piling work will be undertaken only following consultation with the project ecologist.

4.3.7 In the event that any suspected Badger activity is observed during construction, work in the area will cease and the project ecologist will be contacted for advice.

4.4 Retention & Enhancements

4.4.1 The development will offer limited opportunities for Badgers. The land adjacent to the site will be retained and enhanced offering continued foraging, dispersal and sett building opportunities for Badgers post-development. The planting of a number of fruit bearing trees and shrubs as part of the proposals will offer additional foraging opportunities.

4.4.2 It is also considered that through the provision of a habitat mosaic within the wider area under the applicant's control would offer enhanced foraging and dispersal opportunities for the local Badger group.

4.5 **Outcomes**

- 4.5.1 Overall, these measures will ensure no adverse effect on any Badgers in the locality during the construction and operational phases.

5. BATS

5.1 Baseline Conditions

- 5.1.1 A single Ash tree with woodpecker holes is considered to offer suitable roosting opportunities. This tree is associated with the pond area and shall be fully retained as part of the development proposal.
- 5.1.2 The site and adjacent land offer suitable foraging and commuting opportunities for bats, with grassland, hedgerows and woodland habitats. The site is connected to the wider landscape via a network of treelines and hedgerows that connect to parcels of woodland (including ancient woodland), which are likely to be of high interest to the local bat populations.

5.2 Conservation Objectives

To avoid disruption to bat foraging during the construction and operational phases of the development, and provide new opportunities for bats in terms of potential roost sites and enhanced foraging resources, with particular focus on local conservation priorities.

5.3 Construction Phase Mitigation

- 5.3.1 During the construction period no lighting will be present at night on identified features of interest to bat roosting or foraging.

5.4 Retention & Enhancements

New Habitat Planting

- 5.4.1 The adjacent land will be retained and enhanced as part of the proposals. New planting throughout the development shall comprise planting based around native species and species of known wildlife value, which will ensure the continued provision of bat foraging and commuting resources after the completion of the development.
- 5.4.2 The enhancements proposed for the adjacent pond and potential establishment of a new pond will offer enhanced foraging resources for bats once established.
- 5.4.3 The adjacent land and retained boundary features shall not be subject to an increase in artificial lighting above 1 Lux to avoid effects on foraging and dispersing bats. Within built development, use of low intensity lighting such as bollards, columns and downlighters will be adopted to avoid light spill and pollution to adjacent areas.

Bat Boxes

- 5.4.4 The inclusion of a variety of bat boxes (see Appendix 1) around the site and wider area, particularly along the woodland edges will provide new potential roosting sites for bats within the local area. Boxes will be located in sheltered spots and placed at a height of at least three metres from the ground. Boxes will also be arranged around the site so that a number of different aspects are covered.

- 5.4.5 Indicative locations of bat boxes are provided on Plan ECO2; in practice the locations of the boxes will be determined on the ground by the project ecologist, who will ensure that the orientation and position of the boxes is appropriate, and that suitable trees are chosen with available flight lines.

Bat Tubes

- 5.4.6 Consideration shall be given to the potential inclusion of bat tubes in the fabric of the some of the new builds. The bat tubes are discrete self-contained units that provide an enclosed void suitable for a number of roosting bats.

5.5 Targeting Local Conservation Priorities

- 5.5.1 The Leicester, Leicestershire and Rutland Biodiversity Action Plan has produced a joint action plan for the 12 UK species that have been recorded within the counties.
- 5.5.2 The objectives and targets set out in the bat action plan include maintaining the known distribution of all bat species and monitoring known roosts using National Bat Monitoring Programme protocols.
- 5.5.3 The enhancement measures set out above will provide greater opportunities for locally present bat species, particularly in terms of local roosting opportunities.

5.6 Outcomes

- 5.6.1 Overall, the proposals for the site will deliver a net gain for bat species in the locality, both in terms of the number of available roosting opportunities, and the extent and variety of new foraging resources.

6. HEDGEHOGS

6.1 Baseline Conditions

- 6.1.1 The site and adjacent land contain suitable habitats for Hedgehog *Erinaceus europaeus* foraging, dispersal and hibernation, including rough grassland, woodland and hedgerows.

6.2 Conservation Objectives

To avoid potential impacts during construction and establish and enhance suitable habitat for Hedgehogs within the site.

6.3 Construction Phase Mitigation

- 6.3.1 Negligible ground cover will be cleared to accommodate the development proposals. Where there is a need to clear some limited suitable areas associated with the access point this will be completed outside of the winter hibernation period wherever possible. Where this is not possible, a check for hibernation nests will be completed by the project ecologist prior to clearance.
- 6.3.2 Scrub and amenity hedge removal will be carried out in a sensitive manner, using hand tools to clear the base of trees to be removed prior to any large machinery pulling out roots.
- 6.3.3 Any trenches or deep pits associated with construction that are to be left open overnight will be provided with a means of escape in case a Hedgehog enters. This is particularly important if the trench fills with water, and will take the form of a roughened plank of wood placed in the trench as a ramp to the surface.

6.4 Retention & Enhancements

New Habitat Planting

- 6.4.1 The retention and enhancement of the adjacent land and boundary features will provide continued opportunities for commuting and foraging Hedgehogs. New planting including native species and species of known wildlife value will offer new foraging resources for Hedgehogs.
- 6.4.2 Specific enhancements for invertebrates (see below) will provide additional foraging opportunities for Hedgehogs.

Hibernation Features

- 6.4.3 Hedgehog hibernation boxes and log piles shall be installed in discrete locations throughout the adjacent land (see Appendix 2 and Plan ECO2).

Hedgehog Gateways

- 6.4.4 To ensure continued access opportunities are provided across the site and enable any present Hedgehogs, together with other less mobile species, to disperse, 'Hedgehog Gateways', 13cm x13cm sections of fence cut out at the base will be provided (see Appendix 3). This will enhance the permeability of the new development for wildlife.

6.5 Targeting Local Conservation Priorities

- 6.5.1 Hedgehog, although not a local priority species, is a UK priority species and measures proposed will benefit this species.

6.6 Outcomes

- 6.6.1 Overall, the proposals for the site will deliver a net gain for Hedgehogs in the locality, offering opportunities for foraging and hibernation.

7. BIRDS

7.1 Baseline Conditions

- 7.1.1 A small number of common bird species including Blue Tit *Cyanistes caeruleus*, Carrion Crow *Corvus corone*, Robin *Erithacus rubecula*, Wood Pigeon *Columba palumbus* and Wren *Troglodytes troglodytes* were recorded during the survey completed by Dr. Stefan Bodnar in 2019. Additionally, Linnet *Carduelis cannabina*, a species listed on the RSPB Red list was recorded. It is acknowledged that a number of additional bird species shall utilise the site for both foraging and breeding.
- 7.1.2 The trees, woodland, scrub, hedgerows and rough grassland present within the site and adjacent land will offer nesting and foraging habitat to a variety of bird species.

7.2 Conservation Objectives

To avoid potential impacts during construction, and establish and enhance suitable habitat for birds within the site, in order to retain and enhance existing ornithological interest.

7.3 Construction Phase Mitigation

Nesting Bird Checks

- 7.3.1 In order avoid impacts on nesting birds, and to avoid a potential offence under the Wildlife & Countryside Act 1981, all necessary clearance of suitable nesting vegetation would be undertaken outside of the bird breeding season (March to July inclusive) wherever possible. Where this is not possible, a check survey of vegetation by an experienced ecologist would be undertaken immediately prior to clearance. In the event that an active nest was found to be present, the vegetation would be left uncleared with a 5m exclusion zone around it until the young had fledged.

Fencing of Retained Habitats

- 7.3.2 All retained woodland, trees, hedgerows and grassland will be fenced using Heras fencing or similar to avoid possible encroachment during construction works. All site personnel will be briefed as to the importance of these areas for nesting birds as part of the site induction.

7.4 Retention & Enhancements

Retention

- 7.4.1 The principal habitats of considered interest for nesting and foraging birds in the site and local area will be protected and retained as part of the development proposals.

New Habitat Planting

- 7.4.2 The enhancement of the adjacent land and boundary features will provide continued opportunities for nesting and foraging birds. New landscape

planting shall seek to include a number of fruit bearing species to offer a foraging resource.

Bird Boxes

7.4.3 As part of small-scale new built development, opportunities will be explored for the inclusion of new integrated bird boxes in the fabric of the buildings, such measures could be tailored for Swifts *Apus apus*, Swallows *Hirundo rustica* and House Martins *Delichon urbicum*. Examples of integrated bird boxes are included at Appendix 4, other varieties / designs are available that may be more suitable to the aesthetics of the proposals.

7.4.4 In addition to the integrated designs, a series of bird boxes, including a Barn Owl *Tyto alba* nest box will be installed on retained trees in the wider area. Examples of these bird boxes are included at Appendix 4. Provided nest boxes shall allow for a variety of opportunities to be provided for known and likely bird species in the local area.

7.5 Targeting Local Conservation Priorities

7.5.1 Swift, Swallow, House Martin and Barn Owl are all Leicester, Leicestershire and Rutland local priority species that would benefit from the enhancement measures set out above.

7.6 Outcomes

7.6.1 Overall, the proposals for the site will deliver a net gain for bird species in the locality, both in terms of the availability of nesting opportunities, and the extent and variety of new foraging resources.

8. REPTILES

8.1 Baseline Conditions

- 8.1.1 The site and adjacent land support suitable opportunities for this group with records of Grass Snake *Natrix helvetica* within 1km of the site, as such their presence in the local should be assumed.

8.2 Conservation Objectives

To avoid potential impacts during construction, and to provide new habitat for reptiles within the site and wider area.

8.3 Construction Phase Mitigation

Passive Displacement / Habitat Manipulation

- 8.3.1 Where suitable reptile habitats exist, precautionary mitigation measures will be put into place to ensure that no offence is caused under the Wildlife & Countryside Act 1981. This will include passive displacement / habitat manipulation and potentially fencing off sensitive areas.
- 8.3.2 Passive displacement will involve the intensive management of the existing habitats favourable to reptiles, through a cutting regime which will encourage reptiles to move away from such areas. Cuts will be undertaken using a hand strimmer with an initial cut of 200mm followed by a cut of 100mm 24 hours later and then cut as short as possible. Displacement will occur ahead of development, when reptiles are active (between April and September / October) and during favourable weather conditions. All cuttings and other debris will be removed to avoid creating places of refuge. Following the passive displacement exercise, topsoil will be stripped to remove any suitability for reptiles. All works will be undertaken under the supervision of a suitably qualified and experienced ecologist.
- 8.3.3 Any clearance of potential reptile hibernation features (considered extremely limited and largely absent across the site) will be subject to the same mitigation measures as Hedgehogs (see above).

Fencing of Retained Habitats

- 8.3.4 All retained habitats will be fenced using Heras fencing or similar to avoid possible encroachment. All site personnel will be briefed as to the importance of these areas for reptiles as part of the site induction.

8.4 Retention & Enhancements

- 8.4.1 The adjacent land will be retained and will undergo enhancements with hibernacula (see Appendix 5) created to offer additional areas for refuge, shelter and hibernation away from the proposed small-scale residential development. The locations of the hibernacula are illustrated on Plan ECO2.
- 8.4.2 Enhancements proposed for the adjacent area include establishing a tussocky grassland structure with wildflower mixes; this will provide the nectar sources for invertebrate / prey items, basking areas and safe passages

through undergrowth. Where any tree removal is required the trunks will be kept and cut up and arranged within retained habitats; these will create basking opportunities, refuge and as they rot provide a foraging resource and future suitable natural hibernacula.

- 8.4.3 The enhancements to the pond and potential creation of an additional pond shall elevate the local interest for amphibians and in turn provide enhance foraging opportunities for Grass Snake. It is considered that suitable breeding sites for Grass Snake could be created within the proposed habitat mosaic in the east with cleared vegetation piled in discrete locations to decompose and offer a suitable egg laying substrate.

8.5 Targeting Local Conservation Priorities

- 8.5.1 Although not local priority species, all reptiles are UK priority species and the measures proposed will benefit this group.

8.6 Outcomes

- 8.6.1 Overall, the proposals for the site and local area will deliver net gains for reptile species, both in terms of the availability of foraging resources, and new opportunities for shelter and hibernation.

9. AMPHIBIANS

9.1 Baseline Conditions

- 9.1.1 The habitats present are considered to be of moderate suitability for amphibians, with Frog *Rana temporaria* spawn recorded within the shallow off-site pond at the time of the walk-over survey. Habitat Suitability Index (HSI) surveys previously undertaken of the pond found the pond to be of poor suitability for Great Crested Newts *Triturus cristatus*, eDNA testing was undertaken of the pond, the results of which were negative, meaning that Great Crested Newts do not use the pond.

9.2 Conservation Objectives

To safeguard amphibian habitats during construction and provide greater opportunities for amphibians within the site and local area.

9.3 Construction Phase Mitigation

- 9.3.1 Construction works and pollution of surface water run-off could result in pollution of the pond. To ensure there are no potential negative effects to the quality of the water all operations will be undertaken in accordance with standard guidance provided in the Environmental Agency Guidelines PPG5 Pollution Prevention Guidelines.
- 9.3.2 Works to enhance the pond will be undertaken outside of the amphibian breeding period from March to June inclusive.
- 9.3.3 Passive displacement measures for reptiles as described above will also benefit any present amphibian species.
- 9.3.4 Any clearance amphibian hibernation features will be subject to mitigation measures as Hedgehogs and reptiles (see above).
- 9.3.5 it is not considered that Great Crested Newts are present on site and therefore a Natural England European Protected Species (EPS) licence is not required undertake the proposed development work.

9.4 Retention & Enhancements

- 9.4.1 Work to manage the existing pond will provide enhanced aquatic habitat for amphibian species, whilst the enhancement measures proposed for the grassland habitats and woodland will provide continued opportunities during their terrestrial phase.
- 9.4.2 Additional habitats suitable for use by invertebrate and amphibian species will be provided by creating log piles at the base of hedgerows, and in areas of woodland and grassland. The piles would be established using wood generated through maintenance of trees / woodlands within the site and local area. These structures would benefit amphibians by providing places of shelter and or rest and potential hibernation opportunities along with increasing habitat for invertebrates.

- 9.4.3 The potential creation of a further new pond in land under the applicant's control has the possibility of providing a further breeding site and improving the local pond network.

9.5 Targeting Local Conservation Priorities

- 9.5.1 Great Crested Newt and Common Toad *Bufo bufo*, although not local priority species, are UK Priority Species, and measures included as part of this strategy may encourage greater use of the site.

9.6 Outcomes

- 9.6.1 Overall, the proposals for the site and local area will deliver a net gain for amphibian species, both in terms of the availability of foraging resources, and new opportunities for breeding, shelter and hibernation.

10. INVERTEBRATES

10.1 Baseline Conditions

- 10.1.1 Given the habitats present, it is likely an assemblage of common invertebrate species utilises the site. There is no evidence to suggest that any rare or notable species would currently be present.

10.2 Conservation Objectives

To provide greater opportunities for invertebrates within the site.

10.3 Construction Phase Mitigation

- 10.3.1 No mitigation measures in respect of invertebrates are required during the construction phase although measures to be adopted in respect of other species and groups would offer a mechanism to safeguard any existing interest both in the site and local area.

10.4 Retention & Enhancements

Retention

- 10.4.1 The retention of areas of grassland and implementation of a sensitive management regime seeking to enhance the sward's floristic diversity will provide continued opportunities for invertebrates. Furthermore, the strengthening of the boundary features with native bolster planting that are connected to wildflower grassland margins will safeguard and elevate the existing opportunities and interest.
- 10.4.2 The enhancement works to the off-site pond together with the habitat mosaic is likely to offer significant enhancements for a range of invertebrates.

New Habitat Planting

- 10.4.3 The enhancements proposed for the adjacent land along with new planting associated with the development area will offer new and enhanced resources for invertebrates.

Nesting Aids and Log Piles

- 10.4.4 As a further enhancement, invertebrate nesting aids and log piles will be established within the adjacent land (see Appendix 6 and Plan ECO2). These features will provide new opportunities for invertebrates.

10.5 Targeting Local Conservation Priorities

- 10.5.1 The Leicester, Leicestershire and Rutland BAP highlights Black Hairstreak *Satyrrium pruni*, Dingy Skipper *Erynnis tages* and Grizzled Skipper *Pyrgus malvae* as local priority species. Measures to establish and enhance habitats set out in this strategy will encourage greater invertebrate diversity and may benefit these local priorities.

10.6 Outcomes

- 10.6.1 Overall, the proposals for the site will deliver a net gain for invertebrates, providing a much-enhanced variety of habitats and varied opportunities for a range of species.

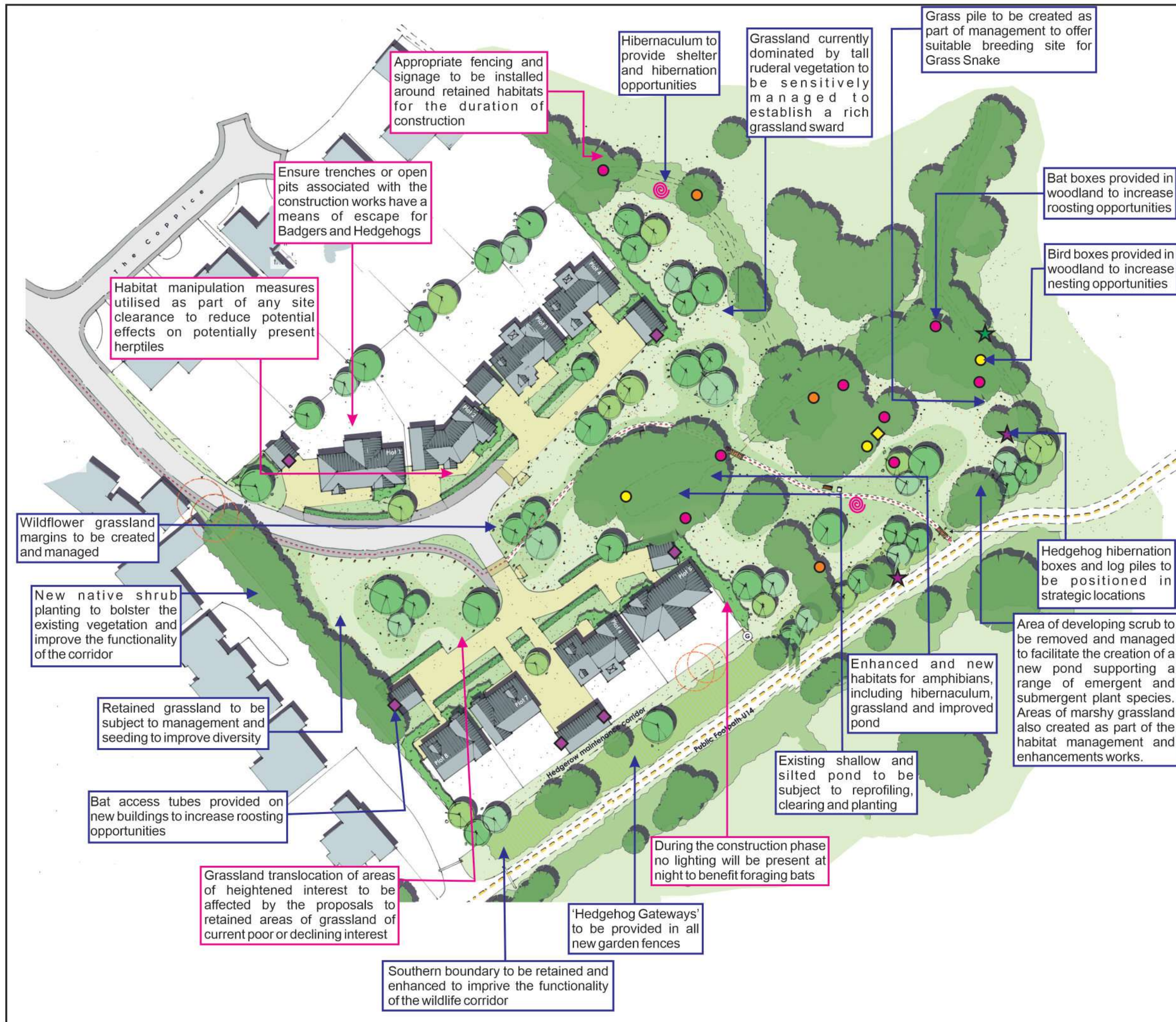
PLANS

PLAN ECO1

Site Location

PLAN ECO2

Ecological Mitigation and Enhancement Plan



KEY:

- | | |
|---|---|
|  | MITIGATION MEASURE |
|  | ENHANCEMENT MEASURE |
|  | HEDGEHOG HIBERNATION BOX (INDICATIVE LOCATIONS) |
|  | REPTILE HIBERNACULUM (INDICATIVE LOCATIONS) |
|  | BAT TUBES (INDICATIVE LOCATIONS) |
|  | SCHWEGLER 2F & 1FF BAT BOXES (INDICATIVE LOCATIONS) |
|  | SCHWEGLER MULTI-CHAMBER BAT BOX (INDICATIVE LOCATION) |
|  | SCHWEGLER 2H AND 1B BIRD BOX (INDICATIVE LOCATIONS) |
|  | SCHWEGLER CLAY AND REED INVERTEBRATE NESTING AID (INDICATIVE LOCATIONS) |
|  | BARN OWL NEST BOX (INDICATIVE LOCATIONS) |

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PLAN ECO2: ECOLOGICAL MITIGATION AND ENHANCEMENT PLAN

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APPENDICES

APPENDIX 1

Bat Box Specifications

Bat Boxes

Schwegler bat boxes are made from 'woodcrete' and have the highest rates of occupation of all types of box.

The 75% wood sawdust, clay and concrete mixture is ideal, being durable whilst allowing natural respiration and temperature stability. These boxes are rot and predator proof and extremely long lasting.



Schwegler 2F Bat Box

A standard bat box, attractive to the smaller British bat species. Simple design with a narrow entrance slit on the front. Boxes can be hung from a branch near the tree trunk or fixed using 'tree-friendly' aluminum nails.

Woodcrete construction, 16cm diameter, height 33cm.

Schwegler 1FF Bat Box

The Schwegler 1FF bat box is spacious enough for bats to use as a summer roost or nursery site and is open at the bottom, allowing droppings to fall out so it does not need cleaning. Boxes can be hung from a branch near the tree trunk or fixed using 'tree-friendly' aluminum nails.

Woodcrete construction, width 27cm, height 43cm, depth 14cm.



Schwegler 2FR Bat Tube

The 2FR Bat Tube is designed to be built into the masonry of an external wall. This makes it ideal for situations where you wish the box to be discrete as only the entrance hole will be visible. It can also be painted to match your building with an air permeable paint if desired.

The 2FR Bat Tube has transverse connecting holes which allow for several tubes to be placed next each other to create a larger space.

Woodcrete construction, width 20cm, height 47.5cm, depth 12.5cm.



Bat Boxes



Large Multi-Chamber Bat Box

This box is designed to provide a protected environment which is particularly important through the cold winter months when bats are hibernating. Wooden panels within the box imitate crevices for roosting.

Woodstone construction, width 15cm, height 27.5cm, depth 16cm.

APPENDIX 2

Hedgehog Gateway Specification

Hedgehog Gateways

A 13 x 13 cm section cut out at the base of the gravel board or directly into the fence panel creating links between residential gardens and the surrounding landscape.

This will facilitate the dispersal of Hedgehogs and other small animals and enhance the permeability of the new development for wildlife.



APPENDIX 3

Hedgehog House Specifications

Hedgehog Houses

Schwegler Hedgehog Dome

The Schwegler Hedgehog Dome encourages Hedgehogs to settle in a particular area and provides year-round shelter featuring a weather proof cover and insulated floor.



Ecoplate Hedgehog House

This large, environmentally friendly house is made from recycled plastic and is weather resistant and very durable. A hidden entrance tunnel inside makes it more difficult for predators to reach Hedgehogs inside.



APPENDIX 4

Bird Box Specifications

Bird Boxes

Schwegler bird boxes have the highest rates of occupation of all types of box.

They are designed to mimic natural nest sites and provide a stable environment with the right thermal properties for chick rearing and winter roosting.

Boxes are made from 'Woodcrete'. This 75% wood sawdust, clay and concrete mixture is breathable and very durable making these bird boxes extremely long lasting.



1B Bird Box

This is the most popular box for garden birds and appeals to a wide range of species. The box can be hung from a branch or nailed to the trunk of a tree with a 'tree-friendly' aluminium nail.

Available in four colours and three entrance hole sizes. 26mm for small tits, 32mm standard size and oval, for redstarts for example.

2H Bird Box

This box is attractive to robins, pied wagtails, spotted flycatcher, wrens and black redstarts.

Schwegler boxes have the highest occupation rates of all box types. They are carefully designed to mimic natural nest sites and provide a stable environment for chick rearing and winter roosting. They can be expected to last 25 years or more without maintenance.



No 23 Barn Owl Box

This box is best sited on the interior wall of barns or church towers. Only a small opening is needed on the outside of the building to serve as an entrance. There is an inspection panel at the back of the box.

*Made of waterproof wooden boarding
Dimensions 100 x 50 x 50 cm
Entrance hole 14 x 19 cm*



Bird Boxes

Schwegler bird boxes have the highest rates of occupation of all types of box. They are designed to mimic natural nest sites and provide a stable environment with the right thermal properties for chick rearing and winter roosting. Many boxes are made from 'Woodcrete'. This 75% wood sawdust, clay and concrete mixture is breathable and very durable making these bird boxes extremely long lasting.

9A House Martin Nests



These woodcrete nests are durable and ready for immediate use when birds return each summer. Easily fixed under the eaves on the outside walls of buildings, at least 2 metres from the ground. The backing board may be painted to match the building.

Model 9A is a double unit with two nests mounted side by side on a backing board, as shown.

No 10 Swallow Box



This box should be located inside buildings such as barns, stables, sheds or outhouses, ensuring there is always access for the birds through a window or opening.

No. 17 Swift Box

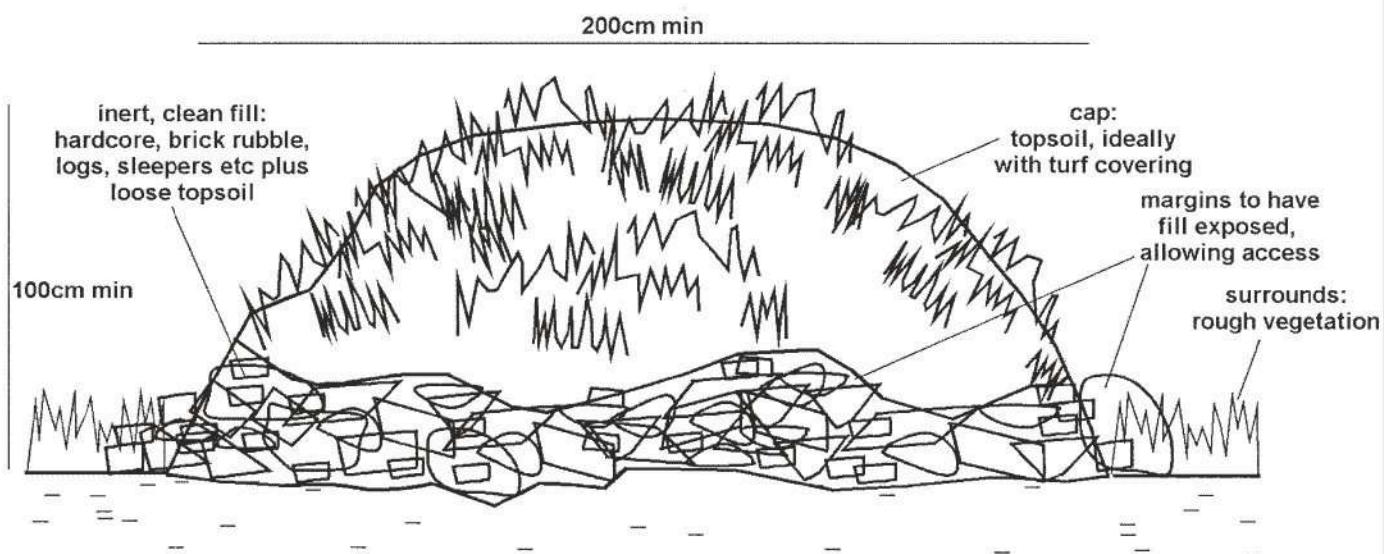


This highly successful model is used extensively throughout Europe. Made from a special mixture of compressed plant fibres and concrete, it provides good insulation and extremely long life. The bracket allows the box to be fixed from above or behind, and the entrance hole can be easily removed for inspection and cleaning.

Dimensions: 152H x 340W x 150D mm.

APPENDIX 5

Reptile Hibernacula Specification



HIBERNACULA SPECIFICATION

APPENDIX 6

Invertebrate Nesting Aid Specifications

Invertebrate Nesting Aids



Schwegler Clay and Reed Insect Nest

An attractive insect nest which can be hung in any sunny, sheltered spot. Reeds on either side of a clay central section provide a range of environments to suit different insects (designed to attract only harmless insects).

Dimensions: 290 x 225 x 205 mm

Weight: 5.7 kg

Schwegler woodcrete, clay, and reeds



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