# SMDC Additional Sites – LWS Assessments

# Staffordshire Moorlands District Council


***Report prepared by:***
**Ecus Ltd.**
**165E Burton Road**
**West Didsbury**
**Manchester**
**M20 2LN**
**0161 302 0280**


**November 2017**

# Ecus Ltd

| | |
|---|---|
| Report to: | Staffordshire Moorlands District Council |
| Report Title: | SMDC Additional Sites – LWS Assessments |
| Revision: | Final |
| Issue Date: | November 2017 |
| Report Ref: | 10567 |
| Originated By: | Zoe Barrett<br>Seasonal Ecologist<br>  Date: November 2017 |
| Reviewed By: | Simon Holden<br>Associate Director<br>  Date: November 2017 |
| Approved By: | Simon Holden<br>Associate Director<br>  Date: November 2017 |

*Prepared by:*
Ecus Ltd.
165E Burton Road
West Didsbury
Manchester
M20 2LN
0161 302 0280

# Contents

# Summary

Ecus Ltd was commissioned in September 2017 to undertake ecological appraisals of 9 sites in the Staffordshire Moorlands. The purpose of the appraisals was to assess the ecological importance of the sites to inform the development of the SMDC Local Plan. Five of these potential Local Plan allocations (marked with an asterisk) were subject to extended Phase 1 Habitat surveys to ascertain present and potential ecological value as stated in the National Planning Policy Framework (NPPF, 2012) which directs Local Planning Authorities to set out a strategic approach in their Local Plans for the creation, protection, enhancement and management of biodiversity networks. The sites are listed below according to their Local Plan site references:

- BDNEW*
- BD104*
- CH024 (extended area)*
- CH132
- LE066
- LE102 (with potential extension)*
- LE128B
- LE150 (extended area)*
- EN128

All sites were also assessed for their potential to be designated as local wildlife sites (Site of Biological Importance (SBI) or Biodiversity Alert Site (BAS)) according to criteria outlined in 'Guidelines for the selection of sites of county biological importance in Staffordshire' (Webb *et al*., 2014).

No entire site met the criteria for SBI / BAS status and the majority of site habitats were considered to be of importance to nature conservation at the site level or local level only. Those habitats listed below within each respective site were considered to be of similar quality to that required to meet SBI/BAS criteria.

- BDNEW – species rich hedgerow, pond
- CH024 – tall ruderal vegetation
- CH132 – species rich hedgerow, trees
- LE066 – Trees
- LE102 – Trees
- LE150 – Broadleaved woodland, pond, brook
- EN128 – Species rich hedgerow, trees

All sites except BD104 and LE128B showed potential to support notable or protected species. Appropriate surveys for these species should be conducted to ascertain BAS / SBI potential.

# 1. Introduction

1.1.1. Ecus Ltd was commissioned in August 2016 by Staffordshire Moorlands District Council (SMDC) to undertake ecological appraisals of 58 sites in the Staffordshire Moorlands District. Subsequently, Ecus Ltd. was commissioned to undertake ecological appraisals of a further nine sites in September 2017. The objectives of the appraisals were to:

1.1.2. Carry out extended Phase 1 Habitat surveys of specified potential Local Plan allocations to ascertain present and potential ecological value.

1.1.3. Undertake assessments of specified potential local plan allocations against criteria set out in the 'Guidelines in the selection of sites of county biological importance in Staffordshire' (Webb et al., 2014) in order to ascertain potential for designation as either a local wildlife site (Site of Biological Importance (SBI) or a Biological Alert Site (BAS)).

1.1.4. The 9 sites which were assessed according to their Local Plan sites references are:

- BDNEW
- BD104
- CH024
- CH132
- LE066
- LE102 plus potential extension
- LE128B
- LE150
- EN128

1.1.5. The purpose of the survey was to record, map and evaluate the habitats on site and to review the potential for the site to contain, or be used by, species protected under both UK and European nature conservation legislation, namely the Wildlife & Countryside Act 1981 (as amended) and the Conservation of Habitats and Species Regulations 2010 (as amended).

1.1.6. The conclusions of all individual reports will be used by SMDC as evidence to assess the ecological characteristics of these sites as part of its emerging Local Plan work in accordance with NPPF, to assist in selecting sites for future development (and also in the determination of planning applications).

1.1.7. This report details the findings of the survey work and subsequent assessment. Methodologies employed are described including site surveys and evaluation and the need for any further survey work are included, where appropriate. The first part of the report sets out each of the individual site reports, whilst the second part of the report contains the LWS assessment of the other Preferred Options sites.

# 2. Methodology

## 2.1. Data Consultation

2.1.1. Data consultation was undertaken by Ecus Ltd in October 2017 with Staffordshire Ecological Record (SER). This process helped to determine whether there were any relevant biological records or non-statutory designated sites of nature conservation interest (in this case, Biodiversity Alert Sites (BAS), Sites of Biological Importance (SBI), Ancient Woodlands and Regionally Important Geological Sites (RIGS) within 2 km of the survey areas.

2.1.2. The Multi-Agency Geographic Information for the Countryside (MAGIC) website (http://magic.defra.gov.uk) was consulted for information on statutory designated sites of nature conservation interest (in this case, Sites of Special Scientific Interest (SSSI), National Nature Reserves (NNR), Local Nature Reserves (LNR), and Regionally Important Geological Sites (RIGS) within 2 km of the survey areas in October 2017.

2.1.3. Information returned from SER and MAGIC is incorporated in this report in the relevant sections. In all cases the most up to date records were used (2007-2017). In addition, the following sites were surveyed by Lockwood Hall in 2014 and these were used as part of the LWS assessment; CH024, CH132, LE066, LE102, LE128B, LE150, and EN128 .

## 2.2. Extended Phase 1 Habitat Survey

2.2.1. Five sites (BDNEW, BD104, CH024 (extended area), LE102 (extended boundary) and LE150 (revised boundary)) were surveyed in October 2017 using extended Phase 1 Habitat survey methodology (JNCC, 2010) by Ecus ecologist Zoe Barrett. The habitats and vegetation types present were recorded on to a field map. This survey method aims to characterise habitats and communities present and is not intended to provide a complete list of all plants occurring across the site.

2.2.2. Notable, rare or scarce plant species were highlighted if present. Evidence of protected species or species of nature conservation importance was recorded where present at the time of survey. Species recorded are included within the report as appropriate with further information presented in Figures 1-5 (Section 5).

2.2.3. Habitats present that are listed under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006 or Staffordshire Biodiversity Action Plan (SBAP), were noted.

2.2.4. The value and sensitivity of ecological features present on site were determined based on the guidance given in ‘Guidelines on Ecological Impact Assessment’ (CIEEM, 2016). Individual ecological receptors (habitats and species that could be affected by the development) for the scheme were assigned levels of importance for nature conservation where possible. The highest level is international, then decreasing in order of importance through national, regional, county, local and site level.

2.2.5. Habitats and species recorded on sites were assessed against the criteria listed in the Staffordshire SBI guidelines (Webb *et al*., 2014) to determine whether the site, or features of the site, qualified for consideration as an SBI or BAS.

## Protected and Key Species

2.2.6. Any evidence of protected species or faunal groups encountered during the survey was recorded. This included observations of field signs and an assessment of the suitability of the habitats present to support protected species. For full details of legislation relating to all habitats and species discussed within this report visit http://www.legislation.gov.uk.

### *Amphibians*

2.2.7. Ponds within 250 m of the sites, and not separated from the site by a major barrier to dispersal (for example, a main road or extensive housing estate), were searched for using Ordnance Survey (OS) and Google maps. These ponds were assessed for their suitability for great crested newts (*Triturus cristatus*) using Habitat Suitability Index (HSI) calculations (Oldham *et al*., 2000). The calculations used in determining the indices expressed in the site record tables, are set out in Appendix 4.

2.2.8. Site habitats were assessed for their suitability to support amphibian species.

### *Badger*

2.2.9. Signs of badger (*Meles meles*) activity were searched for within the survey area as part of the extended Phase 1 survey. Survey followed standard methodology detailed in Surveying Badgers (Harris *et al*., 1989). This included survey for badger setts, along with survey of linear features and boundaries for signs of badger activity including dung pits, foraging marks, feeding signs and pathways.

### *Bats*

2.2.10. Trees within the survey area were assessed for their potential to support roosting bats as part of the extended Phase 1 Habitat survey.

2.2.11. An individual building or tree may have several features of potential interest to roosting bats associated with it. It is not always possible to confirm usage of a feature by bats as often the animals may be present on one day and no evidence of occupation may be found on the next. Consequently it is customary when undertaking such surveys to assign each feature to a defined category of roosting potential as follows: Negligible, Low, Moderate, High, Confirmed (Collins, 2016).

2.2.12. The survey areas were also assessed for its suitability for foraging and commuting bats.

### *Birds*

2.2.13. Detailed bird survey was not undertaken as part of this assessment, however, whilst on site the opportunity was taken to record all species of birds encountered and habitats on site were assessed for their value to

nesting and foraging birds.

***Reptiles***

2.2.14. The habitats present on site were assessed for their suitability to support basking, foraging and hibernating reptiles, with reference to their connectivity with other suitable habitat in the surrounding area.

***Riparian mammals and white-clawed crayfish***

2.2.15. A desk based search for watercourses on site, and within 30 m of the site, which are not separated from the site by a major barrier, was undertaken using an Ordnance Survey (OS) map. This was to assess the potential for riparian mammals such as otter (*Lutra lutra*) and water vole (*Arvicola amphibius*) and also white-clawed crayfish (*Austropotamobius pallipes).*

***Other protected and key species***

2.2.16. The opportunity was taken whilst on site to assess habitats for their potential to support other protected species, search for signs of nationally or locally scarce or notable species, or any species protected under national or international nature conservation law.

## 2.3. Invasive species

2.3.1. During the extended Phase 1 Habitat survey, any evidence of invasive species, as listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended), was recorded where seen.

## 2.4. Limitations

2.4.1. Phase 1 Habitat surveys are intended to provide a rapid assessment of habitats present within a site at any time of year. The surveys were undertaken in October, outside the optimal season for botanical survey. Species of plants may be under-recorded due to vegetation die-back at that time of year.

2.4.2. Varying plant phenology, mowing and heavy grazing mean that it is not possible to identify all plant species within a site during a single visit. Animals are generally cryptic, mobile and may be migratory. Again, therefore, it is not possible to identify all such species within a site during a single visit. Protected or notable species may visit the site at any time during the future. However, professional judgement and experience allows for the likely presence of these species to be predicted with sufficient certainty so as not to significantly limit the validity of the survey findings.

2.4.3. The 2 km radius for BDNEW overlapped into Cheshire; data from this county was excluded from the LWS assessment. It is unlikely that this would affect the overall assessment however, as only a small area (10-15%) was excluded and the habitats of the wider area are similar.

2.4.4. The absence of a species from desk study data does not necessarily mean that that species is absent from the study area. It may simply be a reflection of the extent of data held by the local records centre and recording effort by groups and volunteers.

2.4.5. Bird species do not usually breed between the months of September to March, although birds may be present at any time of year, the number and species present will change with season.

# 3. Findings and Evaluation- BDNEW

## 3.1. Site Description

3.1.1. The site is located to the west of Biddulph Valley Way and east of Woodside Farm, on the western outskirts of Biddulph. It is approximately 5 ha and is surrounded by agricultural land.

3.1.2. The site was surveyed in October 2017 by Ecus using Phase 1 Habitat survey methodology (JNCC, 2010). In addition to the phase 1 report, records from Staffordshire Ecological Records (SER) and Magic Map have been used to create the following LWS assessment.

## 3.2. Designated Sites

3.2.1. Two statutory and seven local designated sites are located within 2 km of the study site (Table 3.2.1)

**Table 3.2.1 Records returned within study area.**

| Site name | Status | Location | Notes |
|---|---|---|---|
| Newpool (east of) | Biodiversity Alert Site | 0.28 km SE | Mainly broad-leaved semi-natural woodland with an area of semi-improved neutral grassland and scattered trees situated towards the north of the site. |
| Roe Park Woods | SSSI | 0.78 km NW | Broadleaved, mixed and yew woodland |
| Knypersley Fishing Pool | Retained BAS | 1.02 km SE | A pool used for fishing surrounded by tall herbs and locally frequent goat willow. Beech/oak woodland lies to the south. |
| Mow Cop Quarry | Retained BAS | 1.28 km NW | A disused quarry with steep sandstone escarpment facing inwards on all sides forming a hollow. |
| The Nursery (near) | Retained BAS | 1.47 km E | A small pocket of woodland on a slightly west facing slope hosting a mixture of conifer and broadleaf trees including an abundance of oak, birch, alder, rowan, larch and Scots pine. |
| Willocks Wood (south-west of) | Retained BAS | 1.68 km NW | The disused quarry is now quite a large pool with steep sides covered in *Calluna vulgaris* and some emergent vegetation. |
| Willocks Wood | Retained BAS | 1.87 km N | A birch dominated woodland with abundant sycamore and oak. |
| Ganister Quarry | SSSI | 1.93 km NW | Mid-Carboniferous period geological shales, sandstones and ganister layers |
| Greenway Bank | Local | 1.93 km SE | A Country Park surrounding |

| Site name | Status | Location | Notes |
|---|---|---|---|
| | Wildlife Site | | Knypersley Reservoir, predominantly broadleaved woodland with marshy grassland, swamp and acidic areas mainly in the north-east section. |

3.2.2. SSSIs are of national importance and Local Wildlife Sites are of county importance.

## 3.3. Habitats

3.3.1. Habitats identified within the site are presented in Table 3.3.1 and are discussed in order of dominance below.

**Table 3.3.1 Habitats present within the site**

| Habitat | Species Present | Area or length | % cover of site |
|---|---|---|---|
| Dense scrub | Blackthorn (*Prunus spinosa*), elder (*Sambucus nigra*), hawthorn (*Crateugus monogyna*) | 712 $m^2$ | 1 |
| Improved grassland | Cocksfoot (*Dacytlis glomerata*), meadow buttercup (*Ranunculus acris*), Timothy grass (*Phleum pratense*), nettle (*Urtica dioica*) | 25843 $m^2$ | 34 |
| Marshy grassland | Soft rush (*Juncus effusus*), broad-leaved dock (*Rumex obtusifolius*), meadow buttercup (*Ranunculus acris*), ragwort (*Jacobaea vulgaris*) | 1902 $m^2$ | 3 |
| Semi-natural grassland | meadow buttercup, rough meadow-grass (*Poa trivialis*), soft rush (*Juncus effusus*), broad-leaved dock (*Rumex obtusifolius*) | 21720 $m^2$ | 29 |
| Species-rich hedgerow | Hawthorn, hazel (*Corylus avellana*), bramble (*Rubus fruticosus*), elder, ash (*Fraxinus excelsior*), ivy (*Hedera helix*) | 268 m | N/A |

***Improved grassland***

3.3.2. The majority of the site consists of improved grassland (Figure 1, Section 5; Plates A1.5-7; Appendix 1) used for sheep grazing pasture, comprising two fields to the north of the site. The field boundaries consist of timber fencing with barbed wire round the perimeter with tape fencing in the centre of the fields. The fields are heavily grazed and managed, with sheep present in the north-eastern field at the time of survey. Species include frequent cocksfoot, Yorkshire fog (*Holcus lanatus*) and meadow buttercup (*Ranunculus acris*), red clover (*Trifolium pratense*) with occasional Timothy grass, creeping thistle (*Cirsium arvense*), and soft rush (*Juncus effusus*) and locally rare broad-leaved dock (*Rumex obtusifolius*). Occasional barren brome (*Bromus sterilis*) and foxglove (*Digitalis purpurea*) are present along the field boundary.

3.3.3. This habitat is common and widespread both locally and throughout the UK and, as such, is considered to be of importance at site level only. This habitat is not listed as an important habitat in the Staffordshire SBI guidelines.

***Semi-natural and Marshy grassland***

3.3.4. The southern-most field consists of semi-natural grassland with a smaller area of marshy grassland located on the west boundary (Plate A1.3). Species composition comprises a greater proportion of forbs such as frequent meadow buttercup, with locally rare broad-leaved dock, and occasional rough-meadow grass is also present.

3.3.5. The area of marshy grassland is dominated by soft rush with occasional broad-leaved dock, meadow buttercup and ragwort also present.

3.3.6. This habitat is considered to be species-poor and relatively common in the local area although many floral species would not be detected due to vegetative die-back at the time of survey. It is well connected to the wider countryside. This habitat is considered to be of importance at the site level only.

***Hedgerow and scattered trees***

3.3.7. There are three hedgerows present; along the southern boundary, and south-west boundary (Figure 1, Section 5; Plate A1.5, Appendix 1).

3.3.8. Species recorded along the southern boundary comprise frequent hawthorn (*Crataegus monogyna)* and bramble (*Rubus spp.)* with occasional elder (*Sambucus nigra)*. This hedgerow has a continuous length of approximately 230 m including sections which extend into the wider countryside.

3.3.9. Species recorded along the south-western boundary comprise frequent nettle, with occasional ash, bramble and rarely occuring ivy. This hedgerow has a continuous length of approximately 127 m, another small section along the south-west boundary is approximately 19 m in length.

3.3.10. A line of oak (*Quercus* sp.) trees is located along part of the section of hedgerow on the south-western boundary.

3.3.11. Species rich hedgerow habitat is considered a habitat of principal importance under Section 41 of the NERC Act 2006. Hedgerows are a common habitat in the wider landscape, therefore this habitat is assessed as of local importance.

***Scrub***

3.3.12. A small area of scrub is present on the west boundary and is surrounded by a barbed wire fence. Species consist of frequent hawthorn, with occasional blackthorn, elder, alder and hazel.

3.3.13. This habitat is limited in extent and relatively common in the local area but is well connected to the pond, scattered trees and hedgerows within the site. It is moderately connected to the wider countryside. This habitat forms a mosaic with the pond and is considered to be of importance at the local level.

***Ponds***

3.3.14. One pond is present on the west boundary of the site (Figure 1, Section

5; Plate A1.2, Appendix 1). This is surrounded by scrub on the west boundary. Open water is very limited and macrophytes are dominant. Species present include dominant flag iris (*Iris pseudacorus*) with frequent bulrush (*Typha latifolia*), soft rush and duckweed (*Lemna minor*).

3.3.15. Ponds are listed as a priority habitat under the Staffordshire Biodiversity Action Plan (SBAP). This pond is well connected to the wider countryside and is an uncommon habitat in the wider landscape. Therefore further surveys are needed to assess the importance of this habitat.

## 3.4. Species

***Amphibians***

3.4.1. SER returned one recent record of common toad (*Bufo bufo*) within 2 km of the site. This record dates from 2012 and was located 1.8 km to the south-west of the site at Kidsgrove parish.

3.4.2. The pond on site was assessed as having good potential to support great crested newts as a HSI score of 0.78 was calculated. It is also well connected to the surrounding countryside.

3.4.3. No ponds were located within 250 m of the site but one was identified within 500m, being located just north of Newpool to the south-west of the site.

3.4.4. No amphibians were recorded during the site visit. Site habitats have good suitability for great crested newts although there is a lack of suitable breeding ponds in the wider area.

3.4.5. The pond offers suitable habitat for common amphibians such as common frog (*Rana temporaria*) and common toad and may potentially support great crested newts. These may disperse to areas such as hedgerows and grassy banks on the site boundaries for refuge outside the breeding season. There are sparse records for amphibians from the local area, therefore site habitats such as the pond, scrub and hedgerow will be locally important for these species. Other habitats in the site would provide marginal habitat only.

***Badger***

3.4.6. SER returned 11 recent records of badger. These records included five setts, in addition to field sightings. The closest record in 2009 was 767m to the south-west of the site in fields outside Biddulph.

3.4.7. No badger setts or other field signs were identified on site. However, badgers roam widely and the site is moderately connected to the wider countryside. The disused railway line along the east boundary and hedgerows in the south and west of the site are likely to provide a corridor for badger. A shallow ditch and embankment amongst scattered trees and bramble along the disused railway on the eastern boundary would provide an ideal location for sett creation. The grassland on site would provide good foraging habitat although other suitable habitat exists in the wider countryside.

### *Bats*

3.4.8. SER returned 13 recent records of bats, these records consist of field sightings only. These consisted of five records for common pipistrelle (*Pipistrellus pipistrellus),* one record of Brandt's bat (*Myotis brandtii*) and one record for whiskered bat (*Myotis mystacinus*), one record for unidentified pipistrelle species (*Pipistrellus* sp.) and four records for unidentified bat species. The closest record of an unidentified bat species occurred 1.3 km away north of the site on the northern outskirts of Biddulph.

3.4.9. The site hedgerows and scattered trees are likely to provide foraging and commuting habitat for bats. They are a linear features which gives good connectivity to the wider landscape. The improved grassland which forms the majority of the site area is unlikely to provide anything more than marginal foraging and commuting opportunities for bats.

3.4.10. One tree, a mature oak present on the west boundary (Figure 1, TN3) was assessed as having features with potential to support roosting bats. A broken branch forking to the left, 2.5.m high was present although the whole tree was not easily viewed it was assessed as having low bat roost potential.

3.4.11. There is one building on site (Figure 1, Plate A1.4). This consisted of a wooden field shelter with an open front and was assessed as having negligible suitability for roosting bats.

### *Birds*

3.4.12. SER returned 3,838 recent records of 96 bird species within 2 km of the site. Of the records, 41 species are "Red" listed, 44 are "Amber" listed and 26 species are listed under Schedule 1 of the Wildlife and Countryside Act 1981 (as amended). Table 3.4.12 shows the Birds of Conservation Concern red or amber species from this list that may occur on site due to suitable habitat.

**Table 3.4.12. Notable bird species with potential to occur on site.**

| Common Name | Scientific Name | Birds of Conservation Concern Status |
|---|---|---|
| Common Redpoll | *Acanthis flammea* | Red |
| Linnet | *Linaria cannabina* | Red |
| House Sparrow | *Passer domesticus* | Red |
| Tree Sparrow | *Passer montanus* | Red |
| Redwing | *Turdus iliacus* | Red |
| Song Thrush | *Turdus philomelos* | Red |
| Fieldfare | *Turdus pilaris* | Red |
| Mistle Thrush | *Turdus viscivorus* | Red |
| Mallard | *Anas platyrhynchos* | Amber |
| Meadow Pipit | *Anthus pratensis* | Amber |
| Stock Dove | *Columba oenas* | Amber |
| Reed Bunting | *Emberiza schoeniclus* | Amber |
| Snipe | *Gallinago gallinago* | Amber |
| Oystercatcher | *Haematopus ostralegus* | Amber |
| Willow Warbler | *Phylloscopus trochilus* | Amber |
| Dunnock | *Prunella modularis* | Amber |

| Common Name | Scientific Name | Birds of Conservation Concern Status |
|---|---|---|
| Bullfinch | *Pyrrhula pyrrhula* | Amber |
| Tawny Owl | *Strix aluco* | Amber |

3.4.13. Birds recorded during the survey include bullfinch, treecreeper (*Certhia familiaris*), redwing, fieldfare, robin (*Erithacus rubecula*), blackbird (*Turdus merula*), goldfinch (*Cardeulis cardeulis*), greenfinch (*Cardeulis chloris*), siskin (*Cardeulis spinus*), common redpoll, great tit (*Parus major*), woodpigeon (*Columba palumbus*), jackdaw (*Corvus monedula*), carrion crow (*Corvus corrone*), dunnock and nuthatch (*Sitta europaeus*). The majority of birds recorded occurred in the hedgerows on the south boundary and in trees on the eastern boundary.

3.4.14. The hedgerows, scrub and trees are likely to provide suitable habitat for nesting birds such as house sparrow, dunnock and woodpigeon. Hedgerows will also provide foraging habitat for passage and wintering passerines such as redwing, fieldfare and blackbird. The area of marshy grassland could provide wintering habitat for snipe and the pond could support breeding reed bunting.

3.4.15. A large number of records were returned by SER from the wider area consisting of a wide variety of species but most of those are unlikely to occur on site due to limited habitat diversity.

***Reptiles***

3.4.16. SER did not return any recent records for reptiles.

3.4.17. No reptiles were recorded during the site visit and it offers sub-optimal habitat for reptiles. Nevertheless, it has some connectivity with potential reptile habitat via its hedgerows, and the embankment along the east boundary.

***Riparian mammals and white-clawed crayfish***

3.4.18. SER returned no records recent records for white-clawed crayfish (*Austropotamobius pallipes*), no records for otter (*Lutra lutra*) and one record of water vole (*Arvicola amphibius*). The record of water vole was recorded in a pool to the north of Park Lane, east Knypersley in 2007. This is approximately 1.59 km to the south east of the site.

3.4.19. No suitable habitats are present within the site although a brook lies 115 m to the north of the site. The site therefore has negligible potential to support water vole, otter or white-clawed crayfish.

***Other protected and key species***

3.4.20. SER returned one record for polecat (*Mustela putorius*). This occurred in Biddulph in 2010 and was located 1.5 km away north-east.

3.4.21. SER returned 11 records for protected and notable flowering plants which comprised nine records for bluebell (*Hyacinthoides non-scripta*) and two for pennyroyal (*Mentha pulegium*). Most of these occurred in Greenway Bank Country Park, Newpool and Knypersley Wood.

3.4.22. SER returned six records for notable fungi including one record for brown birch bolete (*Leccinum scabrum*) and five for dusky bolete (*Porphyrellus porphyrosporus*).

3.4.23. SER returned seven records for hymopterans of principle concern including four tree bumblebees (*Bombus hypnorum*), one red-tailed bumblebee (*Bombus lapidarius*), one common carder bee (*Bombus pascuorum*), and one tree wasp (*Dolichovespula sylvestris*). SER returned 51 records for moths of principle concern including 13 species listed in the Table 3.4.23 below. Most of these records are from moth trapping and were recorded within 1 km of the site.

**Table 3.4.23 Notable moth species within 2 km of the site**

| Common Name | Scientific Name | No of records |
|---|---|---|
| Broom Moth | *Ceramica pisi* | 1 |
| Buff Ermine | *Spilosoma lutea* | 8 |
| Centre-barred Sallow | *Atethmia centrago* | 2 |
| Dot Moth | *Melanchra persicariae* | 10 |
| Dusky Thorn | *Ennomos fuscantaria* | 8 |
| Ghost Moth | *Hepialus humuli* | 4 |
| Grey Dagger | *Acronicta psi* | 1 |
| Latticed Heath | *Chiasmia clathrata* | 2 |
| Powdered Quaker | *Orthosia gracilis* | 1 |
| Rustic | *Hoplodrina blanda* | 2 |
| Shaded Broad-bar | *Scotopteryx chenopodiata* | 3 |
| Small Square-spot | *Diarsia rubi* | 5 |
| White Ermine | *Spilosoma lubricipeda* | 4 |

## 3.5. Invasive Species

3.5.1. No records of invasive species were returned by SER. One small patch of Himalayan balsam (Impatiens glandulifera) was identified on the south boundary of the site (Table 3.6.1; Figure 1, Section 5).

## 3.6. Target Notes

3.6.1. Table 3.6.1 gives a brief description of Target Notes referred to in Figure 1 (Section 5).

**Table 3.6.1. Target notes in Figure 1**

| Target note | Grid reference | Description |
|---|---|---|
| 1 | SJ8782457179 | Himalayan Balsam |
| 2 | SJ8780257435 | Oak tree |
| 3 | SJ8762757353 | Oak tree with low bat roost potential |
| 4 | SJ8764057321 | Rabbit burrows |
| 5 | SJ8782457179 | Himalayan Balsam |

## 3.7. Evaluation

3.7.1. Table 3.7.1 summarises the ecological importance of each habitat present on the site. Further detail on the importance of the habitats is given below.

**Table 3.7.1 Ecological importance of site habitats**

| Habitat | Ecological Importance | | | | | |
|---|---|---|---|---|---|---|
| | I | N | R | D | L | S |
| Dense Scrub | | | | | X | |
| Improved Grassland | | | | | | X |
| Pond | | | | | X | |
| Semi-natural /marshy Grassland | | | | | X | |
| Species-rich Hedgerow | | | | | X | |
| I=International, N=National, R=Regional, D=District, L=Local, S=Site | | | | | | |

3.7.2. Two of the species-rich hedgerows are greater than 100 m in continuous length although only two or three woody species are dominant within 30 m sections. To qualify as SBI status "a hedgerow must have at least six woody species." Therefore this habitat does not currently qualify as SBI or BAS status and was assessed as local importance only. However, the hedgerow provides a wildlife corridor in addition to foraging / nesting habitat for insects, birds and mammals and has amenity value for people. The biodiversity of hedgerows could be enhanced and this would comply with the policies outlined in the National Planning Policy Framework (NPPF, 2012). Enhancements could include planting native woody species such as spindle (*Eunonymus europaea*) and field maple (*Acer campestre*) along the length, planting within any gaps present and linking up to hedgerows in the wider countryside. Any hedge trimming should be carried out during winter to avoid disturbing nesting birds and maximise foraging opportunities for birds.

3.7.3. The grassland was assessed to be of site importance only, however, mowing once a year and leaving rough margins on field boundaries would enhance biodiversity.

3.7.4. The pond is listed as a priority habitat under the Staffordshire SBI guidelines and was assessed to be of local importance. The HSI score showed it has good potential to support great crested newts and there is good cover of marginal vegetation within the pond and in the immediate vicinity. To qualify as a BAS or SBI under the Staffordshire SBI Guidelines, a pond must score over 76% for ecological quality to on the PSYM (Predictive System for Multimetrics) to meet SBI status or 51-75% to meet BAS status.

## 3.8. Conclusions

3.8.1. The site does not currently meet the criteria for SBI / BAS status. The species-rich hedgerow could potentially be of district ecological value, however further surveys are required to establish this. The site also has potential ecological value to support roosting bats. Additionally, the site

has potential to support badgers, nesting birds and amphibians. Further surveys are required to establish the status of great crested newts.

3.8.2. The following surveys/ actions are therefore recommended in order to establish SBI/ BAS status:

- Sensitive mowing regime of grassland and leaving rough margins
- Hedgerow planting of native woody species and management during winter
- PSYM pond survey
- Presence / absence survey for great crested newts
- Removal of Himalayan balsam

# 4. Findings and Evaluation - BD104

## 4.1. Site Description

4.1.1. The site consists of approximately 0.29 ha of scrub, semi-natural grassland and tall ruderal vegetation (central grid reference SJ8815657110) on the western outskirts of Biddulph. It is surrounded by main roads such as Tunstall Road and Meadows Way and residential housing in the north, east and west. Farmland lies to the west of the site and it is poorly connected to the wider countryside. The land was formerly used by James Bateman Junior High School.

## 4.2. Designated Sites

4.2.1. Five locally designated sites are located within 2 km of the study area. These are shown in Table 4.2.1 below. Local wildlife sites are of county importance.

**Table 4.2.1. Non-statutory designated sites identified within study area.**

| Site name | Status | Location | Notes |
|---|---|---|---|
| Newpool (east of) | Biodiversity Alert Site | 0.32 km SW | Mainly broad-leaved semi-natural woodland with an area of semi-improved neutral grassland. |
| Knypersley Fishing Pool | Retained BAS | 0.91 km S | A pool used for fishing surrounded by tall herbs and locally frequent goat willow. At the southern end is a small beech/oak woodland. |
| The Nursery (near) | Retained BAS | 1.16 km E | A small pocket of woodland on a slightly west facing slope hosting a mixture of conifer and broadleaf trees. |
| Mow Cop Quarry | Retained BAS | 1.86 km NW | A disused quarry with steep sandstone escarpment facing inwards on all sides forming a hollow. |
| Greenway Bank | Local Wildlife Site | 1.98km SE | A Country Park surrounding Knypersley Reservoir, predominantly broad-leaved woodland with marshy grassland, swamp and mature trees. |

## 4.3. Habitats

4.3.1. Habitats present within the site are presented in Table 4.3.1 and are discussed in order of dominance below.

**Table 4.3.1 Habitats present within the site**

| Habitat | Species Present | Area or length | % Cover of Site |
|---|---|---|---|
| Dense Scrub | Hawthorn (*Crataegus monogyna*), beech (*Fagus sylvatica*), rowan (*Sorbus aucuparia*) | 1365 $m^2$ | 45 |

| Habitat | Species Present | Area or length | % Cover of Site |
|---|---|---|---|
| Semi-natural Grassland | Cocksfoot (*Dactylis glomerata*), Yorkshire fog (*Holcus lanatus*) | 447 $m^2$ | 15 |
| Tall Ruderal | Rosebay willowherb (*Chamerion angustifolium*), creeping thistle (*Cirsium arvense*), | 1218 $m^2$ | 40 |

***Semi-natural grassland***

4.3.2. There is a small area of semi-natural grassland in the centre and in the northeast corner of the site. Species include dominant cocksfoot (*Dactylis glomerata*), frequent Yorkshire fog (*Holcus lanatus*), and occasional broad-leaved dock (*Rumex obtusifolius*), field horsetail (*Equisetum arvense*), false-oat grass (*Arrhenatherum elatius*), field bindweed (*Convulvulus arvensis*), ragwort (*Jacobaea vulgaris*), dandelion (*Taraxacum officinale* agg.), soft rush (*Juncus effusus*), tufted vetch (*Vicia cracca*), and Timothy grass (*Phleum pratense*).

4.3.3. This habitat is relatively species-poor, is unmanaged and has become rank with coarse grasses dominating. Therefore, it is considered to be of site importance.

***Dense scrub***

4.3.4. The site has a timber fence around the entire boundary. Scrub is a dominant habitat within the site and is present in the southern half of the site and the entire west boundary. Species include frequent hawthorn (*Crataegus monogyna*), occasional beech (*Fagus sylvatica*), rowan (*Sorbus aucuparia*), hazel (*Corylus avellana*), field maple (*Acer campestre*), silver birch (*Betula pendula*), blackthorn (*Prunus spinosa*) and rare pedunculate oak (*Quercus robur*) and hornbeam (*Carpinus betulus*).

4.3.5. Dense scrub is relatively common locally although there is a good diversity of species present. It provides foraging and nesting habitat for birds and mammals. This habitat is therefore considered to be of importance at the site level.

***Tall ruderal***

4.3.6. The northern half of the site consists of tall ruderal vegetation. Species include dominant rosebay willowherb (*Chamaenerion angustifolium*), frequent creeping thistle (*Cirsium arvense*) and cocksfoot (*Dactylis glomerata*).

4.3.7. This habitat is species-poor and relatively common locally. This habitat is therefore considered to be of importance at the site level.

## 4.4. Species

***Amphibians***

4.4.1. SER returned one recent record for common toad. This occurred in 2012, 1.8 km to the south-west of the site at Kidsgrove parish.

4.4.2. No ponds are located on site or within 500 m of the site, although a number of houses with gardens bordering the site could potentially contain garden ponds

4.4.3. No amphibians were recorded during the site visit. Site habitats are of low suitability for great crested newts and isolated from any suitable breeding ponds. It is therefore considered that the site is unlikely to support great crested newts.

***Badger***

4.4.4. SER returned nine recent records of badger. The records consist of three sets in addition to field signs and sightings. The closest record occurred in 2013, 464 m to the south-east in Knypersley.

4.4.5. No evidence of badger activity was identified on site or within the immediate vicinity of the site. The site is small and poorly connected to the surrounding countryside. However, these animals may roam widely and may establish a sett in a new area at any time.

***Bats***

4.4.6. SER returned 13 recent records of bats, consisting of foraging / commuting bats and bat droppings. The records consist of five records for common pipistrelle (*Pipistrellus pipistrellus*), two records for pipistrelle species (*Pipistrellus sp.*), one whiskered bat (*Myotis mystacinus*), one Brandt's bat (*Myotis brandtii*) and four unidentified bat species.

4.4.7. The scrub could provide some limited foraging and commuting habitat for bats. The western southern site boundary would provide a linear feature for connectivity to the surrounding landscape. The grassland and ruderal vegetation is likely to provide only marginal foraging and commuting opportunity for bats.

4.4.8. There are no buildings on site and the site offers negligible opportunities for roosting bats.

***Birds***

4.4.9. SER returned 3,238 recent records of 92 bird species within 2 km of the site. Of the records, 39 species are "Red" listed, 42 are "Amber" listed and 15 species are listed under Schedule 1. Table 4.4.9 shows the Birds of Conservation Concern red or amber species from this list that may occur on site due to suitable habitat.

**Table 4.4.9. Notable bird species with potential to occur on site.**

| Common Name | Scientific Name | Birds of Conservation Concern Status |
|---|---|---|
| Linnet | *Linaria cannabina* | Red |
| House Sparrow | *Passer domesticus* | Red |
| Redwing | *Turdus iliacus* | Red |
| Song Thrush | *Turdus philomelos* | Red |
| Fieldfare | *Turdus pilaris* | Red |
| Mistle Thrush | *Turdus viscivorus* | Red |
| Meadow Pipit | *Anthus pratensis* | Amber |
| Reed Bunting | *Emberiza schoeniclus* | Amber |
| Willow Warbler | *Phylloscopus trochilus* | Amber |
| Dunnock | *Prunella modularis* | Amber |
| Bullfinch | *Pyrrhula pyrrhula* | Amber |

4.4.10. No birds were recorded during the survey. The scrub is likely to provide some marginal nesting and foraging habitat for birds such as song thrush, blackbird and dunnock. The berries on trees and scrub will provide a winter food source for birds such as mistle thrush, redwing and fieldfare. A large number of records were returned by SER from the wider area consisting of a wide variety of species but most of those are unlikely to occur on site due to limited habitat diversity.

***Reptiles***

4.4.11. SER returned no recent records of reptiles. No reptiles were recorded during the site visit and it is unlikely that the site would provide anything but marginal habitat for reptiles.

***Riparian mammals and white-clawed crayfish***

4.4.12. SER returned no records for otter, and no recent records for white-clawed crayfish. SER did return one recent record for water vole which was located in a pool north of Park Lane, Biddulph in 2007. This was located 1.3km south east of the site.

4.4.13. No watercourses are present on site. A brook is present 182 m north-west of the site beyond Meadow Way Road. There is poor connectivity to the surrounding countryside therefore the site is unlikely to support riparian mammals.

***Other key and Protected Species***

4.4.14. SER returned 11 records for protected and notable flowering plants which comprised nine records for bluebell (*Hyacinthoides non-scripta*) and two for pennyroyal (*Mentha pulegium*). Most of these occurred in Greenway Bank Country Park, Newpool and Knypersley Wood.

4.4.15. No habitats are present within or adjacent to the site that are likely to support other protected or key species not already discussed.

## 4.5. Invasive species

4.5.1. No non-native invasive species were recorded during the site visit.

## 4.6. Evaluation

4.6.1. The following table (Table 4.6.1) illustrates the importance of each habitat in terms of their potential loss to the wider county. Further detail on the importance of the habitats is given below.

**Table 4.6.1 Ecological importance of site habitats**

| Habitat | Ecological Importance | | | | | |
|---|---|---|---|---|---|---|
| | I | N | R | D | L | S |
| Scrub | | | | | X | |
| Semi-natural grassland | | | | | | X |
| Tall ruderal | | | | | | X |
| Scrub | | | | | | X |
| I=International, N=National, R=Regional, D=District, L=Local, S=Site | | | | | | |

4.6.2. The habitats on site are considered to be of nature conservation value at the site level, apart from scrub (local importance) and are not listed as important habitats in the Staffordshire SBI guidelines.

4.6.3. Species recorded on site are common in the local area and it is considered unlikely that the site supports any notable or protected species. However, animals are mobile and may move into new areas so a precautionary approach should be taken if any work is undertaken on the site.

## 4.7. Conclusions

4.7.1. Most of site habitats are common throughout the region and not considered eligible for BAS / SBI status.

# 5. Findings and Evaluation - CH024 (FID 161)

## 5.1. Site Description

5.1.1. The site is an area of land located to the north of Cheadle (central grid reference SK 01350 43795). It is approximately 1.63 ha in area and surrounded by recreational ground, buildings and industrial housing to the east. The boundary for the southern portion of the site consists of a high metal fence and the northern portion of the site has a low timber fence on the western perimeter. A hedgerow and brook are located to the north east and a footpath runs along the north-west boundary.

5.1.2. Lockwood Hall Associates conducted a Phase 1 habitat survey in September and October 2014. The site was subsequently extended by 0.23 Ha and the site was visited again to include the extended boundary by Ecus in October 2017. In addition to the Phase 1 report, records from Staffordshire Ecological Records (SER) and Magic Map have been used to create the following LWS assessment.

## 5.2. Designated Sites

5.2.1. Two statutory and five locally designated sites are located within 2 km of the study area (Table 5.2.1).

**Table 5.2.1 Statutory and locally designated sites for nature conservation within 2 km of the study area.**

| Site name | Status | Location relative to site | Notes |
|---|---|---|---|
| Cecilly Brook | LNR | 0.1 km E | A 1.25 km stretch of Cecilly Brook through Cheadle, most important site for water voles in the county. Ancient meadows at Thorley Drive are of county importance and mature hawthorn-blackthorn hedge surround the fields. |
| Hales Hall Pool | LNR | 0.3 km E | A man-made lake dating back to 1846 surrounded by ancient yew trees. The pool edges are an SBI with marsh marigold, flag Iris, greater tussock sedge and bulbous rush growing. |
| Cheadle Fish Ponds | LWS | 0.2 km E | Two ponds: large pond used for fishing with some emergent vegetation, whilst the smaller pond is surrounded by trees. |
| Gibridding Wood (south of) | LWS | 1.6 km NE | Two fields of semi-natural neutral grassland of varying quality. On free-draining slopes thinner soils give rise to more the unimproved and species-rich areas. |

| | | | |
|---|---|---|---|
| Gibridding Wood | LWS | 1.7 km NE | Broadleaved woodland containing a steep sided stream. Ancient woodland indicators are abundant and large areas of ramsons and opposite-leaved golden Saxifrage are found near the stream. |
| Hawksmoor Nature Reserve | LWS | 1.7 km NE | A publically accessible broadleaved woodland with a mainly Bracken and Bluebell ground flora except on upper slopes where there is more diversity in the ground flora. There are areas next to the rides with wet woodland species within them. |
| Rakeaway House Farm (south of) | LWS | 1.9 km SE | A range of grassland habitats including unimproved and semi-natural neutral grassland and unimproved acid grassland to the east. A pond with a marginal fringe made up of mostly yellow flag is also present. |

## 5.3. Habitats

5.3.1. The site habitats of tall ruderal vegetation, scattered trees, species-poor hedgerow and species-poor semi-natural grassland were all recorded by Lockwood Hall Associates, 2014. Hardstanding and introduced shrub were recorded in the survey of the extended area to the south.

5.3.2. Habitats identified within the site are presented in Table 5.3.2 and are discussed in order of dominance below.

**Table 5.3.2 Habitats present within the site**

| Habitat | Species Present | Area or length | % cover of site |
|---|---|---|---|
| Semi-natural grassland / tall ruderal | False oat grass (*Arrhenatherum elatius)*, cock's foot (*Dactylisglomerata),* tufted hair grass (*Deschampsia cespitosa),*common nettle (*Urtica dioica)*, rosebay willowherb *(Chamerion angustifolium)*, ribwort plantain (*Plantago lanceolata)* | 12200 $m^2$ | 75 |
| Hedgerow / trees / scrub / introduced shrub | Hawthorn (*Crataegus monogyna*), bramble (*Rubus fruticosus* agg.), ash (*Fraxinus excelsior*), holly (*Ilex aquifolium*), raspberry (*Rubus idaeus*) | 1785 $m^2$ | 11 |
| Hardstanding | Buddleia | 2354 $m^2$ | 14 |

***Semi-natural grassland***

5.3.3. Semi-natural grassland was reported by Lockwood Hall (2014) and dominates the south west section of the site (Figure 3, Section 5; Plates A1.1 - A1.3, Appendix 1). The habitat is mainly dominated by coarse grasses such as cocks-foot with tussocks of tufted hair grass present.

5.3.4. This habitat is relatively common in the local area although it forms a mosaic of habitats with the hedgerows, trees and brook which offer foraging habitat for small mammals and birds. This habitat is limited in extent and is not listed as an important habitat in the Staffordshire SBI guidelines. It is of local importance.

***Tall ruderal vegetation***

5.3.5. Tall ruderal vegetation was reported by Lockwood Hall (2014) and dominates much of the site, particularly the east the habitat is dominated by rosebay willowherb and nettle.

5.3.6. This habitat is relatively common in the local area although it forms a mosaic of habitats with the hedgerows, trees and brook which offer foraging habitat for small mammals and birds. It is not listed as an important habitat in the Staffordshire SBI guidelines but it covers a large area and forms a habitat mosaic with the brook, trees and hedgerow could potentially be designated as an SBI / BAS. Therefore the tall ruderal vegetation is of local importance.

***Hedgerow, trees and scrub***

5.3.7. Hedgerow, trees and scrub were reported by Lockwood Hall (2014) (Figure 3). These habitats are prevalent on the west and south central boundary. Dominant species include hawthorn and bramble with occasional ash, holly and raspberry.

5.3.8. This habitat is relatively common in the local area although it forms a corridor along the boundary of the site, particularly along the brook which falls just outside the site boundary. Therefore, this habitat is of local importance but the area along the brook could be SBI / BAS status and further information is required to make the assessment.

***Hardstanding***

5.3.9. This habitat dominates the southern section of the site and forms the majority of the extended area surveyed by Ecus (Figure 3, Plates A1.9-12). Vegetation is very sparse with occasional introduced shrubs growing through the cracks such as buddleia, along with rosebay willowherb, mosses, broad-leaved dock and rarer greater burdock (*Arctium lappa*), evening-primrose (*Oenothera* sp.), and dandelion (*Taraxacum officinale* agg.)

5.3.10. This habitat is species poor and is not listed as a priority habitat in the Staffordshire SBI Guidelines. It is of negligible importance.

## 5.4. Species

5.4.1. No notable species were recorded by Lockwood Hall Associates, 2014 or Ecus within the site.

***Amphibians***

5.4.2. SER data search returned one record for common toad (*Bufo bufo*). No recent records were returned for great crested newts but historical records exist.

5.4.3. No amphibians were recorded during the site visit and no suitable habitat was located during any of the site visits. However, the site is situated 50 m from a brook and 246 m from Hales Hall Pool which lies to the east of the site. Hales Hall Pool is designated as an LNR (Table 3.3.1) but is separated by housing. Therefore the site is unlikely to be important for amphibians.

***Badger***

5.4.4. SER returned three recent records of badger. All of these records consisted of field signs and the closest was recorded 1.2 km away near the A522, Cheadle Road.

5.4.5. No badger setts were identified on site and no evidence of any other badger activity was recorded. Similarly, no evidence of badgers was recorded in the immediate vicinity of the site and it is unlikely that the site would provide anything more than marginal habitat for badgers. Nevertheless, badgers are highly mobile animals and may move into an area at almost any time.

***Bats***

5.4.6. SER returned 27 records of bats, which included two unidentified species, two records for noctule, nine records for unidentified pipistrelle species, 10 records for common pipistrelle, three records for soprano pipistrelle (*Pipistrellus pygmaeus*) and one record for brown long-eared bat.

5.4.7. Lockwood Hall Associates, 2014 and Ecus identified the habitats present as having low bat roost potential. The scattered trees along the brook on the eastern boundary of the site in particular offer foraging and commuting habitat for bats. Therefore, further information is needed for assessment.

***Birds***

5.4.8. SER returned records of 64 notable bird species recorded within 1 km of the site. Table 5.4.8 shows the Birds of Conservation Concern red or amber species from this list that may occur on site due to suitable habitat.

**Table 5.4.8 Notable bird species with potential to occur on site.**

| Common Name | Scientific Name | Birds of Conservation Concern Status |
|---|---|---|
| Lesser redpoll | *Acanthis cabaret* | Red |
| Lesser black-backed gull | *Larus fuscus* | Red |
| Linnet | *Linaria cannabina* | Red |
| Song thrush | *Turdus iliacus* | Red |
| Mallard | *Anas platyrhynchos* | Amber |
| Meadow pipit | *Anthus pratensis* | Amber |
| Common swift | *Apus apus* | Amber |
| House martin | *Delichon urbicum* | Amber |

| Common Name | Scientific Name | Birds of Conservation Concern Status |
|---|---|---|
| Reed bunting | *Emberiza schoeniclus* | Amber |

5.4.9. No birds were recorded on the site during the survey. However, a number of species were seen in close proximity including, woodpigeon (*Columba palumbus*), jackdaw (*Corvus monedula*), carrion crow (*Corvus corrone*), blackbird (*Turdus merula*), dunnock (*Prunella modularis*), bullfinch (*Pyrrhula pyrrhula*), lesser black-backed gull (*Larus fuscus*) and collared dove (*Streptopelia decoato*). Most of the birds were recorded in adjacent gardens, scattered trees and hedgerows, next to the site.

5.4.10. It is likely that the hedgerows and scattered trees provide some foraging and nesting habitats for a range of species such as dunnock, house sparrow, linnet and bullfinch. The grassland offers foraging opportunities for species such as starling, fieldfare, and mistle thrush. The brook, which lies very close to the east boundary of the Site may be suitable for kingfisher (*Alcedo atthis*), grey wagtail (*Motacilla cinerea*) and moorhen (*Gallinula chloropus*).

***Reptiles***

5.4.11. No recent records of reptiles were returned within 2 km.

5.4.12. No reptiles were recorded during the site visit although Lockwood Hall Associates (2014) identified the tall ruderal vegetation as suitable habitat and the site is situated 50 m from a brook. Therefore, there is potential for reptiles to be present and further information is needed to make an assessment.

***Riparian mammals and white-clawed crayfish***

5.4.13. The SER data search returned 17 records for water vole. The majority of these records originate at Cecily Brook (Plate A1.13) and Hales Hall Pool.

5.4.14. There no suitable habitat for water vole, otter or white-clawed crayfish on the site.

***Other protected and key species***

5.4.15. The SER data search returned 16 records for European hedgehog (*Erinaceus europaeus*). The hedgerow and tall ruderal vegetation present within the site offer foraging and nesting opportunities for the European hedgehog.

## 5.5. Invasive species

5.5.1. A number of garden escapes including cotoneaster were located in the south boundary and buddleia was noted in the area of hardstanding. Curled dock was recorded by Lockwood Hall and is listed under the Weeds Act 1959.

## 5.6. Target Notes

5.6.1. Table 5.6.1 gives a brief description of target notes recorded during the

site visits. The first target note was recorded by Lockwood Hall (2014) and was located on the north eastern boundary. The second target note was recorded by Ecus in the survey of the extended area. The location is shown in Figure 3 (Section 5).

**Table 5.6.1 Target notes in Figure 1**

| Target note | Grid reference | Description |
|---|---|---|
| 1 | SK0139543833 | Stream with broadleaved woodland and species poor riparian habitat |
| 2 | SK0125743722 | Buddleia |

## 5.7. Evaluation

5.7.1. The following table illustrates the importance of the site and each habitat in terms of their potential loss to the wider county. Further detail on the importance of the habitats is given below.

**Table 5.7.1 Ecological importance of site habitats**

| Habitat | Ecological Importance | | | | | |
|---|---|---|---|---|---|---|
| | I | N | R | D | L | S |
| Tall ruderal vegetation | | | | | X | |
| Species poor hedgerow | | | | | X | |
| Scattered trees | | | | | X | |
| Species poor semi- improved grassland | | | | | | X |
| Brownfield | | | | | | X |
| I=International, N=National, R=Regional, D=District, L=Local, S=Site | | | | | | |

5.7.2. Species-poor semi-improved grassland and scattered trees are common widespread habitats and were of nature conservation value at the site level only. The scattered trees were assessed as local importance only by Lockwood Hall Associated, 2014. These habitats are not listed as important habitats in the Staffordshire SBI guidelines.

5.7.3. Lockwood Hall Associates, 2014 recorded the presence of tall ruderal grassland, and species-poor hedgerow on site and suggested these habitats were of district importance. The SBI guidelines state that 'tall herb / ruderal habitats may be included as part of sites where they contribute as a nectar source of shelter for animals. This may be dominated by a single species, but not invasive species such as Japanese knotweed.' The species identified by Lockwood Hall Associates, 2014 were diverse and included willowherbs, nettles and coarse grasses. This habitat would provide suitable habitat for ground nesting birds, reptiles and small mammals. The tall ruderal grassland is therefore is eligible for BAS status.

5.7.4. No notable species were recorded by Lockwood Hall Associates, 2014 or Ecus. However, the site may support species such as the European hedgehog, badger, foraging bats, birds and reptiles due to connectivity to the stream and a mosaic of habitats present. There is potential for the site to support reptiles due to the presence of Cecily Brook LNR 50 m

away and suitable terrestrial refugia. Management of the scrub could be considered to provide refugia and basking areas for reptiles.

5.7.5. Cecily Brook LNR is located in close proximity to the east of the site. It is designated for water vole and is the most important site for this species in the county. It is important to maintain the habitat within at least 50m to be free of development. This should be in place from the brook to protect winter refuges, burrows and foraging bankside vegetation.

## 5.8. Conclusions

5.8.1. The site does not currently meet the criteria for SBI / BAS status. Most of site habitats are common throughout the region. However, the ruderal vegetation may be of similar to that required for BAS status.

5.8.2. The following surveys/ actions are therefore recommended in order to establish SBI/ BAS status:

- Tree and hedgerow planting
- 50m buffer zone from Cecily Brook maintained
- Presence / absence reptile surveys

# 6. Findings and Evaluation - CH132 (FID 146)

## 6.1. Site Description

6.1.1. The site consists of species-poor improved grassland with hedgerows and scattered trees to the north. It is located on the northern outskirts of Cheadle (central grid reference SK 01487 44520) and is approximately 4.3 ha in area. The site is surrounded by housing estates, and species-poor grassland with a stream located to the south-east. The stream provides moderate connectivity to the surrounding countryside.

6.1.2. Lockwood Hall Associates visited the site to conduct a Phase 1 Habitat survey in September and October 2014. In addition to the Phase 1 report, records from Staffordshire Ecological Records (SER) and Magic Map have been used to create the following LWS assessment.

## 6.2. Designated Sites

6.2.1. Two statutory and eight locally designated sites are located within 2 km of the study area (Table 6.2.1).

**Table 6.2.1 Statutory and locally designated sites for nature conservation within 2km of the study area.**

| Site name | Status | Location | Notes |
|---|---|---|---|
| Hales Hall Pool | LNR | 0.5 km south east | A man-made lake dating back to 1846 surrounded by ancient yew trees. The pool edges are an SBI with marsh marigold, flag Iris, greater tussock sedge and bulbous rush. |
| Cheadle Fish Ponds | LWS | 0.6 km south east | Two ponds, one large one small. The large pond is used for fishing and has some emergent vegetation, whilst the smaller pond is surrounded by trees. |
| Cecilly Brook | LNR | 1.1 km south | A 1.25 km stretch of Cecilly Brook through Cheadle, most important site for water voles in the county. Ancient meadows at Thorley Drive are of county importance and mature hawthorn-blackthorn hedge surround the fields. |
| Gibridding Wood | LWS | 1.1 km east | Broadleaved woodland containing a steep sided stream. Ancient woodland indicators are abundant and large areas of Ramsons and Opposite-leaved Golden Saxifrage are found near the stream. |
| Gibridding Wood (south of) | LWS | 1.2 km east | Two fields of semi-natural neutral grassland of varying quality. On free-draining |

| Site name | Status | Location | Notes |
|---|---|---|---|
| | | | slopes thinner soils give rise to more the unimproved and species-rich areas. |
| Hawksmoor Nature Reserve | LWS | 1.3 km east | A publically accessible broadleaved woodland with a mainly Bracken and Bluebell ground flora except on upper slopes where there is more diversity in the ground flora. There are areas next to the rides with wet woodland species within them. |
| Adams Hollow | BAS | 1.5km north | A very narrow stream valley, for most of its length the banks of the stream are wooded. At the north-western end the trees are more or less confined to a single line beside the stream and near the access track across the stream are rather intermittent. |
| Gorsey Wood | BAS | 1.5 km north east | Wooded valley with sycamore and oak. |
| Lockwood Pasture | LWS | 1.5 km north east | Species rich meadow adjacent to River Churnet. Apparently fertilized at some time, lush growth of grasses. Wet flushes thought to be at same site, but perhaps in field to south (SK 029 456). |
| Kingsley Holt (east of) | LWS | 1.8 km north east | A small beech woodland with two streams running through, with a field to the south that contains neutral grassland. |

## 6.3. Habitats

6.3.1. Habitats present within the site are presented in Table 6.3.1 and are discussed in order of dominance below.

**Table 6.3.1 Habitats present within the site**

| Habitat | Species Present | Area or length | % Cover of Site |
|---|---|---|---|
| Improved grassland | Perennial rye grass (*Lolium perenne*), timothy (Phleum pratense), creeping buttercup (Ranunculus repens), common nettle (*Urtica dioica*) | 4.29 | 99 |
| Hedgerows/trees | Hawthorn (*Crataegus monogyna*), blackthorn (*Prunus spinosa*), sycamore (*Acer pseudoplatanus*), bramble (*Rubus fruticosus*), ash (*Fraxinus excelsior*) | | 1 |

***Improved grassland***

6.3.2. The majority of the site consists of improved grassland). Perennial rye grass (*Lolium perenne*) is dominant; Timothy (*Phleum pratense*), creeping buttercup (*Ranunculus repens*), common nettle (*Urtica dioica*) are frequent.

6.3.3. This habitat is common and widespread both locally and throughout the UK and, as such, was considered to be of importance to nature conservation at site level only.

***Scattered trees and Hedgerows***

6.3.4. The northern boundary of the site adjoins a species-rich hedgerow with dominant hawthorn, occasional elder, blackthorn, hazel, sycamore and wild cherry (*Prunus avium*). Five trees in the northern part of the site were recorded as having bat roost potential and these consisted of sycamore, pedunculate oak and ash.

6.3.5. The species rich hedgerow and scattered trees could potentially be of district importance as they are listed as priority habitats in the SBI guidelines (Webb *et al*. 2014).

## 6.4. Species

***Amphibians***

6.4.1. SER returned two records of great crested newt and one record of common toad. The closest record was from Lockwood Hall Farm, approximately 1.0 km to the north east of the site.

6.4.2. One stream was identified within 250 m, close to the south east boundary. No amphibians were recorded during the site visit. Given the site's relative isolation and lack of suitable habitat it is considered unlikely to support great crested newts or to be important for any other amphibian species.

***Badger***

6.4.3. SER returned five recent records of badger. The closest record occurred 1.3 km away at Booth Farm in 2008. None of the records identify setts and consist of sightings and field signs only.

6.4.4. No badger setts were identified on site and no evidence of badger activity was recorded. The landscape is surrounded by farmland with hedgerows on the field boundaries which provide foraging habitat for badger and there is good connectivity to the surrounding countryside. Therefore, badgers could potentially be present.

***Bats***

6.4.5. SER returned 24 recent records of bats, these included one record of unidentified species, two records of noctule bat, eight records of unidentified pipistrelle species, ten records of common pipistrelle, three records of soprano pipistrelle and one record of brown long-eared bat.

6.4.6. The area of improved grassland is likely to be of negligible value for foraging and commuting bats. However, bats are likely to forage and

commute over hedgerows to the north and south and near the trees to the north. The northern and southern boundaries of the site may therefore be of some foraging and commuting value to bats. A bat activity survey would be necessary to better determine the use of this part of the site by bats.

6.4.7. The five trees on the northern site boundary showed features which could support roosting bats.

***Birds***

6.4.8. SER returned records of 61 notable species. Table 6.4.8 shows the Birds of Conservation Concern red or amber species from this list that may occur on site due to suitable habitat.

**Table 6.4.8 Notable bird species with potential to occur on site.**

| Common Name | Scientific Name | Birds of Conservation Concern Status |
|---|---|---|
| Lesser redpoll | *Acanthis cabaret* | Red |
| Skylark | *Alauda arvensis* | Red |
| Linnet | *Linaria cannabina* | Red |
| Curlew | *Numenius arquata* | Red |
| Redwing | *Turdus iliacus* | Red |
| Song thrush | *Turdus philomelos* | Red |
| Mallard | *Anas platyrhnchos* | Amber |
| Meadow pipit | *Anthus pratensis* | Amber |
| Black-headed gull | *Chroicocephalus ridibundus* | Amber |
| Reed bunting | *Emberiza schoeniclus* | Amber |
| Common snipe | *Gallinago gallinago* | Amber |
| Dunnock | *Prunella modularis* | Amber |
| Bullfinch | *Pyrrhula pyrrhula* | Amber |

6.4.9. No birds were recorded on site during the visit. However, it is likely that the site provides foraging opportunities for species such as woodpigeon, magpie and carrion crow. The hedgerows along the northern and southern boundaries are likely to provide nesting opportunity for species such as house sparrow, dunnock, song thrush, and whitethroat. The mature trees to the north could provide nesting opportunities for cavity nesting species such as great spotted woodpecker (*Dendrocopos majo*r) and nuthatch (*Sitta europaea*).

***Dormouse***

6.4.10. SER returned one record of hazel dormouse (Muscardinus avellanarius), this was located in Kingsley Holt, approximately 1.5 km north east of site. There are lack of suitable habitats on site to support hazel dormouse therefore hazel dormouse is unlikely to be present

***Reptiles***

6.4.11. SER returned no records of reptiles within 2 km of the site.No reptiles were recorded during the site visit and it is unlikely that the site would

provide anything but marginal habitat for reptiles.

***Riparian mammals and white-clawed crayfish***

6.4.12. SER returned 16 recent records of water vole but none for otter or white-clawed crayfish. These records came largely from Cecilly Brook, the closest of which was 0.57 km east of the site.

6.4.13. There is one water course within 30 m of the site boundary, Cecily Brook which is located to the south east of the site. This section of the brook however is not designated as SBI /BAS status although would likely be used by water voles due to the high number of records in close proximity. There is sub-optimal habitat on site to support water vole and this species is unlikely to be present.

***Other protected and key species***

6.4.14. The SER data search returned eight records for European hedgehog. The hedgerows present within the site could provide foraging and nesting opportunities for the European hedgehog.

## 6.5. Invasive species

6.5.1. No non-native invasive species were recorded by Lockwood Hall (2014).

## 6.6. Evaluation

6.6.1. The following table illustrates the importance of the site habitat in terms of their potential loss to the wider county. Further detail on the importance of the habitats is given below.

**Table 6.6.1 Ecological importance of site habitats**

| Habitat | Ecological Importance | | | | | |
|---|---|---|---|---|---|---|
| | I | N | R | D | L | S |
| Scattered trees | | | | X | | |
| Species rich hedgerow | | | | X | | |
| Species-poor hedgerow | | | | | | X |
| Species poor improved grassland | | | | | | X |
| I=International, N=National, R=Regional, D=District, L=Local, S=Site | | | | | | |

6.6.2. The species poor improved and species-poor hedgerows are not priority habitats listed under Staffordshire SBI Guidelines (Webb et al 2014). Therefore they do not currently qualify for consideration as an SBI or as a BAS under these criteria.

6.6.3. A species-rich hedgerow was identified by Lockwood Hall (2014) at SK0145644655 which consisted of hawthorn, blackthorn, sycamore, bramble and ash. The SBI/ BAS guidelines state that for a hedgerow to be considered a graded site, any one system of hedges must be no less than 100 m and not to be known to have been planted since 1950. However, Lockwood Hall Associates did not explicitly state the length or the condition of the hedgerow and so a detailed hedgerow survey, following the HEGS methodology, would need to be completed to establish the hedgerow's ecological value. Management of the hedgerow may include trimming, this encourages growth and should be

conducted ideally between January and February. If there are any gaps in the hedgerow, native species could be planted to provide a continuous hedgerow. It could also be recommended that the hedgerow is connected to other green infrastructure in order to create habitat corridors, this allows species to move throughout the environment.

6.6.4. Cecily Brook is located close to the site. It is recommended to maintain a buffer at least 10 m wide between the brook to and any future development to avoid potential impacts to water vole.

6.6.5. No notable or protected species were recorded on site by Lockwood Hall (2014), those recorded were common and widespread both at a county and national level. However, five trees on the northern boundary of the site were identified as having features which could support roosting bats and nesting birds. The SBI Guidelines state that sites can qualify as a BAS if “five or more broad-leaved veteran trees” are present. Lockwood Hall (2014) did not state the condition, age, features present (e.g. woodpecker holes, rot holes) or level of roosting potential (e.g. low, moderate, high), so an external inspection is recommended to establish the level of bat roost potential.

## 6.7. Conclusions

6.7.1. The site does not currently meet the criteria for SBI / BAS status. The species-rich hedgerow and the trees may be of similar quality to that required for SBI/BAS status. The trees also have potential to support roosting bats and nesting birds. It is therefore recommended that the following should be carried out:

- Bat roost inspection on 5 trees
- Maintain a 10 m wide buffer along Cecily Brook
- HEGS survey on species-rich hedgerow
- Management of hedgerow for wildlife

# 7. Findings and evaluation - LE066 (FID 34)

## 7.1. Site Description

7.1.1. The site is located just to the east of Leek town centre (central grid reference SJ 99947 56525) and is surrounded by agricultural land, with some housing. The wider area consists of a mosaic of farmland and small villages.

7.1.2. Lockwood Hall Associates visited the site to conduct as Phase 1 habitat survey in September and October 2014. In addition to the Phase 1 report, records from Staffordshire Ecological Records (SER) and Magic Map have been used to create the following LWS assessment.

## 7.2. Designated Sites

7.2.1. One statutory and 16 locally designated sites are located within 2 km of the study area (Table 7.2.1).

**Table 7.2.1 Statutory and locally designated sites for nature conservation within 2 km of the study area.**

| Site name | Status | Location relative to site | Notes |
|---|---|---|---|
| Kniveden Hall (east of) | LWS | 0.37 km E | Marshy grassland is both the largest and most diverse component habitat, with adjoining semi-natural neutral grassland and broadleaved woodland adding to the interest of the area. |
| Edge End Farm (north of) | LWS | 0.71 km N | The site composes steep slopes that enclose and descend down to a flattened basin floor, which runs alongside the brook. |
| Lowe Hill | BAS | 0.98 km S | A steep, east facing bank with two gullies running down to a plain where the water slows and creates areas of marshy grassland before leaching into a small stream. |
| Ballington Wood | LWS | 1.14 km SW | Ballington Wood is cited in the woodland inventory as ancient semi-natural woodland. This is relevant to some sections of the wood however, some areas, predominantly the northern section, has been replanted with coniferous and mixed stands. |
| Ladydale | LWS | 1.14 km SW | An area of poor semi-natural grassland with a large proportion of semi-natural neutral grassland. The Lady o' th' Dale Well runs through the north and north-western woodland area, and flows along the entire southern border of the site. |

| Site name | Status | Location relative to site | Notes |
|---|---|---|---|
| Ladydale Wood Pasture | LWS | 1.15 km SW | A hillside of semi-natural neutral grassland rising towards the north-east, with a scattering of broad-leaved trees. The southern and eastern areas of the site contain marshy grassland, and there are several marshy areas further up the hillside. |
| Bradnop (north of) | BAS | 1.20 km SE | A neutral grassland field with marshy areas which support some diversity in the sward but improvement has limited the number of herb species present. |
| Ball Haye Green Disused Tip | LWS | 1.27 km NW | A disused tip supporting a variety of vegetation types including marshy grassland, species-rich semi-natural neutral grassland, species-poor semi-natural neutral grassland, broad-leaved semi-natural woodland and scrub. |
| Edge End Wood | LWS | 1.31 km NW | Species-rich marshy grassland and ancient semi-natural broad-leaved woodland located in a steep-sided stream valley. |
| Stare Wood | LWS | 1.34 km NW | An area of deciduous woodland on steep, north-facing slopes. The tree-cover is dominated by silver birch and pedunculate oak. |
| Solomon's Hollow | BAS | 1.39 km N | Species-rich verges either side the A53 Leek to Buxton Road where the road enters a steep dip crossing a stream. |
| Brough Park Fields | LNR | 1.51km NW | Urban fringe meadow and woodland. |
| Brough Park Fields Country Park | LWS | 1.58 km NW | The site covers an area of approximately 8.27 hectares, and comprises mainly of unimproved and semi-natural neutral grassland, with a large area of poor semi-natural grassland located to the east of the site. |
| Wormlow (north west of) | LWS | 1.67 km E | Stream with steep sloping banks, grazed by cattle. |
| Back Hills and Abbey Woods | LWS | 1.82 km NW | Abbey wood with a diverse wetland flora was surveyed in 2005 and Backhills Wood with wet and dry ancient woodland indicator species looked at in 1999. Rank grassland, south-east of Backhills takes up the |

| Site name | Status | Location relative to site | Notes |
|---|---|---|---|
| | | | area between the two woodlands. |
| Thorncliffe (west of) | LWS | 1.95 km NE | A steep-sided stream valley, mainly occupied by woodland. Downstream there is a line of trees on the banks, with the northern side of the valley supporting a mix of scrub, bracken, marshy grassland and semi-natural or unimproved neutral grassland. |
| Easing Farm (east of) | LWS | 2.00 km NE | A sloping field predominantly poor semi-natural grassland that is heavily grazed and has developed a very closely cropped sward. However, heading west, down the slope, the field becomes wetter and a greater floral interest develops. |

## 7.3. Habitats

7.3.1. The site habitats of plantation mixed woodland, species poor amenity grassland, scattered trees, scattered scrub, tall ruderal vegetation, allotments, gardens, rubble/brash piles, buildings were reported by Lockwood Hall Associates, 2014. Table 7.3.1. gives more information regarding each habitat type.

**Table 7.3.1 Habitats present within the site**

| Habitat | Species Present | Area or length | % cover of site |
|---|---|---|---|
| Grassland, tall ruderal | Annual meadow grass (*Poa annua*), Himalayan balsam (*Impatiens glandulifera*), rosebay willowherb (*Chamerion angustifolium*), rough meadow grass (*Poa trivialis*), common nettle (*Urtica dioica*), cock's foot (*Dactylis glomerata*) | 5100 $m^2$ | 14 |
| Trees, shrubs, scrub | Hawthorn, blackthorn, dog rose, dogwood, hazel, ash, sycamore, rhododendron, cherry laurel (*Prunus laurocerasus*), snowberry (*Symphoricarpos albus*), beech (*Fagus sylvatica*) | 191,000 $m^2$ | 53 |
| Other | | 121,000 $m^2$ | 33 |

***Grassland and tall ruderal vegetation***

7.3.2. Small areas of amenity grassland are present in the south of the site, semi-natural grassland north of the site. The grassland consists of species such as annual meadow grass, rough meadow grass and cock's foot and is considered to be species poor therefore the grassland is of site importance.

7.3.3. A small area of tall ruderal vegetation is present in the east of the site.

The tall ruderal contains species such as common nettle, Himalayan balsam and rosebay willowherb. This habitats contains invasive non-native species, is species poor and is considered to be of site importance only.

***Mixed woodland***

7.3.4. The north of the site is dominated by scrub and mixed planted woodland. This would have likely been planted by previous owners in the early 20th century with species such as lime, beech, pine, and monkey puzzle being present. The understorey is species-poor containing non-native species such as Cherry laurel, snowberry and rhododendron.

7.3.5. Woodland is listed as a priority habitat under the Staffordshire SBI Guidelines. The woodland mosaic may be important for species such as birds and bats and although it is species poor it is moderately connected to the surrounding landscape. Ballington Wood LWS, an ancient woodland lies 1.14 km to the south west of the site although there is little connectivity from the site. Therefore the woodland is of site importance only.

## 7.4. Species

7.4.1. No notable species were recorded by Lockwood Hall Associates, 2014.

***Amphibians***

7.4.2. SER returned four amphibian records. These included one common toad and three great crested newts.

7.4.3. No amphibians were recorded during the site visit and no habitats present within or adjacent to the site are likely to support amphibians.

***Badger***

7.4.4. SER returned eight records of badger. These consisted of sets, field signs and sightings. The closest badger was recorded 525 m away from the site.

7.4.5. No badger setts were identified on site and no evidence of any other badger activity was recorded. Similarly, no evidence of badgers was recorded in the immediate vicinity of the site although there is good connectivity to the surrounding countryside. Nevertheless, badgers are highly mobile animals and may move into an area at almost any time.

***Bats***

7.4.6. SER returned 28 records of bats, which included one record of an unidentified species, two records of noctule bat, 11 records of pipistrelle species, 11 common pipistrelle and three records of soprano pipistrelle.

7.4.7. Lockwood Hall Associates (2014) recorded 11 buildings and four trees with the potential for bat roosts on site. The report stated that the buildings consisted of large council offices of various ages constructed of bricks and tiles. Features included numerous potential entrances under roof tiles, within soffit boards and within holes. Therefore, there is potential for roosting bats to be present on site and it is recommended

that these buildings and trees are surveyed.

7.4.8. The remaining site habitats such as hedgerows and woodland could provide marginal foraging and commuting opportunity for bats.

***Birds***

7.4.9. SER returned records of 44 notable bird species. Table 7.4.9 shows the Birds of Conservation Concern red or amber species from this list that may occur on site due to suitable habitat.

**Table 7.4.9 Notable bird species with potential to occur on site.**

| Common Name | Scientific Name | Birds of Conservation Concern Status |
|---|---|---|
| Lesser redpoll | *Acathis cabaret* | Red |
| Linnet | *Linaria cannabina* | Red |
| Curlew | *Numenius arquata* | Red |
| Mallard | *Anas platyrhynchos* | Amber |
| Common swift | *Apus apus* | Amber |
| Black-headed gull | *Chroicocephalus ridibundus* | Amber |
| Reed bunting | *Emberiza schoeniclus* | Amber |
| Dunnock | *Prunella modularis* | Amber |
| Bullfinch | *Pyrrhula pyrrhula* | Amber |

7.4.10. Magpie (*Pica pica*) and woodpigeon (*Columba palumbus*) were recorded on site during the survey by Lockwood Hall Associates 2014. The buildings were assessed as having potential for roosting bats by Lockwood Hall therefore they are likely to have some potential for nesting birds such as house sparrow and starling. It is likely that the woodland provides foraging and nesting opportunities for a range of species such as robin, blackbird, dunnock, house sparrow, magpie, carrion crow and woodpigeon.

***Reptiles***

7.4.11. SER returned three records of reptiles. These included one record of slow-worm and two records of grass snake.

7.4.12. The site is well connected to a scrub/broadleaved woodland mosaic which could offer habitat for reptiles. The log/brash piles habitats present on site could provide potential refugia and hibernating areas for reptiles. Therefore, reptiles are considered to be a potential receptor for the site, and it is recommended that a reptile survey is carried out.

***Riparian mammals and white-clawed crayfish***

7.4.13. SER returned no records of otter, water vole or white-clawed crayfish within 2 km of site.

7.4.14. No suitable habitats for water vole, otter or white-clawed crayfish are present within or adjacent to the site likely to support.

***Other protected and key species***

7.4.15. SER returned 21 records of Western European hedgehog, seven records of brown hare and two records of polecat within 2 km of the site. The variety of different habitats on site offer foraging and nesting opportunities for the European hedgehog, brown hare and polecat.

## 7.5. Invasive species

7.5.1. The Schedule 9 listed himalayan balsam (*Impatiens glandulifera*), rhododendron (*Rhododendron* sp.) and snowberry (*Symphoricarpos albus*) were identified on site by Lockwood Hall Associates, 2014.

## 7.6. Evaluation

7.6.1. The following table illustrates the importance of the site and each habitat in terms of their potential loss to the wider county. Further detail on the importance of the habitats is given below.

**Table 7.6.1. Ecological importance of site habitats**

| Habitat | Ecological Importance | | | | | |
|---|---|---|---|---|---|---|
| | I | N | R | D | L | S |
| Mixed planted woodland | Further surveys recommended | | | | | |
| Semi-natural species poor grassland | | | | | | X |
| Ephemeral grassland | | | | | | X |
| Tall ruderal vegetation | | | | | | X |
| Species poor amenity grassland | | | | | | X |
| I=International, N=National, R=Regional, D=District, L=Local, S=Site | | | | | | |

7.6.2. Lockwood Hall Associates 2014 reported that there were four trees and 11 buildings with bat roost potential but no score was given (low, moderate, high potential). The SBI guidelines state that “If the site has a significant population of a notable bat species then areas of foraging and maternity roosts for that population are considered for protection”. Therefore, further surveys are recommended to assess the buildings and trees for their potential to support roosting bats.

7.6.3. The mixed plantation woodland was scored as being of district importance by Lockwood Hall (2014). They stated that the understorey and ground flora was species-poor, and non-native consisting of species such as rhododendron, snowberry and cherry laurel. This type of woodland is not listed as a priority habitat in the guidelines, but given the size of the woodland, the moderate connectivity to surrounding countryside and potential for roosting bats it could be of district importance. Woodland management could enhance, maintain and increase structural diversity; retaining old and dead wood, planting of native species and removal of invasive species in addition to ensuring opportunities for regeneration through selective thinning.

## 7.7. Conclusions

7.7.1. The site does not currently meet the criteria for SBI / BAS status. The site has potential to support protected species. The site habitats are

considered to be of nature conservation value at the site level. However, more information is required regarding the potential for bat roosts in the identified trees and buildings and further surveys are required of the mixed woodland.

7.7.2. The following surveys/ actions are therefore recommended in order to improve the ecological value of the site:

- Further survey of the four trees and 11 buildings identified as potential bat roosts
- Woodland management, including planting of native species and improving corridor to other local woodlands such as Ballington Wood LWS.
- Invasive species management in woodland

# 8. Findings and Evaluation- LE102 (FID 38)

## 8.1. Site Description

8.1.1. The site is located to the north-east of Leek town centre and is approximately 0.94 Ha in size (central grid reference SJ9730157262). Leek Cricket Club lies to the north, a retail park and Bank Farm are located to the south. River Churnet and Macclesfield Road also lie in close proximity to the south. The wider area consists of agricultural land and farm buildings. The site is steeply sloping and is at a higher altitude than the surrounding landscape.

8.1.2. Lockwood Hall Associates visited the site to conduct a Phase 1 Habitat survey in September and October 2014. In 2017, SMDC extended the site boundary by 0.35 Ha and Ecus visited the site in October 2017 to conduct a Phase 1 Habitat survey of the additional land. In addition to the phase 1 report, records from Staffordshire Ecological Records (SER), Magic Map have been used to create the following LWS assessment.

## 8.2. Designated Sites

8.2.1. One statutory and ten locally designated sites are located within 2 km of the study area (Table 8.2.1).

**Table 8.2.1. Statutory and locally designated sites for nature conservation within 2 km of the study area.**

| Site name | Status | Location relative to site | Notes |
|---|---|---|---|
| Brough Park Fields | LNR | 0.76 km E | Urban fringe meadow and woodland. |
| Foker Grange | BAS | 0.95 km NW | Diverse well drained grassland with scattered scrub. |
| Brough Park Fields Country Park | LWS | 0.99 km E | The site covers an area of approximately 8.27 hectares, and comprises mainly of unimproved and semi-natural neutral grassland, with a large area of poor semi-natural grassland located to the east of the site. |
| West Wood | LWS | 1.12 km SW | A diverse broad-leaved woodland used for clay pigeon shooting and noted on Natural England's Ancient Woodland Inventory with a number of woodland indicator species present in the ground flora such as Bluebell and Wood Anemone. |
| Ball Haye Green Disused Tip | LWS | 1.20 km E | A disused tip supporting a variety of vegetation types including marshy grassland, species-rich semi-natural neutral grassland, species-poor semi-natural neutral grassland, broad- |

| Site name | Status | Location relative to site | Notes |
|---|---|---|---|
| | | | leaved semi-natural woodland and scrub. |
| Back Hills and Abbey Woods | LWS | 1.25 km NE | Abbey wood with a diverse wetland flora was surveyed in 2005 and Backhills Wood with wet and dry ancient woodland indicator species looked at in 1999. Rank grassland, south-east of Backhills takes up the area between the two woodlands. |
| Longsdon Wood and Cowhay Woods | LWS | 1.25 km SW | The site consists of a linear strip of secondary broadleaved woodland 2.2km long running from north to south. Maturing oaks are a predominant feature of the wood, with more locally frequent silver birch, rowan, and beech. |
| Stare Wood | LWS | 1.65 km NE | An area of deciduous woodland on steep, north-facing slopes. The tree-cover is dominated by silver birch and pedunculate oak. |
| Harpers Gate | SBI | 1.75 km NW | An area of wet fen meadow with flushes. |
| Ladydale Wood Pasture | LWS | 1.81 km SE | A hillside of semi-natural neutral grassland rising towards the north-east, with a scattering of broad-leaved trees. The southern and eastern areas of the site contain marshy grassland, and there are several marshy areas further up the hillside. |
| Ladydale | LWS | 2.0 km SE | An area of poor semi-natural grassland with a large proportion of semi-natural neutral grassland. The Lady o' th' Dale Well runs through the north and north-western woodland area, and flows along the entire southern border of the site. |

## 8.3. Habitats

8.3.1. The site habitats of broadleaved woodland, scattered trees and improved grassland were reported by Lockwood Hall Associates, 2014.

8.3.2. Site habitats for the extension were recorded as woodland, improved grassland, semi-natural grassland and tall ruderal vegetation were recorded by ECUS in 2017. Table 8.3.2 gives more information regarding each habitat type.

**Table 8.3.2 Habitats present within the site**

| Habitat | Species Present | Area or length | % cover of site |
|---|---|---|---|
| Improved grassland | Annual meadow grass (*Poa annua*), creeping buttercup, creeping bent (*Agrostis stolonifera*) | 8042 $m^2$ | 69 |
| Semi-natural grassland | Cock's foot, ribwort plantain, broad-leaved dock, Yorkshire fog, soft rush, yarrow (*Achillea millifolium*) | 168 $m^2$ | 1 |
| Mixed woodland | Beech, horse chesnut, oak, elder, holly | 3107 $m^2$ | 27 |
| Tall ruderal | Common nettle, hawkweed species (*Pilosella* agg.), broad-leaved dock, hogweed (*Heracleum sphondylium*), creeping thistle, knapweed (*Centaurea nigra*), | 337 $m^2$ | 3 |

***Improved grassland***

8.3.3. Improved grassland dominates the southern half and part of the northern section of the site. It is bordered by tape fencing in the centre and one of the southern fields had two horses present. There was also evidence that the grassland was grazed by rabbits. Species present include frequent creeping buttercup and annual meadow grass, with occasional bramble and nettle.

8.3.4. Improved grassland is of site importance only.

***Semi-natural grassland***

8.3.5. The semi-natural grassland consisted of frequent herb Robert and cock's foot, with occasional ribwort plantain, broadleaved dock, Yorkshire fog, soft rush, and yarrow. Mouse-ear species (Cerastrium sp.) occurred rarely. This habitat is less intensively grazed than the surrounding grassland therefore has a greater species-diversity. Therefore this habitat is of local importance.

***Mixed woodland***

8.3.6. The woodland in the north west contained a mixture of native broad-leaved species such as horse chestnut (Aesculus hippocastanum), with occasional Scot's Pine (Pinus sylvestris) oak, elder and holly. The understorey consisted of frequent herb robert (Geranium robertianum) and ivy with occasional bramble, holly, common nettle, sycamore, elder, and rare bracken (Pteridium aquilinum). On the eastern boundary there is a track outside the site which is bordered by mature beech trees on either side. The embankment of beech trees is steeply sloping.

8.3.7. The woodland contains a good mix of native species contain mature and semi-mature trees with a diverse understorey although it is limited in extent. There is moderate connectivity to the surrounding countryside. Therefore, this habitat is potentially of district importance and further information is required to make the assessment.

***Tall ruderal vegetation***

8.3.8. The tall ruderal vegetation was found along boundary next to

Macclesfield Road and along the woodland edge. It was dominated by nettle, with occasional broadleaved dock, hogweed, and creeping thistle. There was rarely occurring hawkweed (Pilosella agg.).

8.3.9. This can be considered to be a species-rich habitat and would form an important source of nectar for pollinating insects as the surrounding grassland is heavily grazed by horses. Therefore, this could be considered to be of local importance.

## 8.4. Species

8.4.1. No notable species were recorded by Lockwood Hall Associates, 2014 or ECUS in 2017.

***Amphibians***

8.4.2. SER returned one amphibian record of great crested newt which occurred 1.7km away from the site in 2014.

8.4.3. No amphibians were recorded during the site visit and no habitats present within or adjacent to the site are likely to support amphibians. However, there were two large ponds to the immediate north east which have since dried up. Therefore the site is unlikely to support amphibians.

***Badger***

8.4.4. SER returned 21 records of badger which consisted of setts, field signs and sightings. The closest record occurred in 2012, 336 m away to the south of the site.

8.4.5. No badger setts were identified on site by Lockwood Hall Associates, 2014. In the updated survey by ECUS an old badger sett was identified within the western area of woodland. There were no signs that the sett being recently used by badgers but fox droppings were seen close by. No evidence of any other badger activity was recorded. The woodland is on a steeply sloping embankment which would be optimal habitat for badger setts and the wider area may be used for foraging. Badgers are highly mobile animals and may move into an area at almost any time. Therefore, it is likely that badgers could be present on site.

***Bats***

8.4.6. SER returned 15 records of bats, which included one record of an unidentified species, seven records of pipistrelle species, six records for common pipistrelle and one record of brown long-eared bat. These consisted of roosts, field sightings and signs such as droppings. The closest roost was identified as a common pipistrelle roost in 2013 and was located 912 m south of the site.

8.4.7. Lockwood Hall Associates recorded three trees within the woodland with the potential for bat roosts on site. Ecus found four trees with bat roost potential, these were a beech, hawthorn, a dead tree and ash tree. It is therefore recommended that these trees are surveyed for bats. The site habitats, particularly the woodland and scattered trees would provide good foraging and commuting habitat bats. Therefore, the site has potential for district importance for bats and further information is required to make an assessment.

### *Birds*

8.4.8. SER returned records of 52 notable bird species. Table 8.4.8 shows the Birds of Conservation Concern red or amber species from this list that may occur on site due to suitable habitat.

**Table 8.4.8 Notable bird species with potential to occur on site.**

| Common Name | Scientific Name | Birds of Conservation Concern Status |
|---|---|---|
| Lesser redpoll | *Acanthis cabaret* | Red |
| House sparrow | *Passer domesticus* | Red |
| Starling | *Sturnus vulgaris* | Red |
| Redwing | *Turdus iliacus* | Red |
| Song thrush | *Turdus philomelos* | Red |
| Meadow pipit | *Anthus pratensis* | Amber |
| Common swift | *Apus apus* | Amber |
| Stock dove | *Columba oenas* | Amber |
| Lesser black-backed gull | *Larus fuscus* | Amber |
| Dunnock | *Prunella modularis* | Amber |
| Bullfinch | *Pyrrhula pyrrhula* | Amber |

8.4.9. Carrion crow was recorded on site by Lockwood Hall Associates, 2014. Song thrush, robin, redwing, goldcrest (*Regulus regulus*), blackbird, great spotted woodpecker and nuthatch were recorded by ECUS, 2017. It is likely that the woodland and scattered trees, provide foraging and nesting opportunities for a range of woodland species such as robin, blackbird, magpie, carrion crow and woodpigeon. The mature trees would provide good opportunity for cavity nesting species such as great spotted woodpeckers, great tits, stock doves and tawny owls. Therefore, the site is of local importance to birds.

### *Reptiles*

8.4.10. SER returned three records of reptiles. These included one record of slow-worm and two records of grass snake. The closest record is of a grass snake which was located along the River Churnet, at Brough Park Fields, 1.8 km south-east of the site.

8.4.11. The River Churnet lies approximately 30m to the south of the site. The River Churnet would provide a corridor for mobile animals such as reptiles. Therefore, there is some limited potential for reptiles to use the site although more suitable habitats exist elsewhere. The site is of negligible importance for reptiles.

### *Riparian mammals and white-clawed crayfish*

8.4.12. SER returned one recent record of European otter. This record was located in Harpers gate, approximately 1.77 km north-west of the site.

8.4.13. Habitats within the site are sub-optimal for water vole, otter and white-clawed crayfish. River Churnet is located 30m to the south of the site although it is separated by a main road, otter have been historically

recorded there. Otter and water vole can cross land although and they are highly mobile animals. Therefore there is low potential for otter and water vole to be present on site.

***Other protected and key species***

8.4.14. SER returned seven records of European hedgehog, 7 records of brown hare and one record of polecat.

8.4.15. Habitats present on site could provide foraging habitat for these species.

## 8.5. Invasive species

8.5.1. Rhododendron was recorded in the broadleaved woodland by Lockwood Hall Associates, 2014 and ECUS, 2017.

8.5.2. Lockwood Hall Associates 2014 did record curled dock (*Rumex crispus*), creeping thistle (*Cirsium arvense*) and broadleaved dock (*Rumex obtusifolius*), weeds listed under the Weeds Act 1959, within the grassland and tall ruderal vegetation.

## 8.6. Target Notes

8.6.1. Table 8.6.1 gives a brief description of Target Notes referred to in Figure 4.

**Table 8.6.1 Target notes recorded by Ecus**

| Target note | Grid reference | Description |
|---|---|---|
| 1 | SJ9734057255 | Mature beech tree |
| 2 | SJ9726557299 | Hawthorn - low bat roost potential |
| 3 | SJ9725757274 | Old badger sett |
| 4 | SJ9721457354 | Dead tree – moderate bat potential |

## 8.7. Evaluation

8.7.1. The following table illustrates the importance of the site and each habitat in terms of their potential loss to the wider county. Further detail on the importance of the habitats is given below.

**Table 8.7.1 Ecological importance of site habitats**

| Habitat | Ecological Importance | | | | | |
|---|---|---|---|---|---|---|
| | I | N | R | D | L | S |
| Broadleaved woodland | Further information needed | | | | | |
| Scattered trees | Further information needed | | | | | |
| Improved grassland | | | | | | X |
| Semi-natural grassland | | | | | X | |
| Tall ruderal | | | | | X | |
| I=International, N=National, R=Regional, D=District, L=Local, S=Site | | | | | | |

8.7.2. The broadleaved woodland has an assemblage of mature trees with good connectivity to semi-natural woodland, hedgerows and scrub in the wider context. Within the woodland there are also trees with bat roost potential and therefore it is deemed that this habitat has district

importance.

8.7.3. Lockwood Hall Associates 2014 reported that there were three trees have bat roost potential (however no score was indicated). ECUS also identified four with bat roost potential in the extended survey. If the site has a significant population of a notable bat species then areas of foraging and maternity roosts for that population are considered for protection.

## 8.8. Conclusions

8.8.1. The site does not currently meet the criteria for SBI / BAS. The site has moderate ecological value in its potential to support protected species. The site habitats are considered to be of nature conservation value at the local level. However, more information is required regarding the potential for bat roosts in the identified trees.

8.8.2. The following surveys/ actions are therefore recommended in order to assess the ecological value of the site:

- Further survey of the 7 trees identified as potential bat roosts.
- Survey of woodland flora for SBI/BAS potential (March-May)
- Badger survey

# 9. Findings and Evaluation - LE128B (FID 39)

## 9.1. Site Description

9.1.1. The site is an area of grassland located to the east of Leek (central grid reference SJ 99820 56379). The site is located next to residential housing dwellings to the west and surrounded by agricultural land on other boundaries. The wider area consists of a mosaic of farmland, roads and residential housing.

9.1.2. Lockwood Hall Associates visited the site to conduct as Phase 1 habitat survey in September and October 2014. In addition to the Phase 1 report, records from Staffordshire Ecological Records (SER) and Magic Map have been used to create the following LWS assessment.

## 9.2. Designated Sites

9.2.1. One statutory and 16 locally designated sites are located within 2 km of the study area (Table 9.2.1).

**Table 9.2.1. Statutory and locally designated sites for nature conservation within 2 km of the study area.**

| Site name | Status | Location relative to site | Notes |
|---|---|---|---|
| Kniveden Hall (east of) | LWS | 0.52 km E | Marshy grassland is both the largest and most diverse component habitat, with adjoining semi-natural neutral grassland and broadleaved woodland adding to the interest of the area. |
| Lowe Hill | BAS | 0.69 km S | A steep, east facing bank with two gullies running down to a plain where the water slows and creates areas of marshy grassland before leaching into a small stream. |
| Ladydale | LWS | 0.83 km SW | An area of poor semi-natural grassland with a large proportion of semi-natural neutral grassland. The Lady o' th' Dale Well runs through the north and northwestern woodland area, and flows along the entire southern border of the site. |
| Ballington Wood | LWS | 0.87 km SW | Ballington Wood is cited in the woodland inventory as ancient semi-natural woodland. This is relevant to some sections of the wood however, some areas, predominantly the northern section, has been replanted with coniferous and mixed stands. |

| Site name | Status | Location relative to site | Notes |
|---|---|---|---|
| Ladydale Wood Pasture | LWS | 0.99 km SW | A hillside of semi-natural neutral grassland rising towards the north-east, with a scattering of broad-leaved trees. The southern and eastern areas of the site contain marshy grassland, and there are several marshy areas further up the hillside. |
| Ball Haye Green Disused Tip | LWS | 1.23 km NW | A disused tip supporting a variety of vegetation types including marshy grassland, species-rich semi-natural neutral grassland, species-poor semi-natural neutral grassland, broad-leaved semi-natural woodland and scrub. |
| Bradnop (north of) | BAS | 1.28 km SE | A neutral grassland field with marshy areas which support some diversity in the sward but improvement has limited the number of herb species present. |
| Edge End Farm (north of) | LWS | 1.37 km NE | The site composes steep slopes that enclose and descend down to a flattened basin floor, which runs alongside the brook. |
| Edge End Wood | LWS | 1.47 km N | Species-rich marshy grassland and ancient semi-natural broad-leaved woodland located in a steep-sided stream valley. |
| Stare Wood | LWS | 1.47 km NW | An area of deciduous woodland on steep, north-facing slopes. The tree-cover is dominated by silver birch and pedunculate oak. |
| Solomon's Hollow | BAS | 1.59 km NE | Species-rich verges either side the A53 Leek to Buxton Road where the road enters a steep dip crossing a stream. |
| Brough Park Fields | LNR | 1.61 km NW | Urban fringe meadow and woodland. |
| Brough Park Fields Country Park | LWS | 1.61 km NW | The site covers an area of approximately 8.27 hectares, and comprises mainly of unimproved and semi-natural neutral grassland, with a large area of poor semi-natural grassland located to the east of the site. |
| Wormlow (north west of) | LWS | 1.88 km E | Stream with steep sloping banks, grazed by cattle. |
| Birchall Meadow | BAS | 1.89 km SW | Approximately one hectare of species-rich semi-natural neutral |

| Site name | Status | Location relative to site | Notes |
|---|---|---|---|
| | | | grassland. There is a small area of bare ground situated along the entire eastern border with another small area along the north-east border of the site. |
| Back Hills and Abbey Woods | LWS | 1.95 km NW | Abbey wood with a diverse wetland flora was surveyed in 2005 and Backhills Wood with wet and dry ancient woodland indicator species looked at in 1999. Rank grassland, south-east of Backhills takes up the area between the two woodlands. |
| Thornclffe (west of) | LWS | 2.00 km NE | A steep-sided stream valley, mainly occupied by woodland. Downstream there is a line of trees on the banks, with the northern side of the valley supporting a mix of scrub, bracken, marshy grassland and semi-natural or unimproved neutral grassland. |

## 9.3. Habitats

9.3.1. The site habitats of species poor improved grassland, scattered trees, species poor hedgerows and buildings were all reported by Lockwood Hall Associates, 2014. Table 9.3.1 below gives more information about each habitat.

**Table 9.3.1 Habitats present within the site**

| Habitat | Species Present | Area or length | % cover of site |
|---|---|---|---|
| Grassland, tall ruderal | Perennial rye grass (*Lolium perenne*), cock's foot (*Dactylis glomerata*), common nettle (*Urtica dioica*) | 31,600 $m^2$ | 100 |
| Hedgerows, shrubs, scrub | ash, hawthorn, elder, bramble | | N/A |

***Improved grassland***

9.3.2. Improved grassland dominates the majority of the site. Boundaries consist of fencing in the west, north-east of the site. The habitat is species-poor with species such as perennial rye-grass, and cock's foot dominating.

9.3.3. Improved grassland is not a priority habitat listed under the Staffordshire SBI Guidelines therefore it is of site importance only.

***Hedgerows, trees and scrub***

9.3.4. A hedgerow is present on the northern boundary of the site, a small area of scrub is present in the south-east of the site and there are few scattered trees in the south west and north east of the site. The hedgerow is considered to be species-poor by Lockwood Hall (2014)

and is dominated by ash, hawthorn, elder and bramble.

9.3.5. These habitats are species-poor although provide connectivity to the wider countryside and offer nesting and foraging habitat for birds and mammals. Therefore, the trees, hedgerow and scrub are of local importance.

## 9.4. Species

9.4.1. No notable species were recorded by Lockwood Hall Associates, 2014.

***Amphibians***

9.4.2. SER returned four amphibian records. These included one record of common toad and three records of great crested newt.

9.4.3. No amphibians were recorded during the site visit and no habitats present within or adjacent to the site are likely to support amphibians.

***Badger***

9.4.4. SER returned nine records of badger. These consisted of field signs, sightings and setts. The closest record occurred in 2008, this was located 521 m to the south-west.

9.4.5. No badger setts were identified on site and no evidence of any other badger activity was recorded. The site has good connectivity to the surrounding countryside and it is likely that the site will provide marginal foraging habitat for badger given that recent records occurred in close proximity to the site. Badgers are highly mobile animals and may move into a new area at almost any time.

***Bats***

9.4.6. SER returned 28 records of bats, which included one record of unidentified species, two records of noctule, 11 records of pipistrelle species, 11 records of common pipistrelle and three records of soprano pipistrelle.

9.4.7. Lockwood Hall Associates (2014) did not record any potential bat roosts on site. The site habitats do not offer anything more than marginal foraging and commuting opportunity for bats.

***Birds***

9.4.8. SER returned records of 43 notable bird species. Table 9.4.8 shows the Birds of Conservation Concern red or amber species from this list that may occur on site due to suitable habitat.

**Table 9.4.8 Notable bird species with potential to occur on site.**

| Common Name | Scientific Name | Birds of Conservation Concern Status |
|---|---|---|
| Tree sparrow | *Passer montana* | Red |
| House sparrow | *Passer domesticus* | Red |
| Starling | *Sturnus vulgaris* | Red |

| Common Name | Scientific Name | Birds of Conservation Concern Status |
|---|---|---|
| Redwing | *Turdus iliacus* | Red |
| Song thrush | *Turdus philomelos* | Red |
| Fieldfare | *Turdus pilaris* | Red |
| Mistle thrush | *Turdus viscivorus* | Red |
| Meadow pipit | *Anthus pratensis* | Amber |
| Swift | *Apus apus* | Amber |
| Pintail | *Anas acuta* | Amber |
| House martin | *Delichon urbicum* | Amber |
| Reed bunting | *Emberiza schoeniclus* | Amber |
| Willow warbler | *Phylloscopus modularis* | Amber |
| Dunnock | *Prunella modularis* | Amber |
| Bullfinch | *Pyrrhula pyrrhula* | Amber |

9.4.9. Woodpigeon was recorded on the site during the walkover survey. The scattered trees and hedgerow are likely to provide foraging and nesting opportunities for a range of species such as robin, blackbird, dunnock, house sparrow, magpie, carrion crow and woodpigeon. The scrub could provide nesting opportunity for species such as whitethroat, bullfinch, and willow warbler.

***Reptiles***

9.4.10. SER returned one record of a slow worm and one record of grass snake. The closest record was of a slow worm in 2016 which was located 1.2 km from the site at Ladydale Park.

9.4.11. No reptiles were recorded during the site visit. Site habitats are sub-optimal for reptiles and major roads form a barrier to other suitable habitat and the nearest brook is 527m to the east of the site. Therefore, the site is of negligible importance for reptiles.

***Riparian mammals and white-clawed crayfish***

9.4.12. SER did not return any recent records for otter or water vole and no records for white-clawed crayfish.

9.4.13. No suitable habitats are present within or adjacent to the site and the site is unlikely to support water vole, otter or white-clawed crayfish.

***Other protected and key species***

9.4.14. SER returned 21 records of European hedgehog, seven records of brown hare and two records of polecat within 2 km of the site. The closest brown hare record occurred 619 m to the south-west.

9.4.15. The grassland and hedgerows present on offer suitable foraging and nesting opportunities for the European hedgehog, brown hare and polecat.

## 9.5. Invasive species

9.5.1. No non-native invasive species were recorded by Lockwood Hall Associates, 2014.

## 9.6. Target notes

9.6.1. One target note was recorded by Lockwood Hall (2014) which consisted of small mixed woodland copse with Scot's pine, beech and hawthorn at SJ9981756195.

## 9.7. Evaluation

9.7.1. The following table illustrates the importance of the site and each habitat in terms of their potential loss to the wider county. Further detail on the importance of the habitats is given in Table 9.7.1 below.

**Table 9.7.1 Ecological importance of site habitats**

| Habitat | Ecological Importance | | | | | |
|---|---|---|---|---|---|---|
| | I | N | R | D | L | S |
| Scattered trees | | | | | X | |
| Species poor improved grassland | | | | | | X |
| Scrub | | | | | X | |
| Species poor hedgerow | | | | | X | |
| I=International, N=National, R=Regional, D=District, L=Local, S=Site | | | | | | |

9.7.2. Species poor improved grassland and species poor hedgerow are common widespread habitats and were of nature conservation value at the site level only. The site is also poorly connected to more diverse habitats with two roads intersecting the habitats to the north and east. These habitats are not listed as important habitats in the Staffordshire SBI guidelines.

9.7.3. No notable species were recorded by Lockwood Hall Associates. Therefore, the site does not currently qualify for consideration as SBIs or BASs dependent on the presence of protected or rare species. The Staffordshire SBI guidelines state that 'any site which regularly supports a significant population of any native reptiles' may be considered for SBI status.

## 9.8. Conclusions

9.8.1. The site does not currently meet the criteria for SBI / BAS status. The site has potential to support protected species. The site could be used potentially as foraging habitat by bats, badgers and European hedgehog. The site habitats are considered to be of importance at the local level with the exception of improved grassland. However, further survey of trees is recommended to determine their potential for roosting bats.

9.8.2. The following surveys/ actions are therefore recommended in order to assess the ecological importance of the site:

- Badger surveys

- Breeding bird surveys of woodland

# 10. Findings and Evaluation - LE150 (FID 207)

## 10.1. Site Description

10.1.1. The site is consists of the Co-op Bank Leek office buildings with surrounding landscaping consisting of amenity grassland, scattered trees, waterbodies and buildings (central grid reference SJ 98828 55363). Ballington Wood LWS lies to the immediate east, Cheddleton Road and Britannia House are situated to the west. The surrounding land consists of housing, farmland and amenity land.

10.1.2. Lockwood Hall Associates visited the site to conduct a Phase 1 habitat survey in September and October 2014. The site boundary was subsequently extended another 5.2 Ha and the site was visited again to include the extended boundary by Ecus in October 2017 In addition to the Phase 1 report, records from Staffordshire Ecological Records (SER) and Magic Map have been used to create the following LWS assessment.

## 10.2. Designated Sites

10.2.1. Two statutory and 16 locally designated sites are located within 2 km of the study area (Table 10.2.1).

**Table 10.2.1. Statutory and locally designated sites for nature conservation within 2 km of the study area.**

| Site name | Status | Location relative to site | Notes |
|---|---|---|---|
| Ballington Wood | LWS | Adjacent | Ballington Wood is cited in the woodland inventory as ancient semi-natural woodland. This is relevant to some sections of the wood however, some areas, predominantly the northern section, has been replanted with coniferous and mixed stands. |
| Ladydale | LWS | 0.30 km NE | An area of poor semi-natural grassland with a large proportion of semi-natural neutral grassland. The Lady o' th' Dale Well runs through the north and northwestern woodland area, and flows along the entire southern border of the site. |
| Ladydale Wood Pasture | LWS | 0.37 km N | A hillside of semi-natural neutral grassland rising towards the north-east, with a scattering of broad-leaved trees. The southern and eastern areas of the site contain marshy grassland, and there are several marshy areas further up the hillside. |
| Birchall Meadow | BAS | 0.50kn W | Approximately one hectare of species-rich semi-natural neutral |

| Site name | Status | Location relative to site | Notes |
|---|---|---|---|
| | | | grassland. There is a small area of bare ground situated along the entire eastern border with another small area along the north-east border of the site. |
| Lowe Hill | BAS | 0.90 km E | A steep, east facing bank with two gullies running down to a plain where the water slows and creates areas of marshy grassland before leaching into a small stream. |
| Soils Woods | LWS | 1.32 km SW | An area of birch woodland, with an occasional large old specimen, although most are mature or nearing maturity. The understorey is rather scattered and consists mainly of rowan and holly. On the woodland edge there is a small area of acid grassland. |
| Ladderedge Country Park | LNR | 1.35 km W | Unimproved grassland meadows dominated by Red Fescue with abundant Yorkshire Fog, Common Bent and Sweet Vernal grass. The Marsh supports a variety of habitats and vegetation communities. The woodland is at the southern limit of Londsdon Wood, one of a series of woods which extends about 2km along the Churnet Valley to the north. A breeding population of great crested newts have been located in one of the ponds at Ladderedge Country Park. |
| Leek Brook Meadow | BAS | 1.37 km SW | A hay meadow. The field varies in quality and towards the bottom of the field it becomes more diverse. The sward here is transformed to a more open and short sward where a broader range of species can be found. |
| Twinney Wood and Grassland | LWS | 1.56 km SE | The site consists of a range of habitats which include species-rich semi-natural grassland, marshy grassland, acid grassland, the semi-natural broadleaved woodland to the south and two small streams which pass through the site. |
| Brough Park Fields | LNR | 1.61 km N | Urban fringe meadow and woodland. |
| Brough Park Fields | LWS | 1.62 km N | The site covers an area of |

| Site name | Status | Location relative to site | Notes |
|---|---|---|---|
| Country Park | | | approximately 8.27 hectares, and comprises mainly of unimproved and semi-natural neutral grassland, with a large area of poor semi-natural grassland located to the east of the site. |
| Kniveden Hall (east of) | LWS | 1.71 km NW | Marshy grassland is both the largest and most diverse component habitat, with adjoining semi-natural neutral grassland and broadleaved woodland adding to the interest of the area. |
| Cheddleton Heath | LWS | 1.74 km SW | Mixed moorland with developing scrub. |
| Cheddleton Heath (dismantled railway) | LWS | 1.77 km SW | Part of a dismantled mineral railway line with an ephemeral plant community typifying well-drained, skeletal soils. The current assemblage appears to be transitional with much of the pioneer, annual species being gradually succeeded by perennial species. |
| Ball Haye Green Disused Tip | LWS | 1.77 km N | A disused tip supporting a variety of vegetation types including marshy grassland, species-rich semi-natural neutral grassland, species-poor semi-natural neutral grassland, broad-leaved semi-natural woodland and scrub. |
| Beech Close (SW of), Longsdon | SBI | 1.82 km SW | Species rich acid and neutral semi-natural grassland with areas of exposed sandstone rock. |
| Caldon Canal (south of Hollinhay Wood) | LWS | 2.0 km SW | Diverse canal towpath and canal with some emergent vegetation between SJ 962 537 and 974 543. |
| Longsdon Wood and Cowhay Wood | LWS | 2.0 km W | The site consists of a linear strip of secondary broadleaved woodland 2.2km long running from north to south. Maturing oaks are a predominant feature of the wood, with more locally frequent silver birch, rowan, and beech. |

## 10.3. Habitats

10.3.1. The site habitats of semi-natural broadleaved woodland, scattered trees and amenity grassland remained as reported by Lockwood Hall Associates, 2014.

10.3.2. In the extended boundary survey tall ruderal vegetation, buildings and hardstanding were also recorded.

**Table 10.3.2 Habitats present within the site**

| Habitat | Species Present | Area or length | % cover of site |
|---|---|---|---|
| Amenity grassland / tall ruderal | Annual meadow grass (*Poa annua*), cock's foot, common nettle, red fescue (*Festuca rubra*), self heal (*Prunella vulgaris*), red clover (*Trifolium pratense*), white clover (*Trifolium repens*), dandelion, speedwell sp. (*Veronica* sp.) | 38,7981 $m^2$ | 82.6 |
| Broadleaved woodland / scattered trees | Hawthorn, bramble, leylandii, holly, alder, silver birch, beech, oak, sycamore | 3800 $m^2$ | 0.8 |
| Pond | Flag iris (*Iris pseudacorus*), water lily (*Nymphaea* sp.), duckweed (*Lemna minor*), purple loosestrife (*Lythrum salicaria*), rosebay willowherb (*Chamerion angustifolium*), remote sedge (*Carex remota*), hemlock water dropwort (*Oeanthe crocata*) | 2596 $m^2$ | 0.6 |
| Swamp | Canary reed grass (*Phalaris arundinacea*), broadleaved dock, cocksfoot | 827 $m^2$ | 0.2 |
| Brook | Brooklime (*Veronica beccabunga*) | 127m | N/A |
| Non-native hedgerow / introduced shrub | Pampas grass (*Cortaderia selloana*), cotoneaster (*Cotoneaster* sp.) | 387m | N/A |
| Other | | 74,446 $m^2$ | 8.8 |

***Amenity grassland and tall ruderal vegetation***

10.3.3. In the survey by Lockwood Hall, 2014 the western half of the site was dominated by amenity grassland with small areas of tall ruderal vegetation. This consisted of species such as annual meadow grass, cock's foot, common nettle, and red fescue. During the extension survey by Ecus, 2017 (Figure 5, Plates 22-33), small areas of species-poor and mown amenity grassland were present as part of the landscaping of Co-op regional office. Species included frequent red clover, white clover (Trifolium repens), dandelion and occasional speedwell species.

10.3.4. This habitat is not listed as a priority habitat under Staffordshire SBI Guidelines and is important at the site level only.

***Broadleaved woodland and scattered trees***

10.3.5. In the survey by Lockwood Hall, 2014 the eastern half of the site was dominated by semi-natural broadleaved woodland. Species included

hawthorn, hazel, leylandii, holly, ash, lime (Tilia sp.), rowan (Sorbus aucuparia) with bramble present in the understorey.

10.3.6. During the extension survey by Ecus, 2017, scattered trees were present across the western half of the site. These were mainly native, young trees, of similar height indicating they were planted around the same time. Species included dominant oak (Quercus sp.) with occasional sycamore, silver birch and alder; locally rare beech was also present.

10.3.7. Broadleaved semi-natural woodland is listed as a priority habitat under Staffordshire SBI Guidelines. There is excellent connectivity to the surrounding countryside as the site is immediately adjacent to Ballington Wood LWS. Therefore, this habitat is of district importance.

***Brook***

10.3.8. A brook of moderate flow is present in the north-west of the site (Figure 5, Plates 27). It is culverted at the north boundary of the site and a sluice controlled the flow into the pond (P1). The water quality appears good and frequent macrophytes such as brooklime were recorded.

10.3.9. A small area of marginal vegetation was identified during the extended survey by Ecus. This is located in a narrow strip along the brook and species consists of frequent cock's foot, broadleaved dock and canary reed grass with occasional willowherb, ragwort and yarrow.

10.3.10. This habitat was limited in extent although it is uncommon in the surrounding local area. The brook could provide habitat for aquatic invertebrates, and foraging for birds such as grey wagtail (Motacilla cinerea). It is listed as a priority habitat under the Staffordshire SBI Guidelines and could potentially be of local importance. Therefore further information is required to make an assessment.

***Pond***

10.3.11. A large pond (P1) was identified in the west of the site during the extension survey by Ecus, 2017 (Figure 5, Plate A1.25). The pond contains a large area of open water, with marginal vegetation around the edge consisting of frequent rosebay willowherb, with occasional flag iris, purple loosestrife, hemlock water dropwort, and remote sedge. There are small areas of floating vegetation including water lily and common duckweed. The water quality appears good and there is some connectivity to the pond via the brook.

10.3.12. Waterbodies are listed as a priority habitat under the Staffordshire SBI Guidelines. Therefore further information is required to make an assessment.

***Buildings and Hardstanding***

10.3.13. Six buildings were recorded by Ecus, 2017 during the extension survey (B1-B6) (Figure 5, Plates A1.30-33). B4 and B5, located in the east of the site are occupied office buildings used by the Co-op regional office. These were assessed as having negligible potential for roosting bats. B1,) is a house which was assessed as having low suitability for roosting bats. Gaps under the tiles of the roof and cracks in the mortar of the

brickwork were present (Plate A1.32, Appendix 1). B2, B3 and B6 were occupied newly built houses which had negligible potential for roosting bats.

10.3.14. Hardstanding was identified in the western half of the site by Ecus, 2017. This mainly consists of car parking and roads for the Co-op offices. It is species-poor and is of negligible value for wildlife.

***Species***

10.3.15. Badger signs were identified in the broadleaved woodland by Lockwood Hall Associates, 2014 but none were identified during the extended survey in 2017 by Ecus.

***Amphibians***

10.3.16. SER returned five amphibian records. These included two records of common toad and three records of great crested newt. The majority of these records were located at Ladderedge Country Park and the closest record of great crested newt occurred 694 m to the north of the site.

10.3.17. No amphibians were recorded during the site visit. One pond was identified on the site (P1) with a brook flowing into it at the north end. P1 had some macrophytes with scattered trees dominated by alder (Figure 5, Plate A1.25. The HSI score of 0.59 was calculated for P1 which indicates below average suitability for great crested newts.

10.3.18. One pond (P2) was identified within 250m of the site. P2 is located 46 m to the west of the site (Figure 5, Plate A1.26). An underpass goes underneath Cheddleton Road (Plate A1.28), this would allow passage of amphibians to P1. The HSI score of 0.63 was calculated for P2 which indicates average quality for great crested newts. Common frog (Rana temporaria) and common toad (Bufo bufo) have previously been recorded at P2 during the reptile surveys by Ecus (2017).

10.3.19. The ponds are likely to be used by amphibians but the pond is surrounded by unsuitable terrestrial habitat. It is therefore considered that the site has potential to support common amphibians but is unlikely to support great crested newt.

***Badger***

10.3.20. SER and returned 18 recent records of badger. The closest record in 2009, occurred 177 m to the west

10.3.21. No badger setts were identified on site, however field signs were recorded 30 m outside of the site boundary by Lockwood Hall, 2014. A number of snuffle holes and latrines were found on the border of the amenity grassland and broadleaved woodland. The site offers foraging habitat for badgers and the woodland has potential for badger setts in the future. Although no sett was found there is the potential for a sett to be located further into the woodland. Therefore, it is recommended that a further badger survey is undertaken to establish the population status of badgers at the site.

***Bats***

10.3.22. SER returned 20 records of bats, which included one record of unidentified species, 10 records of pipistrelle species and nine records for common pipistrelle.

10.3.23. Lockwood Hall Associates did not record any suitability for potential bat roosts on site. In the extended survey by Ecus (2017) one building was identified as having low bat roost potential (B1) with features of gaps under the roof tiles and cracks in the mortar at the gable end. The woodland offers foraging and commuting habitat for bats.

***Birds***

10.3.24. SER returned records of 43 notable bird species. Table 10.4.10 shows the Birds of Conservation Concern red or amber species from this list that may occur on site due to suitable habitat.

**Table 10.4.10 Notable bird species with potential to occur on site.**

| Common Name | Scientific Name | Birds of Conservation Concern Status |
|---|---|---|
| Yellowhammer | *Emberiza citronella* | Red |
| Linnet | *Linaria cannabina* | Red |
| House sparrow | *Passer domesticus* | Red |
| Starling | *Sturnus vulgaris* | Red |
| Redwing | *Turdus iliacus* | Red |
| Song thrush | *Turdus philomelos* | Red |
| Fieldfare | *Turdus pilaris* | Red |
| Mistle thrush | *Turdus viscivorus* | Red |
| Meadow pipit | *Anthus pratensis* | Amber |
| Swift | *Apus apus* | Amber |
| Black-headed gull | *Chroicocephaus ridibundus* | Amber |
| House martin | *Delichon urbicum* | Amber |
| Reed bunting | *Emberiza schoeniclus* | Amber |
| Willow warbler | *Phylloscopus trochilus* | Amber |
| Dunnock | *Prunella modularis* | Amber |
| Bullfinch | *Pyrrhula pyrrhula* | Amber |

10.3.25. Mallard and moorhen were recorded at P1 during the site visit by Ecus, 2017 and a sparrowhawk was seen circling over the woods. The woodland and scattered trees offers good nesting habitat for species such as sparrowhawk, blackbird, woodpigeon, carrion crow, magpie, goldfinch and song thrush.

***Reptiles***

10.3.26. SER returned four records of reptiles. These included one record of a slow worm and three records of a grass snake. The slow worm record occurred at Ladydale, 589 m from the site in 2016 and the closest grass snake record occurred at Beggar Lane allotments. In addition, Ecus, 2017 recorded the presence of grass snake along a brook, 350 m to the west during a reptile survey for Staffordshire Moorlands District Council.

10.3.27. No reptiles were recorded during the site visit. The site is connected to a scrub/woodland mosaic and other hedgerow and provides woodland edge habitat that is preferred by reptiles. The site is considered to have potential to support reptile species and therefore further information is required to assess the site for reptiles.

***Riparian mammals and white-clawed crayfish***

10.3.28. No recent records exist for otter or white-clawed crayfish although they were historically recorded along the River Churnet to the west of the site.

10.3.29. There is a brook within the site, so there is limited habitat for white-clawed crayfish. Further survey would be needed to establish the status of this species.

***Other protected and key species***

10.3.30. SER returned two records for polecat, three records of brown hare and 23 records of European hedgehog. The grassland and woodland offer suitable foraging habitats for these species.

## 10.4. Invasive species

10.4.1. No non-native invasive species were recorded by Lockwood Hall Associates, 2014, or by Ecus in 2017.

## 10.5. Evaluation

10.5.1. The following table illustrates the importance of the site and each habitat in terms of their potential loss to the wider county. Further detail on the importance of the habitats is given below.

**Table 10.6.1 Ecological importance of site habitats**

| Habitat | Ecological Importance | | | | | |
|---|---|---|---|---|---|---|
| | I | N | R | D | L | S |
| Brook | Further information needed | | | | | |
| Pond | Further information needed | | | | | |
| Semi-natural broadleaved woodland | Further information needed | | | | | |
| Species poor amenity grassland | | | | | | X |
| Scattered trees | | | | | | X |
| I=International, N=National, R=Regional, D=District, L=Local, S=Site | | | | | | |

10.5.2. Species poor amenity grassland is common widespread habitat and of nature conservation value at the site level only. This habitat is not listed as important habitats in the Staffordshire SBI guidelines.

10.5.3. The scattered trees on sites do not qualify for SBI or BAS status but provide amenity value and habitat for other wildlife such as nesting birds. However, they are of negligible value for roosting bats.

10.5.4. The semi-natural broadleaved woodland is potentially considered to be of district importance. The composition represents a W10 *Quercus robur*

*Pteridum aquilinum – Rubus fruticosus* woodland community in the NVC classification, and this also a Section 41 UK priority habitat. The woodland is under 0.5 Ha in size but has strong connectivity to Ballington Wood LWS as it is located adjacent to it. The guidelines state that woodland must score 11 or more to achieve SBI status or 6-10 to achieve BAS status. However, further surveys are needed at the appropriate time of year when woodland flowers are at their peak (March-May) to make a full assessment.

10.5.5. No notable species were recorded by Lockwood Hall Associates or Ecus, 2017. However there was evidence of badgers and the potential for the site to support reptiles, amphibians, birds and polecats. Therefore, part of the site could possibly qualify for consideration as SBIs or BASs dependent on the presence of protected or rare species. The Staffordshire SBI guidelines state that 'any site which regularly supports a significant population of any native reptiles' may be considered for SBI status. Management of the grassland could be considered to promote areas for reptiles to bask in and places for refugia.

## 10.6. Conclusions

10.6.1. The site does not currently meet the criteria for SBI / BAS status. The site has potential to support protected species. The site habitats are considered to be of nature conservation value at up to district level. However, more information is required regarding the status reptiles and badgers.

10.6.2. The following surveys/ actions are therefore recommended in order to assess the ecological importance of the site:

- Badger surveys
- Breeding bird surveys of woodland
- Gradual replacement of non-native trees with native trees in Ballington Wood
- Survey of woodland flora in spring (March-May) for BAS / SBI potential
- Reptile surveys
- Further inspection of building B1 for bat roost potential
- Bat activity survey of Ballington Wood
- White-clawed crayfish of pond and brook for BAS / SBI potential

# 11. Findings and Evaluation - EN128 (FID 193)

## 11.1. Site Description

11.1.1. The site is an area of grassland located to the immediate west of Endon Village (central grid reference SJ 92329 53088). It is approximately 0.74 ha in area and surrounded by housing and roads. The wider area consists farmland, woodland, residential housing and Endon Brook lies to the east.

11.1.2. Lockwood Hall Associates visited the site to conduct a Phase 1 habitat survey in September and October 2014. In addition to the Phase 1 report, records from Staffordshire Ecological Records (SER) and Magic Map and NBN Atlas, have been used to create the following LWS assessment.

## 11.2. Designated Sites

11.2.1. Nineteen locally designated sites are located within 2 km of the site. No statutory designated sites were identified on MAGIC (Table 11.2.1).

**Table 11.2.1 Locally designated sites for nature conservation within the study area.**

| Site name | Status | Location relative to site | Notes |
|---|---|---|---|
| Tinster Wood | Ancient woodland | 0.003km NW | |
| Westfield Wood | Retained BAS | 0.3km N | A linear stretch of ash woodland bisected by a small stream flowing from north to south. |
| Postbridge Farm (west of) | Local Wildlife Site | 0.5km SE | A section of the Caldon Canal from Postbridge Farm to just east of Stanley Road Bridge, together with a small area of grassland. |
| Stonehay Wood | Ancient woodland | 0.7km NE | |
| Tinster Wood | Local Wildlife Site | 0.8km SW | Acidic semi-natural broad-leaved woodland on the Natural England's Ancient Woodland Inventory, which exhibits larges amounts of exposed sandstone rock. |
| Baddeley Edge Ridge | RIGS | 1.2km S | Designated as a RIGS as a prominent ridge feature formed from the Namurian Chatsworth Grits. |
| Houghwood | RIGS | 1.2km SE | Designated as a RIGS as a ridge feature made from Namurian Kinderscoutian sandstone. |
| Holehouse Farm | Retained BAS | 1.3km N | A marshy area alongside a tributary of the Endon Brook within and outside a fairly open wood. |
| Houghwood | Ancient | 1.3km SE | |

| Site name | Status | Location relative to site | Notes |
|---|---|---|---|
| | woodland | | |
| Stanley Pool | Retained BAS | 1.5 km SE | A large pool surrounded by semi-improved neutral grassland, woodland, acid grassland and a heathland mosaic. |
| Baddeley Edge Ridge | Local Wildlife Site | 1.7 km SW | Area of acid grassland on sandstone outcrop. |
| Houghwood | Local Wildlife Site | 1.7 km S | An area of semi-improved grassland with pockets of woodland in the old quarry pits. |
| Windy Croft | Local Wildlife Site | 1.7 km SE | A large steeply sloping, west facing field with large expanses of acidic grassland mixed with dense patches of holly scrub. |
| Greenway Hall Golf Course | Local Wildlife Site | 1.8 km S | Ancient semi-natural broad-leaved woodland in a narrow steep-sided stream valley, together with associated habitats, including marshy grassland, acid grassland and dry dwarf shrub heath on the adjacent slopes. |
| Heakley Marshes | Local Wildlife Site | 1.9 km SW | A large area of floodplain grazing marsh, swamp, well drained semi-improved neutral grasslands between the Caldon Canal and the Stoke to Leek dismantled railway. |
| Ball Lane Wood | Local Wildlife Site | 2.0 km SW | A semi-natural, possibly ancient woodland corridor with accessible areas grazed to scrub and grassland. |
| The Green, Baddeley | Local Wildlife Site | 2.0 km SW | A registered common which still has areas of unimproved acid grassland with patches of heather and bilberry. |
| Hollinhurst Farm (north of) | Retained BAS | 2.0 km NE | Poor semi-improved grassland with areas of improvement. Some wet flushes occur on the land along with swards of ruderal vegetation. |
| Park Lane Farm (north and east of), Caldon Canal | Local Wildlife Site | 2.0 km NE | A stretch of the Caldon Canal bordered by improved or semi-improved grasslands and broad-leaved woodland. |

## 11.3. Habitats

11.3.1. The site habitats of buildings, species-rich hedgerow, species-poor hedgerow, scattered trees, scattered scrub, tall ruderal vegetation, and species-poor amenity grassland were all reported by Lockwood Hall (2014).

**Table 11.3.1 Habitats present within the site**

| Habitat | Species Present | Area or length | % cover of site |
|---|---|---|---|
| Grassland, tall ruderal | Perennial rye grass (*Lolium perenne*), false oat grass (*Arrhenatherum elatius*), Yorkshire fog (*Holcus lanatus*), cock's foot (*Dactylis glomerata*), common nettle (*Urtica dioica*), rosebay willowherb (Chamerion angustifolium), dandelion (*Taraxacum officinale* agg) | 4900 $m^2$ | 64 |
| Hedgerows, shrubs, scrub | ash, sycamore, bramble, beech, leylandii (*Cuprocypressus x leylandii*), hawthorn, holly, elder, hazel (*Corylus avellana*), alder (*Alnus glutinosa*) and silver birch (*Betula pendula*). | 600 $m^2$ | 7 |
| Other | | 2200 $m^2$ | 29 |

***Improved / amenity grassland***

11.3.2. Improved grassland dominates a large proportion of the site and a small area of amenity grassland was present in the south of the site. Species include perennial rye grass (*Lolium perenne*), cocksfoot (*Dactylis glomerata*) Yorkshire fog (*Holcus lanatus*), false oat grass (*Arrhenatherum elatius*),and dandelion (*Taraxacum officinale* agg.).

11.3.3. This habitat is relatively species-poor, and common in the wider landscape. It is not a priority habitat listed in the Staffordshire SBI Guidelines. Therefore, it is considered to be of site importance.

***Species-rich hedgerow***

11.3.4. Species-rich hedgerow forms the southern boundary of the site. Species include hawthorn (Crataegus monogyna), ash (Fraxinus excelsior), holly, elder, hazel, alder and silver birch.

11.3.5. Species-rich hedgerow is a priority habitat listed under Staffordshire SBI guidelines. This could potentially be of district importance but further information is required to make an assessment to ascertain its conservation status.

***Scrub***

11.3.6. An area of scrub is located along the west boundary of the site by Lockwood Hall (2014). This mainly consisted of bramble (*Rubus fruticosus*) and is considered to be a species-poor habitat.

11.3.7. The scrub is considered to be a species-poor habitat dominated by one species, bramble. Therefore, the habitat is considered to be of site importance.

***Scattered trees***

11.3.8. Scattered trees were located across the site and include the following species; beech, copper beech (*Fagus sylvatica* 'pupurea'), Norway spruce (*Picea abies*), cherry (*Prunus* sp.), oak (*Quercus* sp.) and sycamore.

11.3.9. The scattered trees contain a good diversity of species although some of which are non-native introduced species. Nonetheless, trees have amenity value for people and provide nesting / foraging habitat for birds and mammals. The sycamore tree on the west boundary was identified as having potential for roosting bats therefore further information is required to make the assessment.

***Tall ruderal***

11.3.10. An area of tall ruderal vegetation predominates in the south eastern corner of the site. Species included dominant rosebay willowherb (*Chamaenerion angustifolium*), and common nettle (*Urtica dioica*).

11.3.11. This habitat is species-poor and relatively common locally. Tall ruderal vegetation is therefore considered to be of importance to nature conservation at site level only.

## 11.4. Species

11.4.1. No notable species were recorded by Lockwood Hall Associates, 2014.

***Amphibians***

11.4.2. SER returned one recent record for great crested newt which was located 1.5 km to the north-west of the site in Brown Edge parish.

11.4.3. No amphibians were recorded during the site visit and no waterbodies were identified within the site or within 500m of the site. Therefore the site is unlikely to be of importance to amphibians.

***Badger***

11.4.4. SER returned 12 recent records of badger. These records consisted of field observations and signs, no setts were identified. The closest record was 291 m away to the north of the site at Clay Lake, Endon in 2008.

11.4.5. No badger setts were identified on site and no evidence of any other badger activity was recorded. Similarly, no evidence of badgers was recorded in the immediate vicinity of the site and the site is poorly connected to the wider countryside, being surrounded by housing and roads. However, the improved/amenity grassland offers suitable foraging habitat and badgers are highly mobile animals and may move into an area at almost any time.

***Bats***

11.4.6. SER returned nine recent records of bats, which included roosts and field sightings. The records consist of one record for brown long-eared bat (*Plecotus auritus*), two common pipistrelle (*Pipistrellus pipistrellus*), one for unidentified Myotis species and five records of unidentified pipistrelle species.

11.4.7. Lockwood Hall Associates identified one sycamore tree as having potential for roosting bats on the west boundary of the site. The site habitats offer foraging and commuting opportunities for bats. It is recommended that an activity survey and further assessment of the tree is conducted to determine status.

### *Birds*

11.4.8. SER returned 328 recent records of 25 bird species within 2 km of the site. Of the records, seven species are "Red" listed, eight are "Amber" listed, two are listed as priority species under the NERC Section 41 Act and 16 species are listed under Schedule 1 of the Wildlife and Countryside Act 1981 (as amended). Table 11.4.8 shows the Birds of Conservation Concern red or amber species from this list that may occur on site due to suitable habitat.

**Table 11.4.8 Notable bird species with potential to occur on site.**

| Common Name | Scientific Name | Birds of Conservation Concern Status |
|---|---|---|
| Brambling | *Fringilla montifringilla* | Red |
| Redwing | *Turdus iliacus* | Red |
| Fieldfare | *Turdus pilaris* | Red |

11.4.9. No birds were recorded by Lockwood Hall during the site visit. However, it is likely that the site provides some foraging and nesting opportunity for a range of species such as robin, blackbird, dunnock, house sparrow, magpie and woodpigeon.

11.4.10. The hedgerows, scrub and trees offer suitable habitat for nesting and foraging birds such as house sparrow, dunnock, and woodpigeon. Hedgerows will also provide foraging habitat for passage and wintering passerines such as redwing, fieldfare and blackbird. Few of the records of notable and protected bird species returned from SER have potential to be on site due to limited and unsuitable habitat availability.

### *Reptiles*

11.4.11. SER returned six recent records of reptiles. These included five grass snake (Natrix natrix) records, and one adder (*Vipera berus*). The closest record is of a grass snake in 2010, 534 m to the east of the site. This was situated close to a brook which flows into Caldon Canal.

11.4.12. No reptiles were recorded during the site visit. Site habitats are considered sub-optimal for reptiles but a large number of historical records of grass snake in particular were identified close to the site. Reptiles are highly mobile animals and form discrete colonies although site connectivity is poor. Therefore, the site is potentially of local importance for reptiles and further information is required to assess the importance.

### *Riparian mammals and white-clawed crayfish*

11.4.13. No recent records were returned by SER. No suitable habitats for water vole, otter or white-clawed crayfish are present within or adjacent to the site.

## 11.5. Other protected and key species

11.5.1. SER returned one recent record for polecat (*Mustela putorius*) which occurred at Brown Edge, 1.1km south-west of the site.

11.5.2. The hedgerows present with the site could support provide foraging

habitat for the European hedgehog (*Erinaceus europaeus*) although no records were returned by SER. The site is therefore of negligible importance for other protected and key species.

## 11.6. Invasive species

11.6.1. No non-native invasive species were recorded by Lockwood Hall Associates, 2014.

11.6.2. Weeds listed under the Weeds Act 1959 including broadleaved dock (*Rumex obtusifolius*) and creeping thistle (*Cirsium arvense*) were reported by Lockwood Hall (2014).

## 11.7. Evaluation

11.7.1. The following table illustrates the importance of the site and each habitat in terms of their potential loss to the wider county. Further detail on the importance of the habitats is given below.

**Table 11.6.1 Ecological importance of site habitats**

| Habitat | Ecological Importance | | | | | |
|---|---|---|---|---|---|---|
| | I | N | R | D | L | S |
| Scattered trees | Importance to be determined | | | | | |
| Species rich hedgerow | Importance to be determined | | | | | |
| Species-poor hedgerow | | | | | | X |
| Species-poor grassland | | | | | | X |
| Tall ruderal grassland | | | | | | X |
| Species poor amenity grassland | | | | | | X |
| I=International, N=National, R=Regional, D=District, L=Local, S=Site | | | | | | |

11.7.2. Species-poor improved grassland and species-poor hedgerows are common widespread habitats and are of nature conservation value at the site level only. These habitats are not listed as important habitats in the Staffordshire SBI guidelines. The site is mainly surrounded by housing and for the most part is poorly connected to the surrounding countryside. However, some scattered trees in adjacent gardens on the west boundary provide some connectivity to an area of woodland in the west.

11.7.3. Lockwood Hall (2014) noted that there is one tree with the potential to support roosting bats. However, Lockwood Hall did not provide specific details on the species, level of roost potential (low, moderate, or high), the age, condition or features present on the tree. If a bat roost was found after further surveys, then the presence of bats could allow the site to be considered for SBI/BAS status. The guidelines state that “If the site has a significant population of a notable bat species, then the feeding habitat and maternity roosts for that population are considered for protection.”

11.7.4. Lockwood Hall (2014) identified the presence of a species-rich hedgerow located at SJ9229553072. It consisted of hawthorn, ash, holly, elder, hazel (*Corylus avellana*), alder (*Alnus glutinosa*) and silver birch

(*Betula pendula*). The SBI/ guidelines (Webb *et al*. 2014) state that for a hedgerow to be considered a graded site, any one system of hedges must be "no less than 100 m and not to be known to have been planted since 1950". However, Lockwood Hall Associates did not explicitly state length or the condition of the hedgerow and so a detailed hedgerow survey, following the HEGS methodology, would need to be completed to establish the hedgerow's ecological value. Management of the hedgerow may include trimming, this encourages growth and should be conducted ideally between January and February. If there are any gaps in the hedgerow, native species could be planted to provide a continuous hedgerow. It is also recommended that the hedgerow is connected to other hedgerows, trees and scrub in the area in order to create habitat corridors, to allow species to move throughout the environment.

## 11.8. Conclusions

11.8.1. The site does not currently meet the criteria for SBI / BAS status. The species-rich hedgerow could potentially be of district ecological value, however further surveys are required to establish potential SBI / BAS status. The site also has potential ecological value to support roosting bats. Additionally, the site has potential to support foraging bats, badgers, and nesting birds. Further surveys are required to establish the potential for bat roosts and the presence of reptiles.

11.8.2. The following surveys/ actions are therefore recommended in order to establish the sites status:

- Further assessment of the one tree for potential to support roosting bats.
- Bat activity survey.
- HEGS survey of species-rich hedgerow.
- Reptile presence/absence surveys.

# 12. Ecological Assessments Summary

12.1.1. No entire site currently qualifies for consideration as a SBI or BAS. However, a number of individual site habitats were found to be potentially of a similar quality to that required to meet SBI / BAS criteria (Table 12.1.1).

**Table 12.1.1 Sites with habitats potentially meeting SBI or BAS criteria.**

| Site | Potential for SBI / BAS designation | Relevant habitat |
|---|---|---|
| BDNEW | Yes | Species rich hedgerow, pond |
| BD104 | No | N/A |
| CH024 | Yes | Tall ruderal vegetation |
| CH132 | Yes | Species rich hedgerow, trees |
| LE066 | Yes | Trees |
| LE102 | Yes | Trees |
| LE128B | Yes | N/A |
| LE150 | Yes | Broadleaved woodland, pond, brook |
| EN128 | Yes | Species rich hedgerow, trees |

12.1.2. Eight out of nine sites have the potential to support protected species and therefore these species may be receptors for any future development (Table 12.1.2). To fully determine the status of all such species, appropriate surveys would need to be undertaken.

**Table 12.1.2. Potential receptors to future development at each site.**

| Site | Potential Receptor | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Great crested newt | Badger | Bats | Birds | Reptiles | Otter | Water vole | White-clawed crayfish |
| BDNEW | ✓ | | | | | | | |
| BD104 | | | | | | | | |
| CH024 | | | | | | | ✓ | |
| CH132 | | | ✓ | | | | ✓ | |
| LE066 | | | ✓ | | | | | |
| LE102 | | ✓ | ✓ | | | | | |
| LE128B | | | ✓ | | | | | |
| LE150 | | ✓ | ✓ | ✓ | ✓ | | | ✓ |
| EN128 | | | ✓ | | ✓ | | | |

12.1.3. Invasive non-native species recorded during the site visits were all plants (Japanese knotweed, Indian balsam and cotoneaster sp.). They occurred at four sites (Table 12.1.3).

**Table 12.1.3. Presence of invasive non-native plants on site.**

| **Site** | Invasive non-native plants present |
|---|---|
| BDNEW | Yes |
| BD104 | No |
| CH024 | Yes |
| CH132 | No |
| LE066 | Yes |
| LE102 | Yes |
| LE128B | No |
| LE150 | No |
| EN128 | No |

# 13. References

CIEEM (2016) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal, 2nd edition. Chartered Institute of Ecology and Environmental Management, Winchester.

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

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

Ecus (2017) Extended Phase 1 Habitat surveys and Local Wildlife Site (LWS) Assessments: Staffordshire Moorlands District Council.

Harris, S., Cresswell, P. and Jefferies, D. (1989) Surveying Badgers. Mammal Society (Occasional Publication No 9).

JNCC (2010) Handbook for Phase 1 Habitat survey – A technique for environmental audit. ISBN 0 86139 636 7.

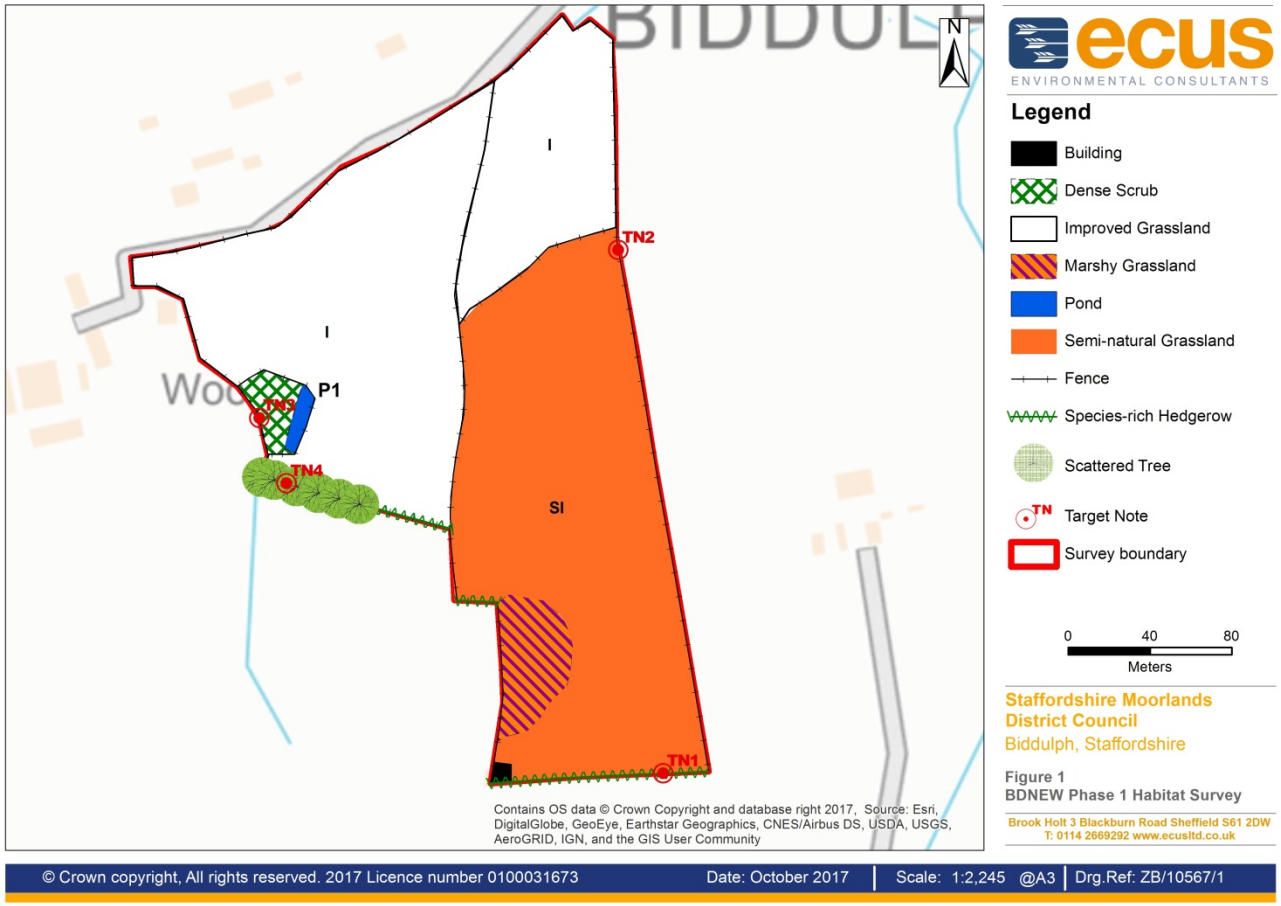
Natural England (2010). List of habitats and species of principal importance in England under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006. http://webarchive.nationalarchives.gov.uk/20140711133551/http://www.naturalengland.org.uk/ourwork/conservation/biodiversity/protectandmanage/habsandspeciesimportance.aspx.

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.

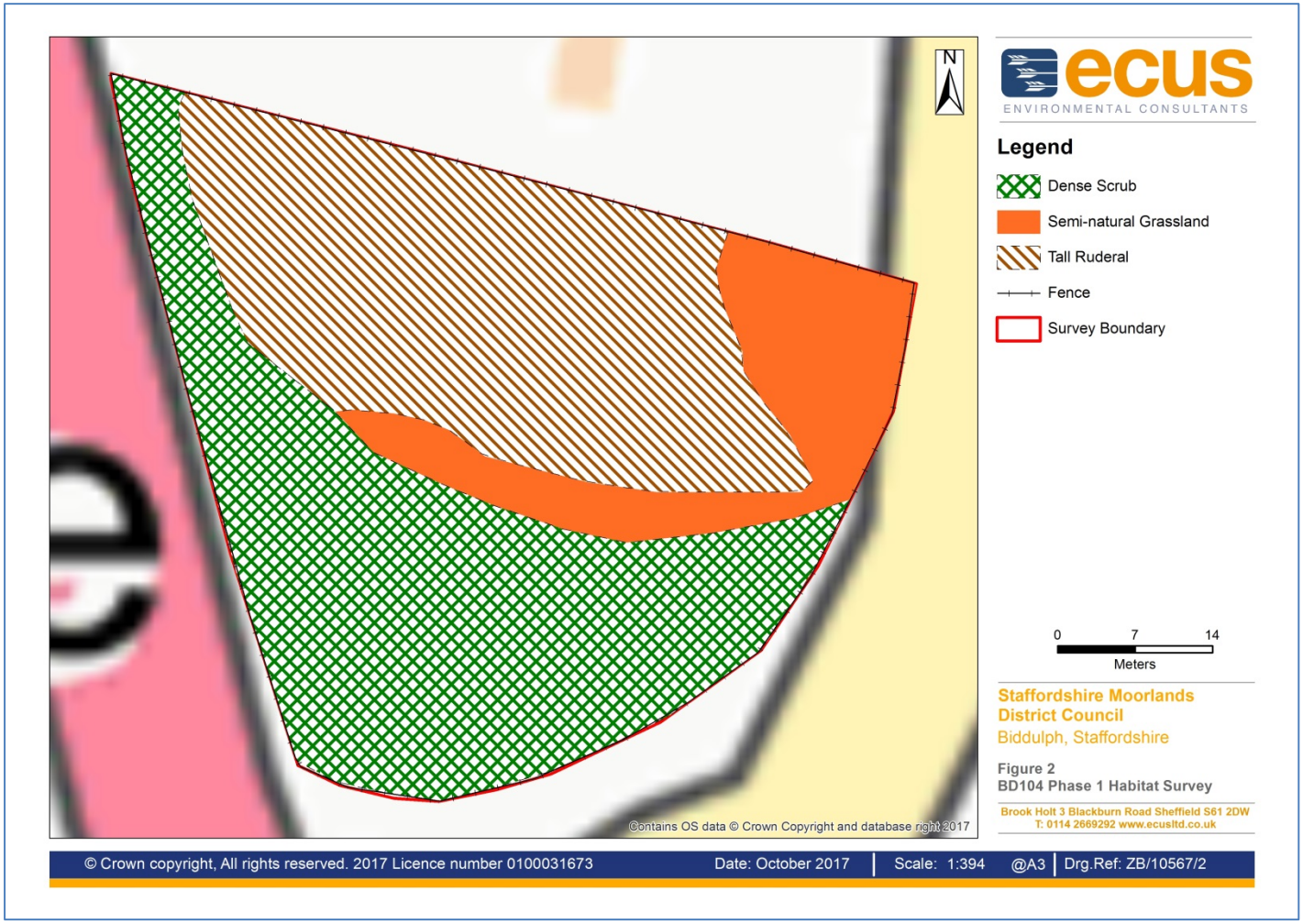
Pond Conservation Trust (2002) A guide to monitoring the ecological quality of ponds and canals using PSYM. Freshwater Habitats Trust, Oxford.

Webb, J., S. Lawley, S., Cadman, D., Slawson, C., Smith, J. and Weightman, J. (2014). Guidelines for the selection of sites of County Biological Importance in Staffordshire. Staffordshire Wildlife Trust.

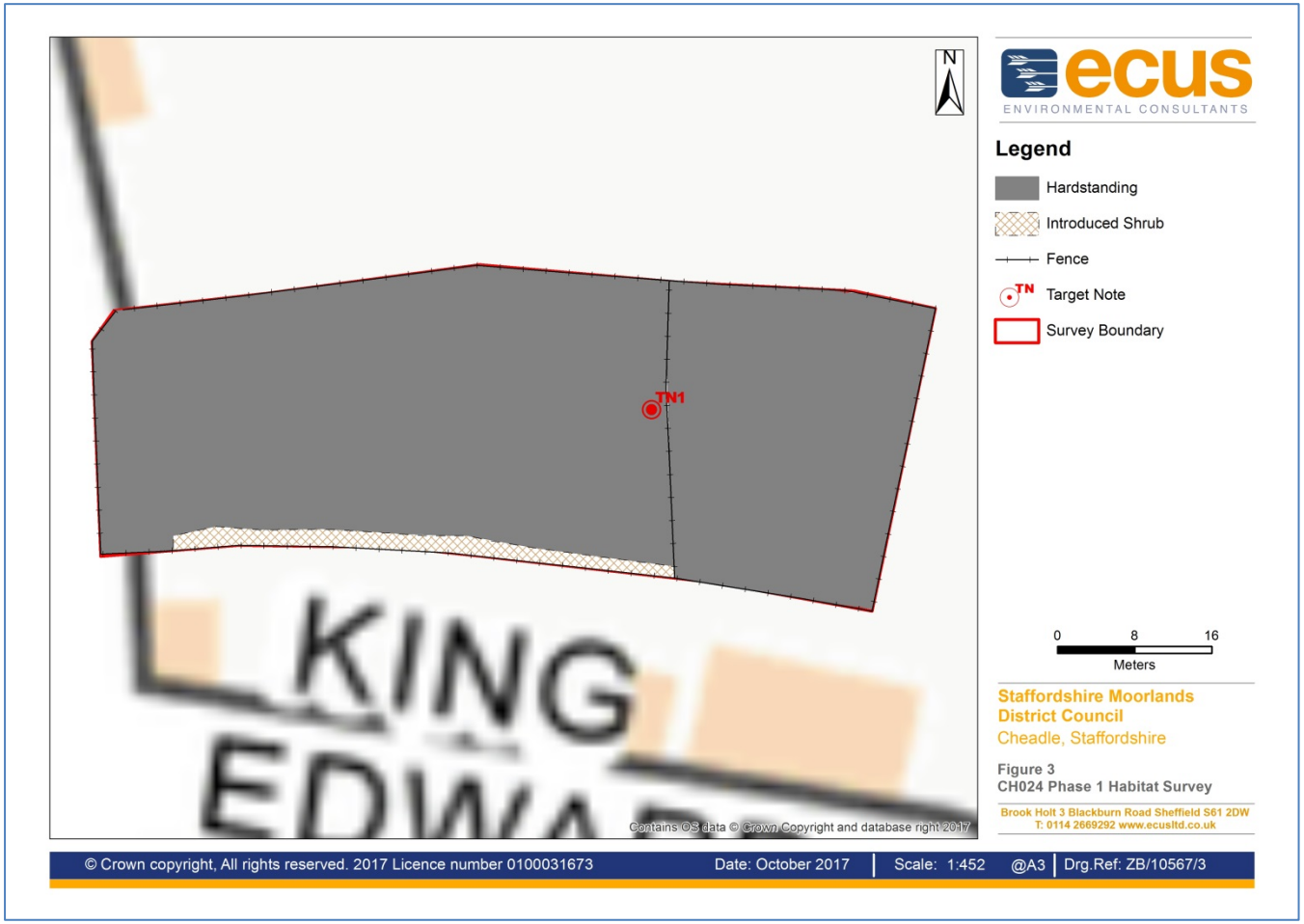
# Figure 1. Survey Findings: BDNEW



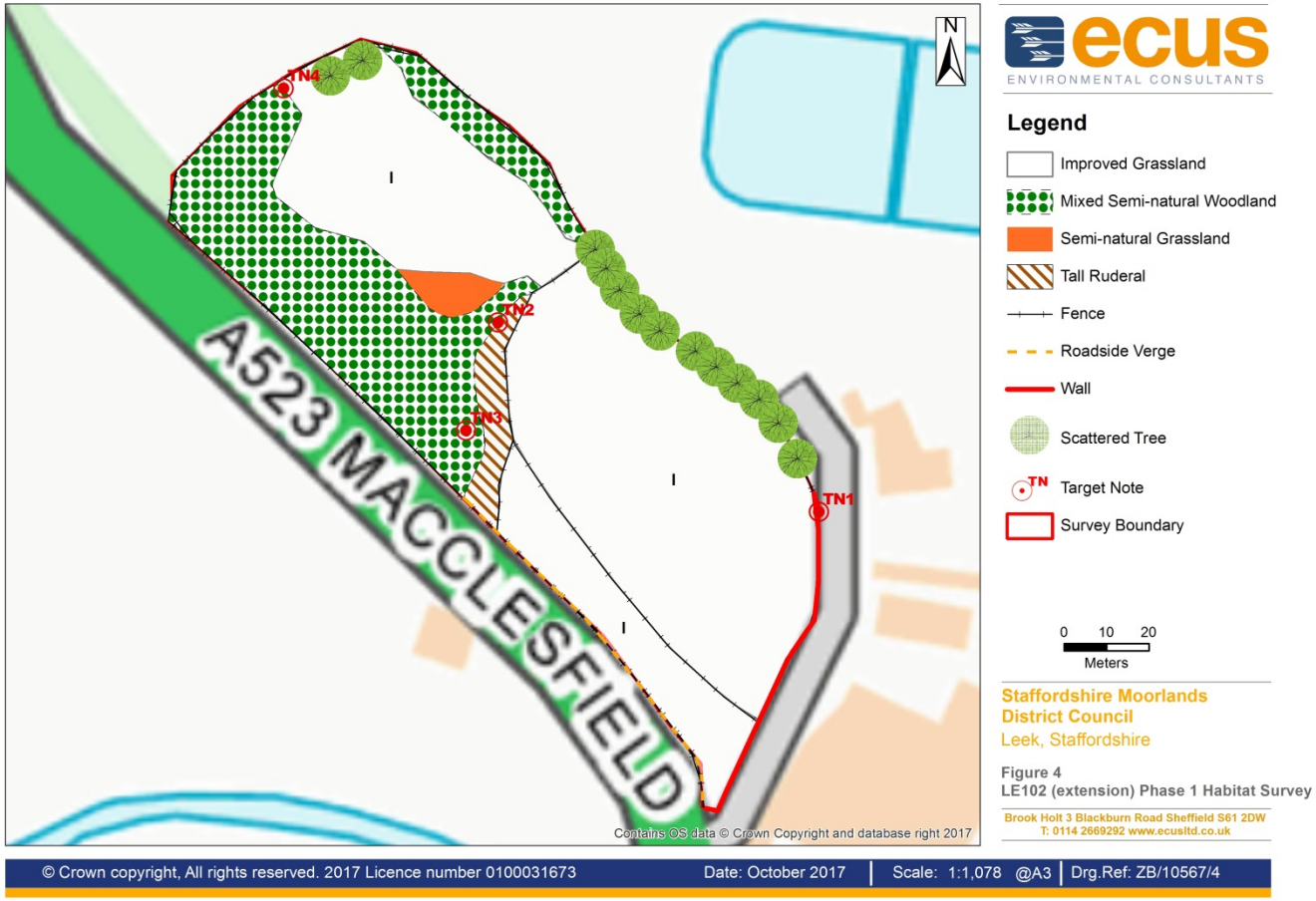
# Figure 2. Survey Findings: BD104



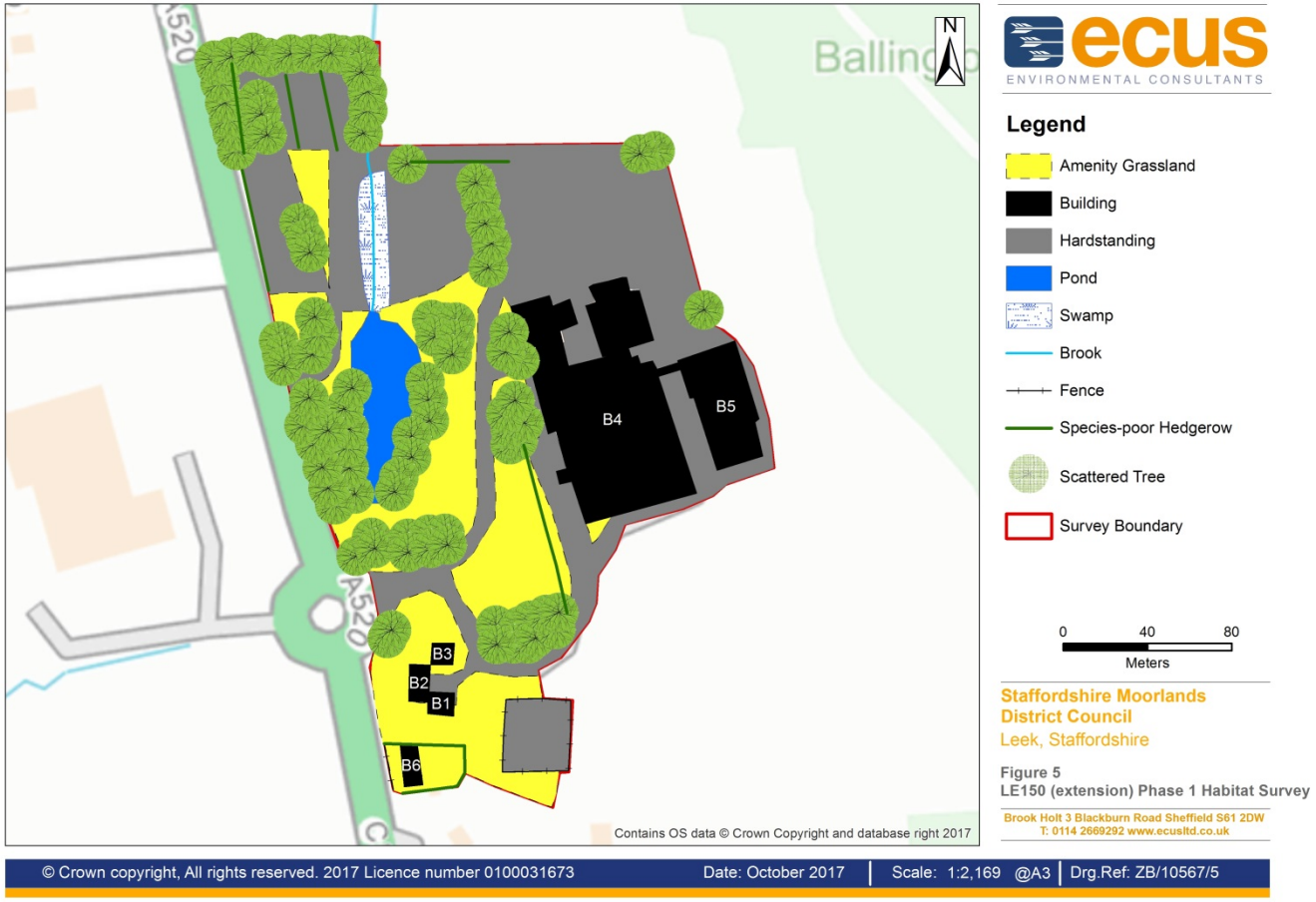
# Figure 3. Survey Findings: CH024 (extension)



# Figure 4. Survey Findings: LE102 (extension)



## Figure 5. Survey Findings: LE150 (extension)



# Appendix 1.Site Images







**Legend**

**Plate 1.** BDNEW Rabbit burrows

**Plate 2.** BDNEW Pond 1

**Plate 3.** BDNEW Marshy grassland

**Plate 4.** BDNEW Building

**Plate 5.** BDNEW Hedgerow on south boundary

**Plate 6.** BDNEW Improved grassland, looking north east

Staffordshire Moorlands, Staffordshire

Phase 1 habitat survey

Appendix 1. Site images - BDNEW

Brook Holt 3 Blackburn Road Sheffield S61 2DW
T: 0114 2669292 www.ecusltd.co.uk

Date: November 2017 | Drg. Ref: ZB/10567



**Legend**

**Plate 7.** BDNEW Looking east across the site

**Plate 8.** BDNEW Biddulph Valley Way

Staffordshire Moorlands, District Council

Staffordshire Moorlands

Appendix 1. Site Images - BDNEW

Brook Holt 3 Blackburn Road Sheffield S61 2DW
T: 0114 2669292 www.ecusltd.co.uk

Date: November 2017 | Drg. Ref: ZB/10567






**Legend**

**Plate 9.** CH024 Hardstanding, looking north west

**Plate 10.** CH024 Hardstanding looking north

**Plate 11.** CH024 Hardstanding looking east

**Plate 12.** CH024 Hardstanding looking south

**Plate 13.** CH024 Cecilly Brook

Staffordshire Moorlands, District Council

Staffordshire Moorlands

Appendix 1. Site Images – CH024

Brook Holt 3 Blackburn Road Sheffield S61 2DW
T: 0114 2669292 www.ecusltd.co.uk

Date: November 2017 | Drg. Ref: ZB/10567




**Legend**

**Plate 14.** LE102 Mature beech tree (TN1)

**Plate 15.** LE102 Hawthorn (TN2)

**Plate 16.** LE102 Dead tree (TN4)

**Plate 17.** LE102 Improved grassland, looking east

**Plate 18.** LE102 Improved grassland, looking west

**Plate 19.** LE102 Old badger sett

**Plate 20**. LE102 River Churnet

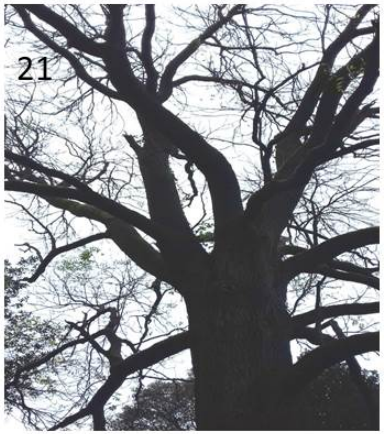
Staffordshire Moorlands, District Council

Staffordshire Moorlands

Appendix 1. Site Images – LE102

Brook Holt 3 Blackburn Road Sheffield S61 2DW
T: 0114 2669292 www.ecusltd.co.uk

Date: November 2017 | Drg. Ref: ZB/10567




ENVIRONMENTAL CONSULTANTS

**Legend**

**Plate 21.** LE102 Mature ash tree (TN5)

Staffordshire Moorlands, District Council

Staffordshire Moorlands

Appendix 1. Site Images – LE102

Brook Holt 3 Blackburn Road Sheffield S61 2DW
T: 0114 2669292 www.ecusltd.co.uk

Date: November 2017 | Drg. Ref: ZB/10567







ecus
ENVIRONMENTAL CONSULTANTS

**Legend**

**Plate 22.** LE150 Hardstanding in south of site

**Plate 23.** LE150 Site looking north east

**Plate 24.** LE150 Introduced shrubs and hedges

**Plate 25.** LE150 Pond 1

**Plate 26.** LE150 Pond 2

**Plate 27.** LE150 Brook

Staffordshire Moorlands, District Council

Staffordshire Moorlands

Appendix 1. Site Images – LE150

Brook Holt 3 Blackburn Road Sheffield S61 2DW
T: 0114 2669292 www.ecusltd.co.uk

Date: November 2017 | Drg. Ref: ZB/10567







**Legend**

**Plate 28.** LE150 Road underpass

**Plate 29.** LE150 Ballington Wood

**Plate 30.** LE150 Buildings 4 and 5 looking south

**Plate 31.** LE150 Building 6 looking south east

**Plate 32.** LE150 Building 1 looking east

**Plate 33.** LE150 Buildings 3 and 2 looking south

Staffordshire Moorlands, District Council

Staffordshire Moorlands

Appendix 1. Site Images – LE150

Brook Holt 3 Blackburn Road Sheffield S61 2DW
T: 0114 2669292 www.ecusltd.co.uk

Date: November 2017 | Drg. Ref: ZB/10567

# Appendix 2. Abbreviations and Acronyms

| Abbreviations/acronyms | **Explanation** |
|---|---|
| BAS | Biodiversity Alert Site |
| Birds of Conservation Concern | Birds of Conservation Concern |
| CIEEM | Chartered Institute for Ecology and Environmental Management |
| HEGS | Hedgerow Evaluation and Grading System |
| HSI | Habitat Suitability Index |
| LWS | Local Wildlife Site (Non-statutory designations inc. Site of Biological Interest (SBI); Biodiversity Alert Site (BAS)) |
| LNR | Local Nature Reserve |
| MAGIC | Multi-Agency Geographic for the Countryside |
| NPPF | National Planning Policy Framework |
| OS | Ordnance Survey |
| RIGS | Regionally Important Geological Site |
| SBI | Site of Biological Importance |
| SER | Staffordshire Ecological Record |
| SMDC | Staffordshire Moorlands District Council |
| SSSI | Site of Special Scientific Interest |

# Appendix 7. Great Crested Newt Habitat Suitability Calculations

The HSI score is a geometric mean of ten suitability indices:

$$HSI=(SI_1 \times SI_2 \times SI_3 \times SI_4 \times SI_5 \times SI_6 \times SI_7 \times SI_8 \times SI_9 \times SI_{10})^{1/10}$$

The ten suitabilities are scored for a pond and converted on a sale from 0.01 to 1.These SI scores are created by reading off the values from graphs produced by Oldham *et al.* (2000). The SI scores are then multiplied together. The tenth root of this number is the calculated to give a HSI value between 0 and 1.

**Table A7.1 HSI Scores**

| Pond number | Location | Area ($m^2$) | Pond Permanence | Water Quality | Shade | Waterfowl | Fish | Pond Density | Terrestrial Habitat Quality | Macrophyte Cover | Final HSI Score | Prediction (Likelihood of GCN) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BDNEW –P1 | 0.5 | 0.4 | 0.9 | 0.67 | 1.0 | 1.0 | 1.0 | 0.9 | 1.0 | 1.0 | **0.78** | **Good** |
| LE150 - P1 | 0.5 | 0.8 | 0.9 | 1.0 | 1.0 | 0.67 | 0.33 | 0.38 | 0.33 | 0.5 | **0.59** | **Below average** |
| LE150 - P2 | 0.5 | 0.6 | 0.9 | 0.67 | 1.0 | 0.67 | 0.67 | 0.38 | 0.33 | 1.0 | **0.63** | **Average** |

# Appendix 8. HSI Calculation Information

***How to collect data and calculate the HSI***

The HSI is a geometric mean of ten suitability indices:

HSI = (SI1 x SI2 x SI3 x SI4 x SI5 x SI6 x SI7 x SI8 x SI9 x SI10)1/10

Ten factors are scored for a pond, in the field and from map work (field scores). The ten field scores are converted to SI scores, on a scale from 0.01 to 1 (0.01 is used as the lower end of the scale in stead of 0, because multiplying by 0 reduces all other SI scores to 0). The ten SI scores are multiplied together. The tenth root of this number is calculated (x) 1/10 i.e. x to the power of 0.1.

***Summary of scoring system***

**SI 1 Location**

A (optimal) 1 B (marginal) 0.5 C (unsuitable) 0.01

**SI 2 Pond area**

Measure pond surface area (m2) and round to nearest 50 m2

**SI 3 Pond drying**

Never 0.9 Never dries

Rarely 1.0 Dries no more than two years in ten or only in drought.

Sometimes 0.5 Dries between three years in ten to most years

Annually 0.1 Dries annually

**SI 4 Water quality**

Good 1.0 Abundant and diverse invertebrate community.

Moderate 0.67 Moderate invertebrate diversity

Poor 0.33 Low invertebrate diversity, few submerged plants

Bad 0.01 Clearly polluted, only pollution-tolerant invertebrates, no submerged plants.

**SI 5 Shade**

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

**SI 6 Water fowl**

Absent 1 No evidence of water fowl (although moorhen may be present)

Minor 0.67 Waterfowl present, but little sign of impacts

Major 0.01 Severe impact of waterfowl

**SI 7 Fish**

Absent 1 No records of fish stocking and no fish revealed during survey.

Possible 0.67 No evidence of fish, but local conditions suggest that they may be present.

Minor 0.33 Small numbers of crucian carp, goldfish or stickleback known to be present.

Major 0.01 Dense populations of fish known to be present.

**SI 8 Pond density**

Count the number of ponds within 1 km of survey pond, not separated by major barriers, and divide by 3.14.

This can be done from maps rather than in the field.

**SI 9 Terrestrial habitat**

Good 1 Moderate 0.67 Poor 0.33 None 0.01

**SI 10 Macrophytes**

Estimate the percentage of the pond surface area occupied by macrophyte cover (between May and the end of September)