Woolley Colliery Road, Barnsley

Preliminary Ecological Appraisal Report

ER-6218-01-A

Report reference	**ER-6218-01-A**
Author	Christopher Shaw BSc (Hons) MCIEEM Principal Ecologist
Technical Review	Peter Brooks BSc (Hons), MA, MCIEEM, CEnv Managing Director
QA	David Lovett MBiolSci (Hons) ACIEEM Ecologist
Authorised	Peter Brooks BSc (Hons), MA, MCIEEM, CEnv Managing Director
Date	Written 23/05/2022 Amended 07/06/2022

Unit A, 1 Station Road, Guiseley, Leeds, LS20 8BX
Phone: 01943 884451
01943 879129
www.brooks-ecological.co.uk
Registered in England Number 5351418

Contents

Summary

This report is produced to inform Rouse Homes Ltd. of potential ecological constraints associated with their proposed development site and the need for further reporting or output to support a planning application.

This report is based on a desk study of designated wildlife sites and records of protected or notable species, and an extended Phase 1 Habitat Survey carried out in May 2022.

Key Findings

The Site encompasses part of the former Woolley Colliery, which has been left largely unmanaged since activities ceased. The Site now supports a mix of neutral grassland (with patches of acid and calcareous), mixed scrub, broadleaved woodland and hardstanding.

An Invertebrate survey undertaken in 2019 assessed the Site as being of District Level importance for this group, due to the presence of six important species, including Dingy Skipper and Small Blue. Suitable mitigation for these species will be required.

Further survey is recommended for reptiles and bats, to collect information on the sites baseline, and to inform the level of mitigation required for these groups. A precautionary approach to badgers is also recommended.

Metric score

Under the DEFRA Metric 3.0 Calculator tool, the Site (red line boundary land) has been assessed as having a baseline score of 16.03 Habitat Units. Development will result in an overall net loss in biodiversity onsite, and offsetting within blueline land will be required to achieve a net gain.

Introduction

1. Brooks Ecological Ltd was commissioned by Rouse Homes Ltd. to carry out a Preliminary Ecological Appraisal (PEA) of land at Woolley Colliery Road, Barnsley.

2. This report is produced with reference to British Standard BS:42020 'Biodiversity Code of Practice for Planning and Development' and the CIEEM (2017) Guidelines for Preliminary Ecological Appraisal.

Purpose of a PEA

3. A PEA is an *initial assessment* of the baseline for a proposed development site and establishes whether the Site is likely to be constrained by ecology, and whether more information is needed to identify the ecological baseline.

4. The subsequent Preliminary Ecological Appraisal Report (PEAR) is intended to give guidance to a developer and assist with the early stages of project planning and design. Where a site is not complex or constrained, and no additional ecological input is necessary the PEAR *may* be sufficient, and suitable to support a planning application.

5. Biodiversity Accounting metrics are used to quantify the value of a Site in Biodiversity Units - which helps in the later stage of assessing the ecological impacts of the proposed development.

6. Biodiversity Units can help to inform avoidance, or on-site mitigation levels required; or as a last resort can translate to a direct monetary value where compensation (off-site) is required. Please be aware that they *can* significantly impact on costs and viability.

Background

7. A number of detailed ecological studies were undertaken on the Site and wider colliery in 2019, including a 'Biodiversity Interest Assessment (Wildscapes), Preliminary Ecological Appraisal (ecus), reptile survey (ecus) and Invertebrate Assessment (Conops Entomology Ltd).

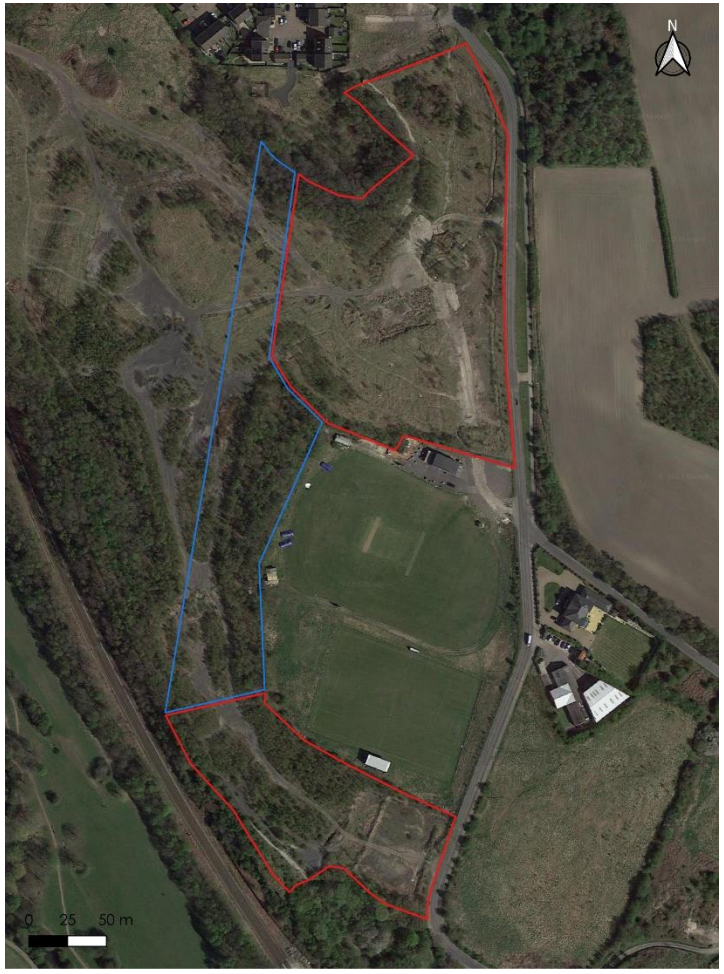
8. These reports were produced for Kier Living Ltd. and the client does not have any legal reliance on these. However, survey information has been submitted to the local records centre, and thus pertinent information from these studies is referenced in this report.

The Site

9. The application site 'the Site' encompasses part of a former colliery, situated to the northwest of Barnsley.

10. The assessment uses a 2km area of search around the Site for records of protected and notable species and locally or nationally designated wildlife sites.

Figure 1 The Site (red line boundary) & potential offsetting land (blue line)



Desk Study

Landscape

11. The Site is located to the northwest of Barnsley, with the villages of Darton and Mapplewell to the southeast and Kexborough to the southwest.
12. The Site encompasses a section of the former Woolley Colliery, which has now been developed in parts for residential use. The Site is surrounded by a mix of former colliery land, roads, railway lines, farmland, sports fields, and new build residential development.
13. The former colliery, together with woodland blocks, railway embankments and the River Dearne provide the best habitat features locally.
14. Being part of a former colliery, the Site is likely to have a fairly complex superficial geology, with elements of coal waste, mixed with inert materials and crushed aggregates. This could give rise to localised patches of acid, neutral and calcareous growing conditions.

Wildlife Corridors

15. An active railway line and the River Dearne both pass within close proximity of the Site's western boundary, moving through the landscape roughly northwest to southeast; see figure opposite.
16. These provide strong 'landscape-scale' linear features, which may be of value for the dispersal of certain faunal species / groups.
17. The site can be considered functionally linked to both features, through proximity and the presence of good connecting habitat.

Figure 2 Analysis of wildlife corridors and higher value habitat visible on mapping in relation to the Site.

Designated Sites

Statutory Designations

18. A search has been made to identify any nationally designated sites within a 2km radius of the Site, or internationally designated sites within a 10km radius. The results are shown in the below table.

Table 1 Statutory Designated Sites.

Site Name	Distance from Site	Designation	Summary Interest
Denby Grange Colliery Ponds	5.6km NW	Special Area of Conservation (SAC)	Great crested newts (GCN)

19. The Site is located well out of range for which impacts on GCN could be expected. Direct and indirect impacts on Denby Grange Colliery Ponds SAC, as a result of this development, are therefore considered unlikely due to the Sites separation and distance.

SSSI Impact Risk Zones (IRZs)

20. The Site lies within the outermost IRZ for the Seckar Wood and Denby Grange Colliery SSSI's, but does not fall into any of the highlighted categories which require the LPA to consult with Natural England in relation to potential impacts.

Nature Improvement Area

21. The Site does not lie within a Nature Improvement Area (NIA).

Natural England Licenses

22. No granted European Protected Species Mitigation (EPSM) licenses show up within 1km of the Site.

Non-Statutory Designations

23. The Site lies adjacent to the Barnsley / West Yorkshire regional boundary, and thus records were requested from both the Barnsley Biological Records Centre (BBRC) and West Yorkshire Ecology (WYE).

BBRC data

24. Two Barnsley Local Wildlife Sites (LWS) lie within the 2km search area (see Figure 3 overleaf). These being:

- Mapplewell Tip (62), situated circa. 1km SE; and,
- Daking Brooks (17), situated circa. 1.4km S.

25. Neither of these LWS's are functionally linked to the Site and are sufficiently distant that direct and indirect impacts from the Site's development are considered unlikely.

WYE data

26. There are no Wakefield LWSs in the search area (see Figure 4 overleaf).

Figure 3 Barnsley Biological Records Centre; Designated Sites.

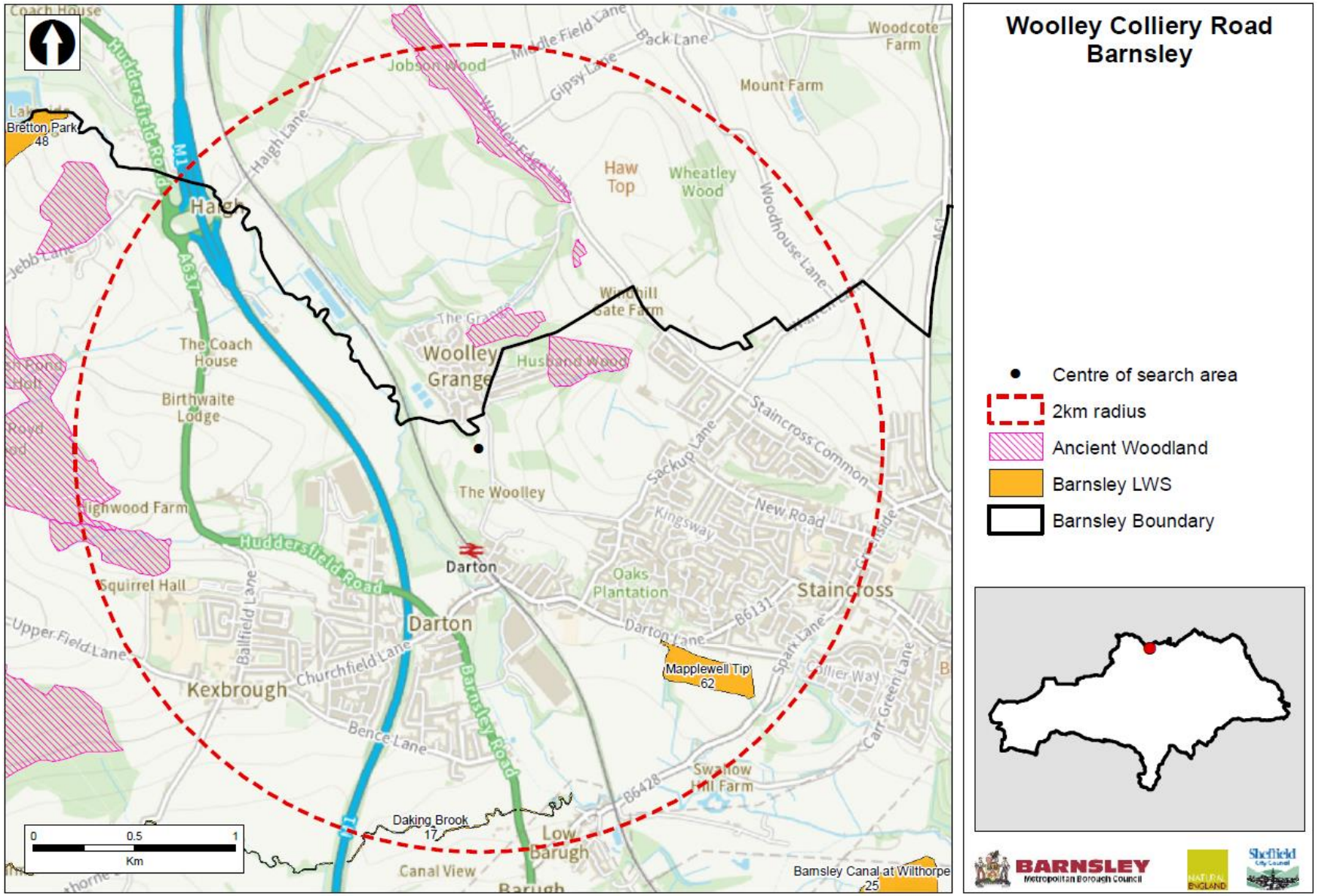
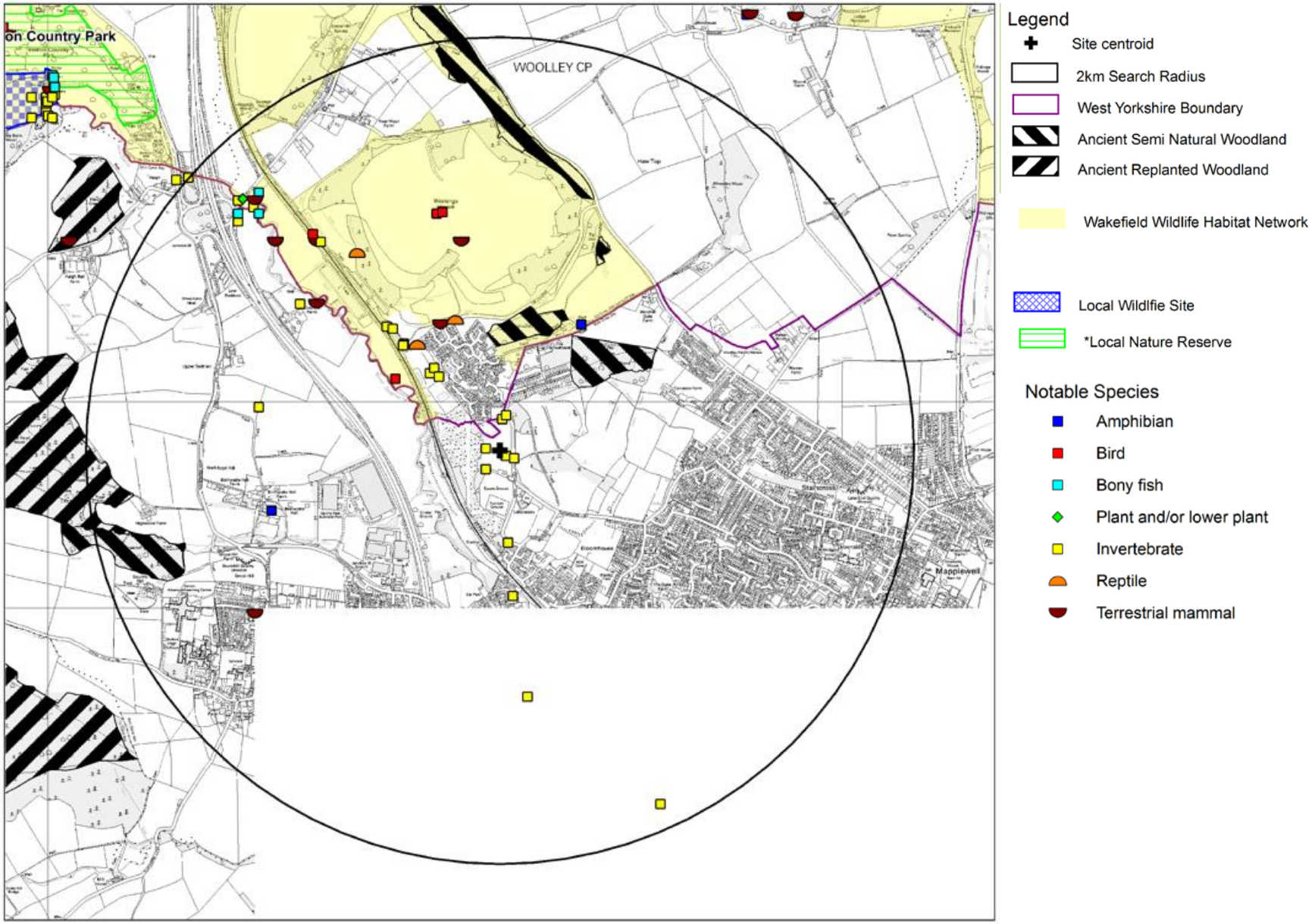


Figure 4 West Yorkshire Ecology; Species and Designated Sites.



Survey

27. The survey was carried out during May 2022[1] and followed the principles of Extended Phase 1 Habitat Survey methodology (JNCC, 2010).

28. Enough time was afforded the surveyor to carry out the survey. The survey was not constrained by poor weather.

29. Whilst most of the Site was accessible, at least 20-30% of the Site was inaccessible due to very dense vegetation, which could not be closely inspected. This could have concealed invasive species or protected species evidence.

Habitat Appraisal

30. The Site's habitats are described in order on the following pages. In line with the requirement to provide information on **Biodiversity Net Gain (BNG**), habitats are named in accordance with the UK Habitats classification system - we have used the relevant UK Habs guidance in identifying habitats. Habitat descriptions are divided into the 'distinctiveness' categories used in the calculations - with more weight being afforded the more distinctive / important habitats.

31. Generally, the following apply to each tier of distinctiveness; although some authorities might highlight some lower distinctiveness habitats as having a higher importance locally. Where relevant we have highlighted these.

Very Low Distinctiveness Habitats

32. Habitats of little or no habitat value i.e., lacking any significant native vegetation, but could still provide supporting habitat for protected or notable fauna such as birds or bats. In the context of BNG - their areas are included in calculation, but mitigation or compensation is not required.

Low Distinctiveness Habitats

33. Habitats which are ubiquitous, often which have been created or modified by man. They tend to lack diversity of species and structure. They are unlikely to support notable flora but could still provide supporting habitat for protected or notable fauna. In the context of BNG they are included in calculations, but compensation / mitigation needs only to provide habitat of similar or higher distinctiveness.

Moderate Distinctiveness Habitats

34. Habitats which are common but provide a higher level of structural and species diversity, though unlikely to support more notable assemblages, species of interest could be present here and they are more likely to be important supporting habitat to fauna. In the context of BNG mitigation needs to provide habitat of the same broad habitat type, or that of higher distinctiveness.

High Distinctiveness Habitats

35. These are habitats which are more natural and contain more important assemblages of plants and potentially species which are rare in their own right. They will provide good supporting habitat for fauna. These habitats are likely to be targeted as conservation priorities and will be the subject of additional policy guidance or legislation. In the context of BNG whilst mitigation or compensation for loss or damage is possible, provision of more of the same type of habitat would be required – which (with a few exceptions) is likely to be difficult.

Very High Distinctiveness Habitats

36. These are the UKs rarest / best habitats. They will be present in very particular locations and a range of rare or important plant and animal species will depend on the particular conditions they provide. These habitats will be the subject of restrictive policy guidance or legislation. Whilst the BNG metric does not preclude mitigation or compensation in respect of these habitats, creation of the same habitat type would be required and this would range between very difficult/expensive and impossible.

37. Each habitat is mapped and an area for each type is provided in the format of the DEFRA Biodiversity Metric 3.0 Calculation Tool. The areas can be used to quantify the impacts of development in an Ecological Impact Assessment if this is required by the Local Planning Authority.

Condition Assessment

38. Our condition assessment for each habitat described references where available the criteria set out in DEFRA (2021) Biodiversity Metric 3.0 Technical Supplement (1).

39. Habitats in the Low Distinctiveness tier tend to fall into the poor condition category by default. Where we feel this is not the case, we have explained our reasoning.

40. Habitats within the other higher tiers can fall into a range of conditions. We set out our reasoning based on the given criteria and guidelines.

[1] This Report has been prepared during May 2022 following a visit to the site in May 2022 and our findings are based on the conditions of the site that were reasonably visible and accessible at that date. We accept no liability for any areas that were not reasonably visible or accessible, nor for any subsequent alteration, variation or deviation from the site conditions which affect the conclusions set out in this report.

Habitats of Low/Very Low Distinctiveness

Figure 5 Approximate location and extent of these habitats.

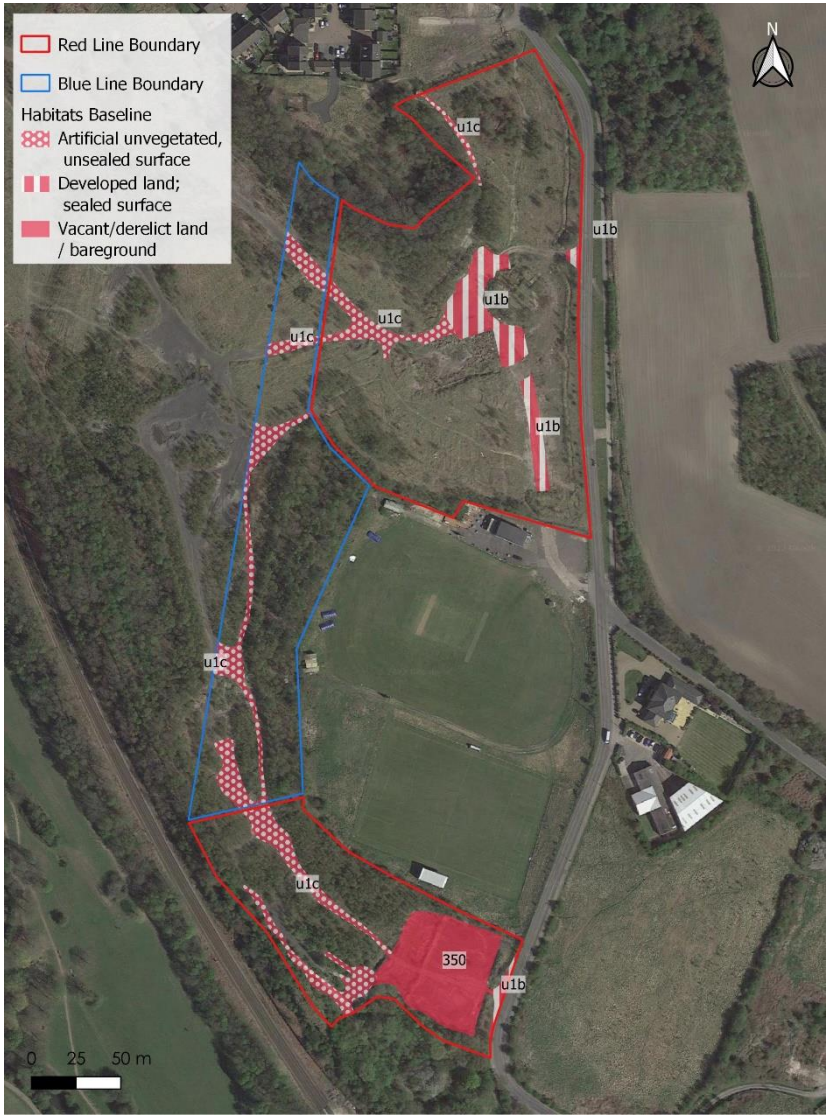


Table 2 Summary – Habitats of Low / Very Low Distinctiveness.

Habitat Code/ Name	Summary Description	Condition
u1b – Developed land; sealed surface	Concrete hardstanding; remnants of the former colliery infrastructure. Short ephemeral vegetation has colonised cracks.	n/a
u1c – Artificial unvegetated; unsealed surface	Crushed coal-waste and other aggregates – laid as footpaths or exposed / compacted through regular trampling.	n/a
350 Vacant / derelict land	A small compound, comprising of concrete hardstanding, crushed aggregate and earth bunds. Colonised by grasses and forbs described in the Grassland section below.	Moderate

Defra Metric Condition Assessment – 350 Vacant / Derelict land

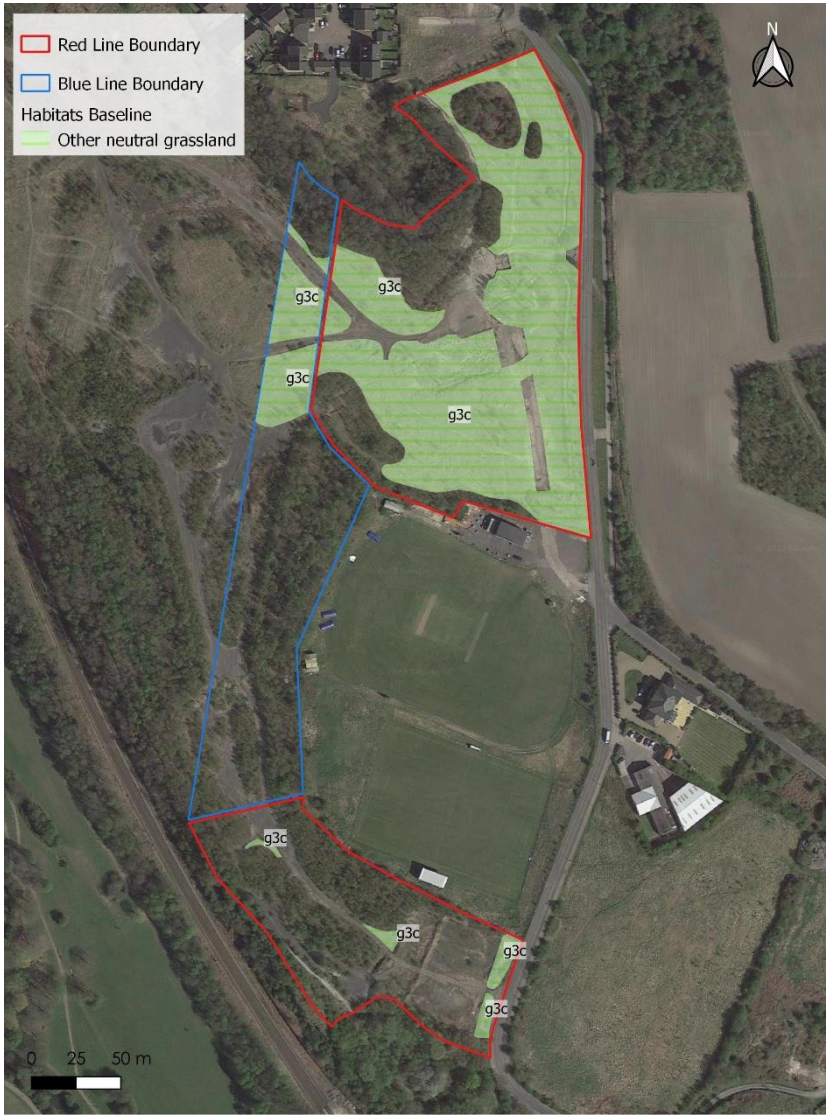
Urban non-priority		
	Pass/Fail	**Condition**
1	Fail	3, including requirements for Good in 2 & 3 = Good
2	Pass	
3	Pass	2, or 3 without requirements for Good in 2 & 3 = Moderate
	2 passes - Moderate	0-1 = Poor

Figure 6 Example of 'u1c' habitat.

Figure 7 Example of '350' habitat.

Habitats of Medium Distinctiveness

Figure 8 Approximate location and extent of these habitats.



g3c Other Neutral Grassland

41. Much of the northern half of the Site is occupied by a rough neutral grassland sward, which is moderately diverse and predominantly neutral. During the colliery's restoration, it is likely that inert material was brought into the site for grassland seeding / tree planting.

42. The grassland appears unmanaged, with low-level rabbit grazing and informal access/dog walking. Grasses include red fescue, cock's-foot, creeping & common bent, sweet vernal and crested dog's tail, whilst forbs include common birds foot trefoil, plantains, clovers, buttercups, vetches, common knapweed, willowherbs, Michaelmas daisy, ragwort, creeping cinquefoil, docks, selfheal and oxeye daisy, amongst others. Due to the lack of management, young self-set scrub is scattered throughout, with the dominant species being goat willow, alder, silver birch and bramble. Although not observed during the survey, bee orchid, common spotted orchid and southern marsh orchid have all been recorded in the past (BBRC).

43. An earth bund and dry ditch run along much of the eastern boundary, preventing vehicular access, whilst occasional earth/ rubble piles are dotted throughout the red line boundaries. These are all vegetated in a similar neutral grassland sward, but with greater proportions of scrub. Small, localised patches of acid and calcareous grassland are noted throughout, but are all too small to map, and individually are not considered significant.

Defra Metric Condition Assessment - Poor

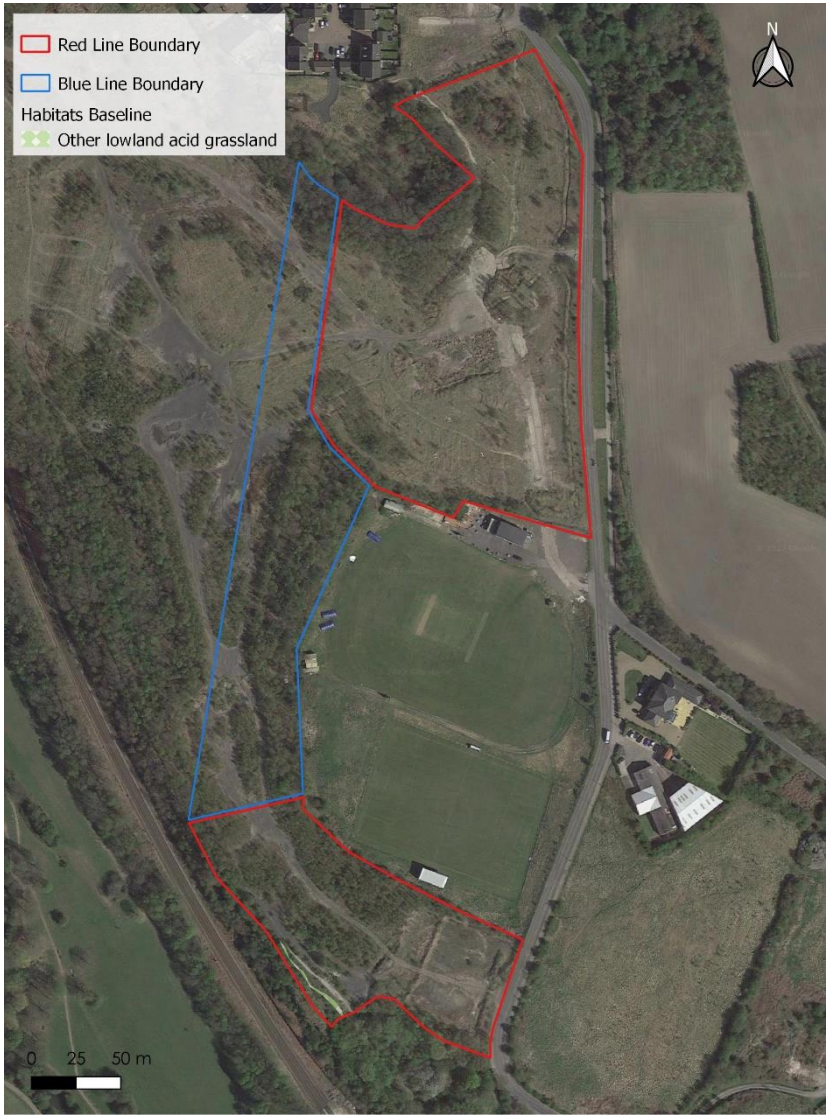
	Pass/Fail	Condition Poor
1	Fail	5 out of 5 = Good
2	Pass	3 -4 = Moderate
3	Pass	1-2 = Poor
4	Fail	
5	Fail	
	2 passes - Poor	

Figure 9 Typical neutral grassland

Figure 10 Typical neutral grassland

Habitats of Medium Distinctiveness

Figure 11 Approximate location and extent of these habitats.



g1a6 Other Acid Grassland

44. Small pockets of species-poor acid grassland are scattered throughout the Site, primarily along the banks of soil piles and the edges of spoil/aggregate paths. These are generally too small in extend to map, and thus have been grouped with the Other Neutral Grassland habitat. These pockets of grassland generally comprise of 40-50% bare ground, with common acrocarpous mosses and mouse eared hawkweed being the dominant vegetation, with smaller components of wavy hairgrass and hawkweed.

45. To the southwest corner, sloping down towards the railway line, is a steep bank vegetated with a thin strip of slightly more diverse acid grassland. Species here include wavy hairgrass, sheep's fescue, mouse eared hawkweed, sheep sorrel, wood sage, common centaury and hawkweed.

Defra Metric Condition Assessment - Poor

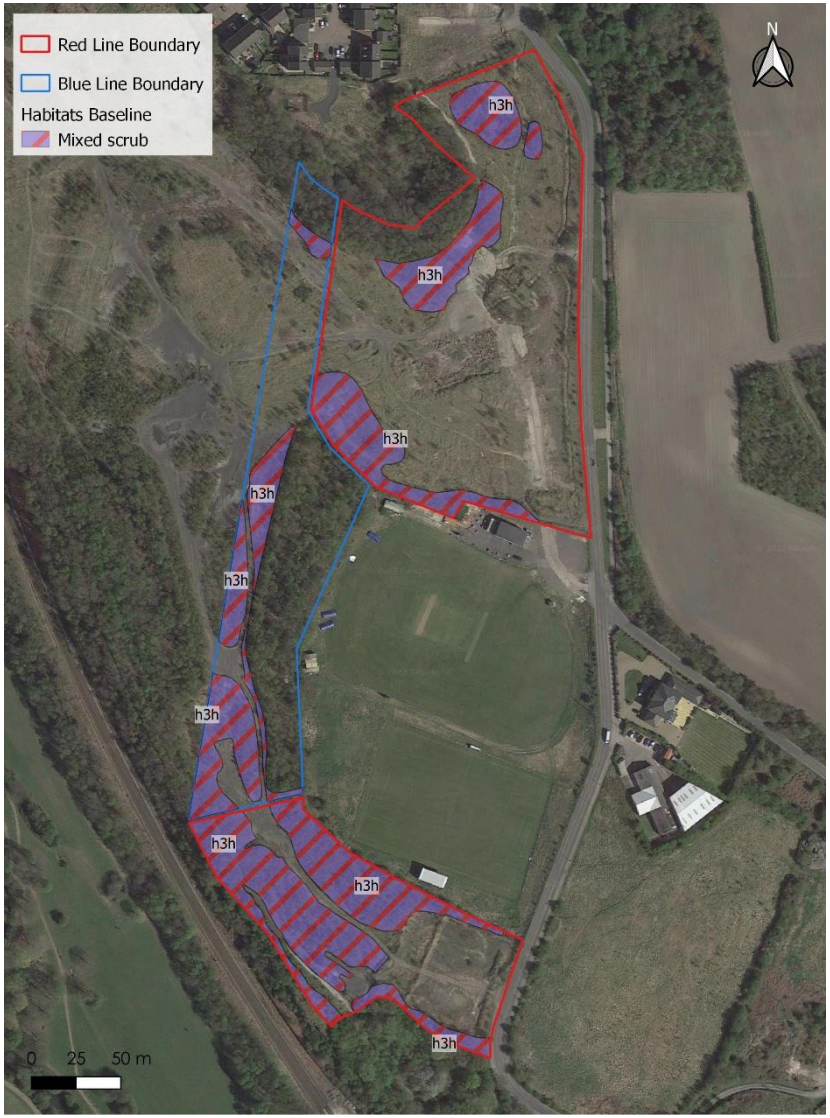
Grasslands Medium, High & Very High Distinctiveness		
	Pass/Fail	**Condition Poor**
1	Fail	5 out of 5 = Good
2	Fail	3 -4 = Moderate
3	Fail	1-2 = Poor
4	Pass	
5	Pass	
	2 passes - Poor	

Figure 12 Acid grassland growing along steep bank to the southwest corner

Figure 13 Species-poor acid grassland scattered throughout site

Habitats of Medium Distinctiveness

Figure 14 Approximate location and extent of these habitats.



h3h Mixed scrub

46. A mix of former tree planting and self-set scrub.
47. Large swathes of the Site are occupied by dense stands of young silver birch, most of which is likely to have been planted as part of the colliery's restoration. This has been left unmanaged and at present most closely resembles dense scrub habitat, but given time, will ultimately succeed to broadleaved woodland.
48. Silver birch is the dominant species, with smaller components of bramble, alder and goat willow. Along the railway embankments and to the far north, hawthorn, dog rose, elder and honeysuckle are also noted.
49. Rough neutral grassland is found growing along the edges of the scrub.

Defra Metric Condition Assessment - Poor

Scrub		
	Pass/Fail	**Condition**
1	Fail	5 = Good
2	Fail	3-4 = Moderate
3	Fail	0-2 = Poor
4	Pass	
5	Pass	
	2 passes - Poor	

Figure 15 Typical view of scrub.

Figure 16 Typical view of scrub.

Habitats of Medium Distinctiveness

Figure 17 Approximate location and extent of these habitats.

w1g Other Broadleaved Woodland

50. Two blocks of broadleaved woodland are present on Site, the northern block being slightly more mature than the other. Neither woodland is managed.

51. Across both woodlands, the canopy comprises of oak, silver birch, sycamore, alder, goat willow, Scots pine and wych elm, whilst the understorey comprises of dense young regeneration of these species, together with rowan, hawthorn, and rog rose.

52. To the north, the ground layer comprises primarily of bramble and nettle, whilst to the centre (blue-line land) the ground layer is sparser and includes many of the species listed in the grassland section, as well as bramble, male fern, nettle, red fescue, common vetch and wood sage.

Defra Metric Condition Assessment - Moderate

Woodland		
	Good/Moderate/Poor	**Condition**
1	Moderate – 2	33-39 = Good
2	Good - 3	26-32 = Moderate
3	Good - 3	13-25 = Poor
4	Good - 3	
5	Good - 3	
6	Good - 3	
7	Moderate – 2	
8	Good - 3	
9	Poor - 1	
10	Moderate – 2	
11	Poor - 1	
12	Poor - 1	
13	Moderate – 2	
	29 points - Moderate	

Figure 18 Woodland edge

Figure 19 Woodland interior

DEFRA Metric (Baseline)[2]

53. This metric sets out the baseline for the Site - proposals should seek to **Avoid** areas of higher value, **Mitigating** any loss on-Site through retention and enhancement, or habitat creation.

Figure 20 *Habitat Units – Red Line Boundary*

Woolley Colliery Road

A-1 Site Habitat Baseline

Condense / Show Columns | Condense / Show Rows | Main Menu | Instructions

	Habitats and areas			Distinctiveness	Condition	Strategic significance	Suggested action to addre habitat losses	Ecological baseline
Ref	Broad habitat	Habitat type	Area (hectares)	Distinctiveness	Condition	Strategic significance		Total habitat unit
1	Grassland	Other neutral grassland	1.94	Medium	Poor	Area/compensation not in local strategy/ no strategy	Same broad habitat or a high distinctiveness habitat requir	7.76
2	Heathland and shrub	Mixed scrub	1.27	Medium	Poor	Area/compensation not in local strategy/ no strategy	Same broad habitat or a high distinctiveness habitat requir	5.08
3	Woodland and forest	Other woodland; broadleaved	0.24	Medium	Moderate	Area/compensation not in local strategy/ no strategy	Same broad habitat or a high distinctiveness habitat requir	1.92
4	Grassland	Other lowland acid grassland	0.007	Medium	Poor	Area/compensation not in local strategy/ no strategy	Same broad habitat or a high distinctiveness habitat requir	0.03
5	Urban	Developed land; sealed surface	0.2	V.Low	N/A - Other	Area/compensation not in local strategy/ no strategy	Compensation Not Required	0.00
6	Urban	Artificial unvegetated, unsealed surface	0.23	V.Low	N/A - Other	Area/compensation not in local strategy/ no strategy	Compensation Not Required	0.00
7	Urban	Vacant/derelict land/ bareground	0.31	Low	Moderate	Area/compensation not in local strategy/ no strategy	Same distinctiveness or bette habitat required	1.24
			4.20					16.03

[2] Our report provides an estimate of the sites value in Biodiversity Units. This is based on thorough assessment at the time of survey and using the information available at this time. In this assessment we have used the latest version of DEFRA's Biodiversity Metric Tool, the UK Habitats Classification and relevant guidance. This assessment requires subjective judgments to be made in terms of habitat type and condition and could be open to other interpretations. Reliance on the Unit Score, or conversion of this into a monetary value, would be at the developer's own risk. Where conversion to monetary value is required, it is always advisable to get calculations checked independently.

Figure 21 *Habitat Units – Blue Line Boundary*

Woolley Colliery Road

D-1 Off Site Habitat Baseline

Condense / Show Columns | Condense / Show Rows | Main Menu | Instructions

	Habitats and areas			Habitat distinctiveness	Habitat condition	Strategic significance	Suggested action to address habitat losses	Ecological baseline
Baseline ref	Broad habitat	Habitat type	Area (hectares)	Distinctiveness	Condition	Strategic significance		Total habitat units
1	Grassland	Other neutral grassland	0.22	Medium	Poor	Area/compensation not in local strategy/ no local strategy	Same broad habitat or a higher distinctiveness habitat required	0.88
2	Heathland and shrub	Mixed scrub	0.4	Medium	Poor	Area/compensation not in local strategy/ no local strategy	Same broad habitat or a higher distinctiveness habitat required	1.60
3	Woodland and forest	Other woodland; broadleaved	1.31	Medium	Moderate	Area/compensation not in local strategy/ no local strategy	Same broad habitat or a higher distinctiveness habitat required	10.48
4	Urban	Artificial unvegetated, unsealed surface	0.2	V.Low	N/A - Other	Area/compensation not in local strategy/ no local strategy	Compensation Not Required	0.00
5								
			2.13				Total Site baseline	12.96

Faunal Appraisal

54. The following pages discuss only the groups and species that could be reasonably expected to be found on the type of habitats present on, or adjacent to, the site.

Amphibians

Desk evidence

55. There are no ponds on Site and none are shown on mapping within a 500m radius of the Site boundary. One or two shallow pools were noted within the wider colliery, however these appear ephemeral, and do not provide suitable breeding habitat for species like great crested newt (GCN).

56. BBRC hold 6 amphibian records for the area, covering common frog (2), common toad (1), smooth newt (2) and GCN (1). The latter dates to 1995 for a pond at Birthwaite Hall Farm, circa. 900m west, on the opposite side of the M1.

57. WYE hold a further 3 amphibian records, these being of GCN (1) and smooth newt (2). The GCN record relates to the same pond as the BBRC search, and dates to 1995.

Field Evidence

58. No suitable breeding habitat is present on Site or within a 500m radius of the boundary.

59. The Site provides suitable terrestrial habitat for this group, with the rough grassland, scrub and woodland providing good foraging habitat, and the rubble piles providing areas of shelter/ resting places.

Summary Evaluation

60. Despite the Site providing suitable terrestrial habitat, the absence of potential breeding habitat and lack of records means the likely absence of GCN from Site can be reasonably concluded.

Further Surveys and Recommendations

61. No further surveys or precautions are considered necessary.

Bats

Desk evidence

62. Within the BBRC search, records have been returned for common pipistrelle, soprano pipistrelle and noctule.

63. WYE do not hold any bat records for the search area.

Field Evidence (Roosting)

64. No buildings are present on Site.

65. Most of the trees growing on Site were young and did not appear to have features suitable for roosting. However, a detailed inspection of all woodland trees was not undertaken.

Field Evidence (foraging and commuting)

66. The mix of grassland, scrub and woodland provides suitable habitat for foraging bats, and lies in close proximity to strong linear features (railway line and River Dearne). The Site may be of value to local populations as a foraging resource.

Summary Evaluation

67. The Site, and wider colliery, may be of value to foraging bats.

Further Surveys and Recommendations

68. Further surveys are recommended to establish the Sites baseline use by this group. Surveys should comprise of seasonal visits, covering spring, summer and autumn.

69. Any woodland trees scheduled for removal as part of the proposals should be subject to a pre-commencement check for bat roost suitability.

Birds

Desk Evidence

70. An extensive list of bird records has been returned for the search area by BBRC. This includes a number of BAP species, Schedule One birds and species listed on the Red and Amber list.

Field Evidence

71. A typical suite of common garden and farmland edge species were recorded flying over the Site during the walkover survey.

Summary Evaluation

72. The Site supports a mix of grassland, scrub and woodland habitats, which offer suitable foraging and nesting habitats for common garden birds; however, this is small in extent and surrounded by large swathes of similar or higher value habitat. As such, the Site is considered unlikely to be of significance to any rare or notable species and is unlikely to be of more than site level importance for this group.

Further Surveys and Recommendations

73. No further surveys are considered necessary to demonstrate current baseline in respect of birds.

74. Standard precautions apply in respect of restrictions on clearing vegetation during the nesting season.

Badgers

Desk evidence

75. Two badger record have been returned for the 2km search area. Of these, only one is of relevance to the Site, this being of a suspected badger field sign (partially raided bee nest) offsite to the east, recorded in 2016. The validity of this record is unknown.

Field Evidence

76. No evidence of badger activity was identified on Site, however, much of the dense scrub habitat and woodland was inaccessible for survey.

Summary Evaluation

77. The woodland and scrub habitats present on Site provide suitable habitat for sett building, whilst the Site as a whole provides good foraging habitat.

78. The site is also bordered by large areas of woodland and scrub habitat, as well as well vegetated railway embankments.

Further Surveys and Recommendations

79. Although no badger activity has been recorded on Site, seasonal constraints mean that the likely absence of badgers from site cannot be reasonably concluded. A dedicated badger survey is therefore recommended during the next winter period, when vegetation has died back.

Reptiles

Desk evidence

80. BBRC and WYE have returned five records for reptile within the search area; these all relate to common lizard recorded in summer 2019, on an offsite section of the Former Woolley Colliery circa. 540m – 1.1km north (see figure opposite).

81. A dedicated Reptile Survey was undertaken at the Site by ecus Environmental Consultants Ltd. in June to September 2019 (Report Ref. 13165). This survey confirmed the likely absence of reptiles from the two red-line boundary areas at this time.

Field Evidence

82. No evidence of reptile activity was noted on Site during the walkover survey.

83. The Site provides good reptile habitat, supporting a mix of habitats which offer foraging resources, shelter and basking spots.

Summary Evaluation

84. Although the likely absence of reptiles was established in 2019, the site continues to provide good reptile habitat, and is well connected to a known common lizard population within the same colliery site, c.0.5-1km north. There is the potential for this population to have extended its range, and common lizard may now be present on Site.

Further Surveys and Recommendations

85. An updating reptile survey is recommended, to confirm the status of common lizard onsite.

Figure 22 Common lizard records (orange cross)

Invertebrates

Desk evidence

86. BBRC and WYE have returned records for cinnabar moth, dingy skipper butterfly, latticed heath moth, shaded broad-bar moth, small heath butterfly and wall butterfly.

Field Evidence

87. A detailed Invertebrate Assessment was undertaken at the Site in 2019, by Conops Entomology Ltd. (report ref. 27.19). The survey identified six 'important' species associated with the site and recorded during these surveys. These species are Alder Leaf beetle (Agelastica alni), leaf beetle (Longitarsis dorsalis), fruitfly (Acanthiophilus helianthin), dingy skipper (Erynnis tages), small heath butterfly (Coenonympha pamphilus) and small blue (Cupido minimus). Two of these (alder leaf beetle and fruit-fly), however, do not warrant their current status and are likely to be downgraded.

Summary Evaluation

88. Based on the 2019 Invertebrate survey, it is suggested within the report that the site's key features should be considered to be of at least District (low) importance.

89. The site is considered to be of District importance owing to the limited number of significant species recorded during the surveys and also the overall and reasonably poor lists of species from both compartments. However, the lists do include two significant butterfly species (small blue and dingy skipper) and, to a lesser extent, the small heath butterfly (on compartment north only). The site is part of a much larger area of a former colliery that has a large population of small blue butterflies further afield and likely to hold other species that are also recorded from the site.

Further Surveys and Recommendations

90. No further survey is considered necessary.

91. Mitigation measures outlined in the Conops Entomology Ltd. (report ref. 27.19) should be implemented as part of the scheme, either within the site boundaries, or wider Woolley Colliery site.

Mitigation measures

92. A summary of the proposed mitigation is provided below. Full details would need to be agreed with the council under a Biodiversity Management Plan (BMP):

- Creation of open mosaic swards on low-fertility calcareous soils. Bare ground to comprise 50% of habitat mosaic. Other 50% to comprise bespoke seed mix for target invertebrates.
- Creation of invertebrate banks using low-fertility calcareous material. Constructed to have south facing aspect, in crescent shape. At least 10m in length, and range in height from 1 to 3m. minimum of three features. Seeded with bespoke mix.
- Creation of flower-rich tall sward. Seeded with bespoke mix or plug planted.
- Creation of a scrub fringe, including apple, blackthorn, cherry plum, field maple, hawthorn, plums, rowan and willows.
- Creation of deadwood features (standing and fallen).

Invasive Non-Native Species (INNS)

93. INNS are species listed on Schedule 9 of the Wildlife and Countryside Act (1981), for which it is an offence to cause or allow it to grow in the wild.

94. The following species were noted[3]:

- None

Survey constraints

95. Although no INNS have been identified in this preliminary survey it is not always possible to conclude absence from preliminary survey alone due to factors such as season, accessibility, 3rd party attempts to hide evidence or undisclosed treatment programmes. For this reason, this report should not be relied upon as definitive evidence of absence of INNS.

96. This site presents a medium-small risk of supporting undetected INNS based on the following factors:

- Areas of site inaccessible to survey
- Proximity to nearby potential sources of infection (railway line)
- Potential for tipping of material

97. Should further assurances be needed in relations to INNS, a dedicated Invasive Weed Survey should be commissioned.

[3] Whilst our ecologists are trained in the identification of invasive species this report is not a dedicated invasive species survey. Detectability of invasive plant species can be affected by several factors, and conclusive determination status, or extent, is not possible through preliminary survey alone. As the presence of invasive species can generate significant costs to development, the client may wish to instruct a dedicated invasive species survey prior to entering into contracts.

Ecological Constraints

Habitat Value

98. The usual approach to development is to minimise any net loss of biodiversity – ideally working towards a gain in biodiversity value where this is possible on-Site.

99. The plan opposite shows the Site in the context of mapped habitat distinctiveness with the aim of informing the design of a layout. It shows that there are no target areas of higher distinctiveness which would need to be avoided by the proposals, and that the Site is relatively uniform in terms of potential impacts.

100. Grassland, scrub and woodland habitats are all of medium distinctiveness, and do not impose any significant design constraints. However, the mitigation hierarchy of Avoid, Minimise, Compensate, should be applied to these habitats. Woodland and the acid grassland in particular should be retained and protected where feasible.

Faunal constraints

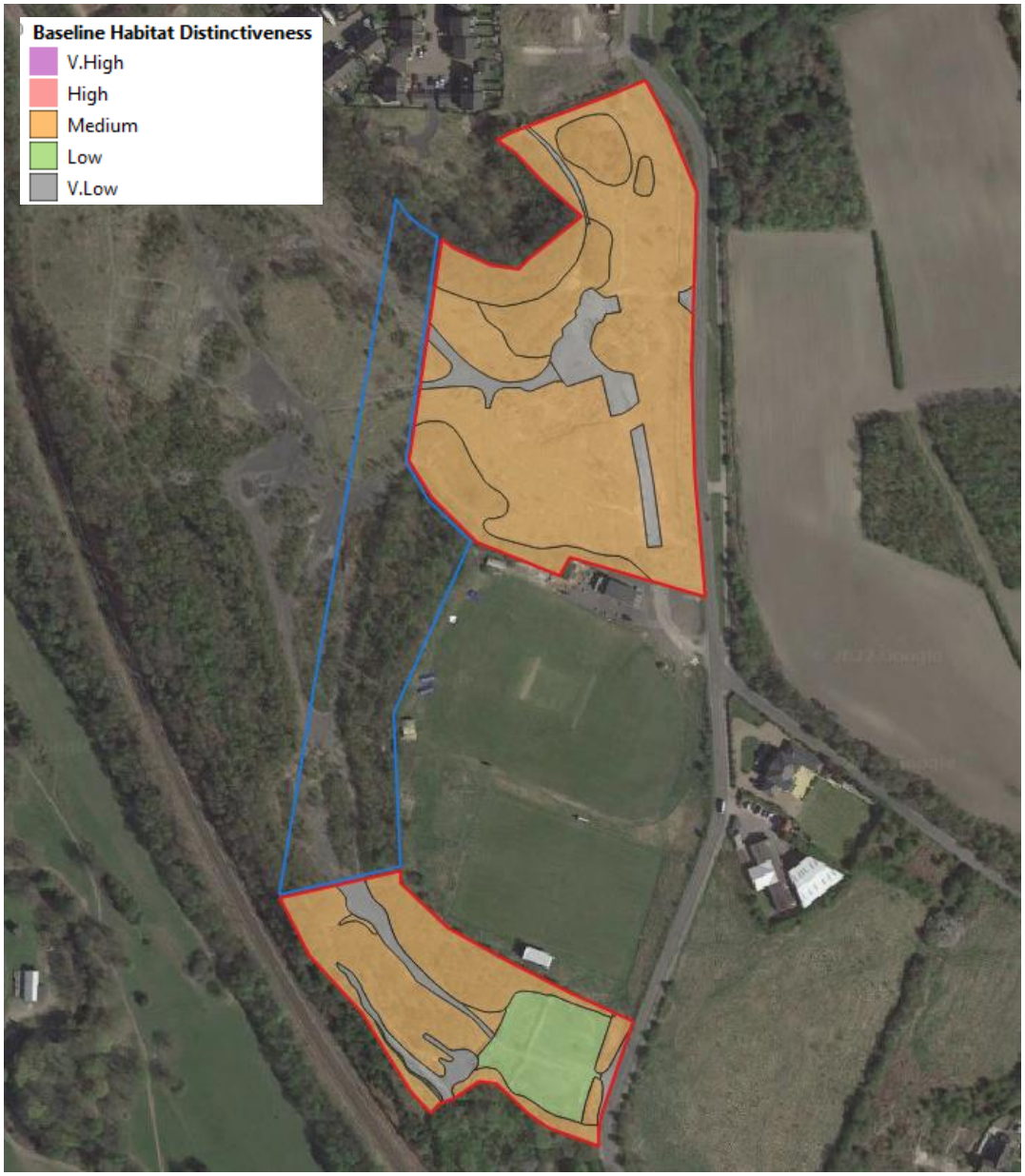
101. The Site provides suitable habitat for foraging bats, and further survey is recommended to establish an accurate baseline for this group and to inform mitigation.

102. An Invertebrate Assessment undertaken in 2019 identified the presence of six important species onsite. Suitable mitigation measures will need to be put in place.

103. Common lizard are known to occur on adjacent land to the north, and given the time that's elapsed since the last surveys were undertaken, updating survey are now recommended.

104. A precautionary approach to badgers is recommended, given survey constraints.

Figure 23 Distinctiveness of habitat.



Ecological Opportunities

105. The key ecological opportunities here relate to enhancing existing habitats within the blue line boundary, and potentially other offsite land within the former colliery, so as to maximise BNG uplift and secure a net gain for the scheme

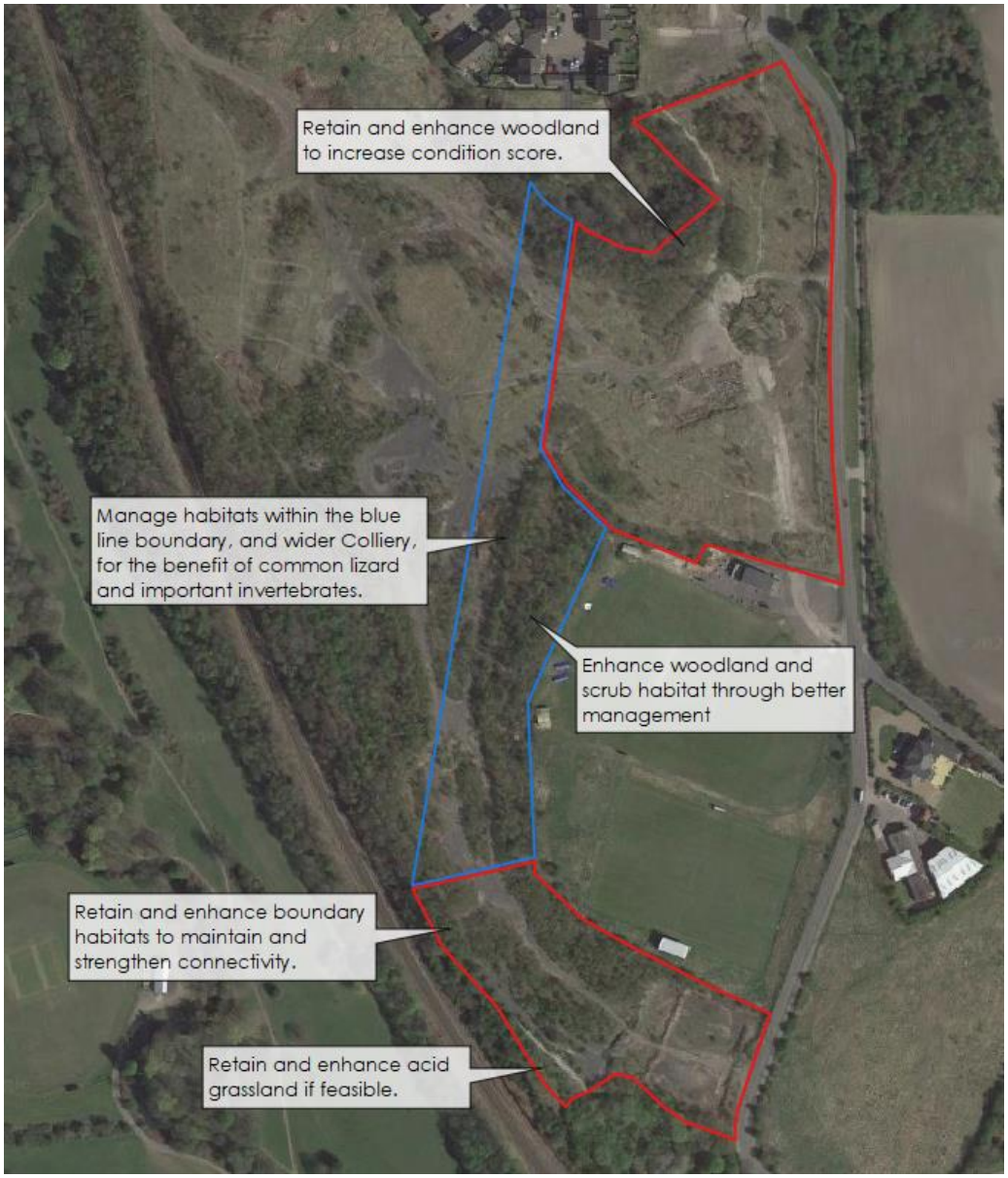
106. Offsite land could also be used to provide enhancements for groups such as reptiles (common lizard) and important invertebrates. This could take the form of creating grassland mosaics (acid/neutral/calcareous), with food plants for dingy skipper and small blue, and creating hibernacula for common lizard.

107. Retained habitat within the red line boundaries could be entered into a more ecologically sensitive management regime, so as to improve their condition score, or change the habitat type into one of a higher distinctiveness.

108. Installing roosting or nesting features within new buildings will also be beneficial for bats and hole nesting birds, especially in areas where these overlook retained boundary vegetation.

109. A Biodiversity Management Plan would be useful in defining these enhancements and can be secured by standard condition.

Figure 24 Ecological Opportunities.



Conclusions and Recommendations

Planning considerations		
Recommendation	**Rationale**	**When**
R1 Additional Surveys	Bats – Seasonal Activity Surveys (Spring, Summer & Autumn) Reptiles Badger	May – September March to September November to March
R2 Produce a layout which minimises loss of biodiversity.	Engage with the Constraints and Opportunities set out above, involve your ecologist in designs at an early stage. The proposals will need to consider the NPPF hierarchy of Avoid - Mitigate – Compensate in minimising any loss of biodiversity. The LPA is likely to be seeking at least a no-net-loss situation and could request that a contribution is made to address any residual loss here, off-Site. Your layout may need to change to accommodate your findings from R1 surveys.	During the design process
R3 Biodiversity Net Gain Strategy (BNS)	Engage an ecologist to work with the design team to maximise available Biodiversity Units on site.	During the design process
R4 Landscape Design	Make sure your landscape architect follows ecological advice or the BNS to maximise Biodiversity Units on site and make sure there are no design conflicts.	During the design process
R5 Ecological Impact Assessment (EclA) to include Calculated final Biodiversity Impact Score.	Summarises all survey findings and assesses the impacts of the scheme in respect of these. Uses DEFRA metric to quantity net gain/loss of biodiversity.	Prior to submission. After a fixed design is agreed and all key additional survey are completed.
R6 Produce a CEMP (Biodiversity)	To show how the site will be built without affecting surrounding habitats and minimising risk of affecting protected or notable fauna. The CEMP will detail the following protection measures: Location of Biodiversity Protection zones or fences Dealing with known or discovered invasive species Pre- or during- clearance ecology checks for protected species. Protected/notable species method statements where licensing in not needed. Nesting bird management	Delivery report Suitable for planning condition.
R7 Produce a Biodiversity Management Plan	To specify in detail how the development will cater for biodiversity on site and to show how habitats incorporated through the Biodiversity Net Gain Strategy be maintained in the condition that the Biodiversity Calculations were based on.	Delivery report Suitable for planning condition.

References

Andrews H. L. (2011) A habitat key for the assessment of potential bat roost features in trees.

Bat Conservation Trust (2016) Bat Surveys For Professional Ecologists – Good Practice Guidelines.

BSI (2013) British Standards Institute BS:42020:2013 Biodiversity — Code of Practice for Planning and Development.

CIEEM (2017) Guidelines for Preliminary Ecological Appraisal.

DEFRA (2021) Biodiversity Metric 3.0 Auditing and accounting for biodiversity Calculation tool macro free.

DEFRA (2021) Biodiversity Metric 3.0 Technical Supplement (1).

DEFRA (2021) Biodiversity Metric 3.0 User Guide.

English Nature (2004) *Bat Mitigation Guidelines*. English Nature, Peterborough.
English Nature (2001) *Great Crested Newt Mitigation Guidelines.* http://www.naturalengland.org.uk/Images/GreatCrestedNewts_tcm6-21705.pdf.

Fay N. (2007) *Defining and Surveying Veteran and Ancient Trees* https://www.treeworks.co.uk/about-treework/publications.

Gent T and Gibson S, 2003, *Herpetofauna Workers' Manual*, JNCC.

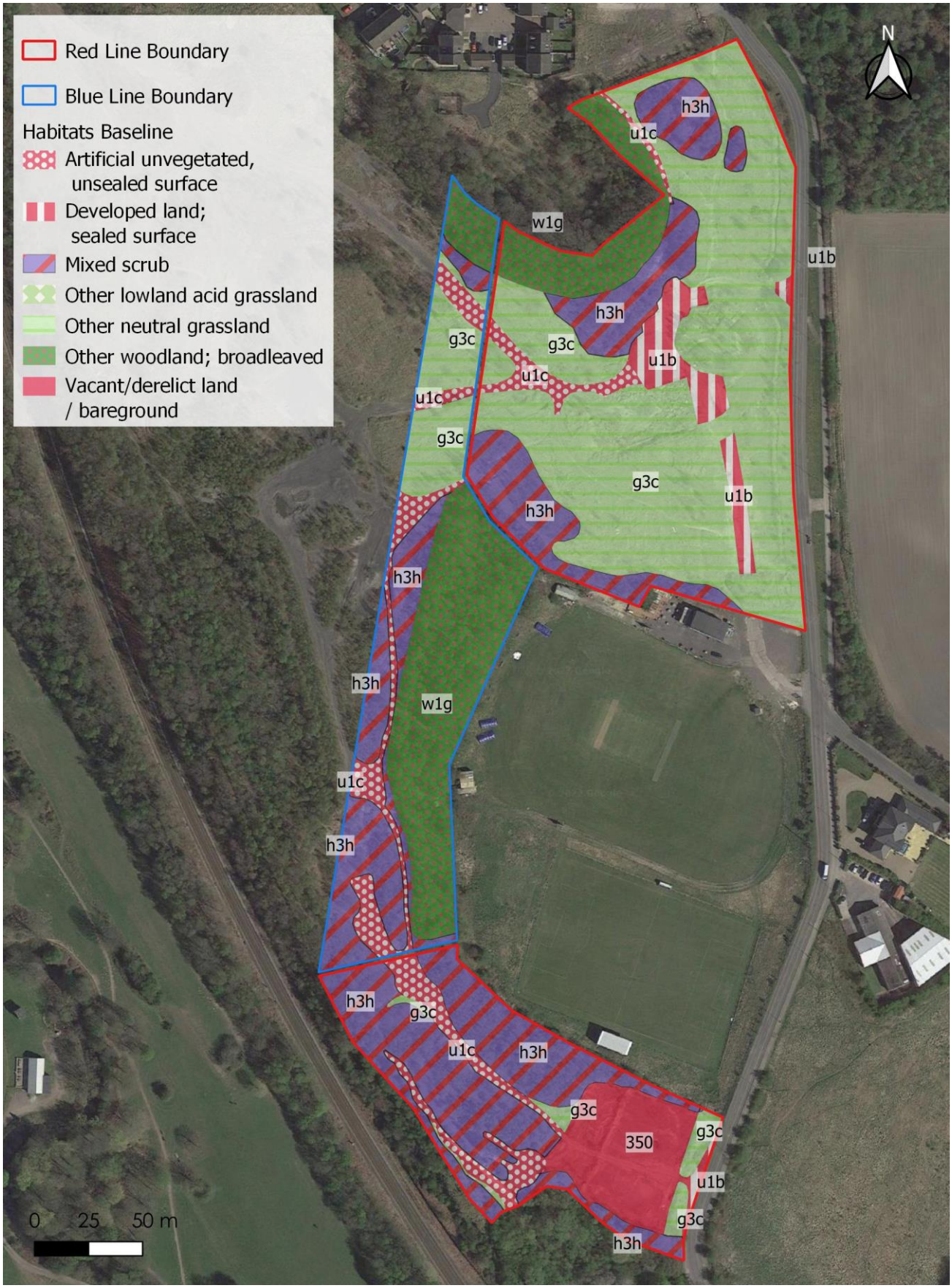
Hill et al. 2005, Handbook of Biodiversity Methods. Cambridge.

JNCC (2004) *The Bat Workers Manual*. 3rd Edition.
Ministry of Housing, Communities and Local Government (July 2018) *National Planning Policy Framework.*

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.Ratcliffe, D.A. (1977) A Nature Conservation Review, Cambridge University Press.

UK Habitats (2018) The UK Habitat Classification Habitat Definitions Version 1.0 UK Habitat Classification Working Group.

Appendix 1 Habitats and Ecological Features



Appendix 2 Condition Assessment Criteria

Grassland

Condition Sheet: GRASSLAND Habitat Type (medium, high & very high distinctiveness)	
UKHab Habitat Type(s)	
Grassland - Lowland calcareous grassland Grassland - Lowland dry acid grassland Grassland - Lowland meadows Grassland - Other lowland acid grassland Grassland - Other neutral grassland Grassland - Tall herb communities* Grassland - Upland acid grassland Grassland - Upland calcareous grassland Grassland - Upland hay meadows Sparsely vegetated land - Calaminarian grassland	
Habitat Description	
See UKHab	
* Note Tall herb habitat that does not meet the definition of Annex 1 habitat 'Tall herb communities (H6430)' should be recorded as "Other neutral grassland"	
Condition Assessment Criteria	
1	The appearance and composition of the vegetation closely matches characteristics of the specific grassland habitat type (see UKHab definition). Wildflowers, sedges and indicator species for the specific grassland habitat type are very clearly and easily visible throughout the sward.
2	Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20 per cent is more than 7 cm) creating microclimates which provide opportunities for insects, birds and small mammals to live and breed.
3	Cover of bare ground between 1% and 5%, including localised areas, for example, rabbit warrens.
4	Cover of bracken less than 20% and cover of scrub (including bramble) less than 5%.
5	There is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981). Combined cover of undesirable species[1] and physical damage (such as excessive poaching, damage from machinery use or storage, damaging levels of access, or any other damaging management activities) accounts for less than 5% of total area.
Condition Assessment Result	**Condition Assessment Score**
Passes 5 of 5 criteria	Good (3)
Passes 3 or 4 of 5 criteria	Moderate (2)
Passes 0, 1 or 2 of 5 criteria	Poor (1)
Notes	
Footnote 1 - Species considered undesirable for this habitat type include: Creeping thistle *Cirsium arvense*, spear thistle *Cirsium vulgare*, curled dock *Rumex crispus*, broad-leaved dock *Rumex obtusifolius*, common nettle *Urtica dioica*, creeping buttercup *Ranunculus repens*, greater plantain *Plantago major*, white clover *Trifolium repens*, cow parsley *Anthriscus sylvestris*.	

Scrub

Condition Sheet: SCRUB Habitat Type	
UKHab Habitat Type	
Heathland and shrub - Blackthorn scrub **Heathland and shrub - Bramble scrub** **Heathland and shrub - Gorse scrub** **Heathland and shrub - Hawthorn scrub** **Heathland and shrub - Hazel scrub** **Heathland and shrub - Mixed scrub** **Heathland and shrub - Sea buckthorn scrub (Annex 1)**	
Habitat Description	
See UKHab	
For sea buckthorn scrub use Habitats Directive Annex 1 definition	
Condition Assessment Criteria	
1	Habitat is representative of UKHab description (where in its natural range). There are at least three woody species, with no one species comprising more than 75% of the cover (except common juniper, sea buckthorn or box, which can be up to 100% cover).
2	There is a good age range – all of the following are present: seedlings, young shrubs and mature shrubs.
3	There is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981) and undesirable species[1] make up less than 5% of ground cover.
4	The scrub has a well-developed edge with scattered scrub and tall grassland and/or herbs present between the scrub and adjacent habitat(s).
5	There are clearings, glades or rides present within the scrub, providing sheltered edges.
Condition Assessment Result	**Condition Assessment Score**
Passes 5 of 5 criteria	Good (3)
Passes 3 or 4 of 5 criteria	Moderate (2)
Passes 0, 1 or 2 of 5 criteria	Poor (1)
Notes	
Footnote 1 - Species considered undesirable for this habitat type include: creeping thistle *Cirsium arvense*, common nettle *Urtica dioica*, cherry laurel *Prunus laurocerasus*, snowberry *Symphoricarpos* spp., buddleia *Buddleja* spp., cotoneaster *Cotoneaster* spp., Spanish bluebell *Hyacinthoides hispanica* (or hybrids).	

Woodland

Condition Sheet: WOODLAND Habitat Type

This condition sheet is based on the England Woodland Biodiversity Group (EWBG) Woodland Condition Survey Method, available here: https://woodlandwildlifetoolkit.sylva.org.uk/assess

UKHab Habitat Type(s)

Woodland and forest - Lowland beech and yew woodland
Woodland and forest - Lowland mixed deciduous woodland
Woodland and forest - Native pine woodlands
Woodland and forest - Other coniferous woodland
Woodland and forest - Other Scot's pine woodland
Woodland and forest - Other woodland; broadleaved
Woodland and forest - Other woodland; mixed
Woodland and forest - Upland birchwoods
Woodland and forest - Upland mixed ashwoods
Woodland and forest - Upland oakwood
Woodland and forest - Wet woodland

Habitat Description

See UKHab

Condition Assessment Criteria

	Indicator	Good (3 points)	Moderate (2 points)	Poor (1 point)	Score per indicator
1	Age distribution of trees[1]	Three age classes present	Two age classes present	One age class present	
2	Wild, domestic and feral herbivore damage	No significant browsing damage evident in woodland[2]	Evidence of significant browsing pressure is present in 40% or less of whole woodland	Evidence of significant browsing pressure is present in 40% or more of whole woodland	
3	Invasive plant species[3]	No invasive species present in woodland	Rhododendron or laurel not present, other invasive species < 10% cover	Rhododendron or laurel present, or other invasive species > 10% cover	
4	Number of native tree species	Five or more native tree or shrub species found across woodland parcel	Three to four native tree or shrub species found across woodland parcel	None to two native tree or shrub species across woodland parcel	
5	Cover of native tree and shrub species	> 80% of canopy trees and >80% of understory shrubs are native	50-80% of canopy trees and 50-80% of understory shrubs are native	< 50% of canopy trees and <50% of understory shrubs are native	
6	Open space within woodland[4]	10 – 20% of woodland has areas of temporary open space, unless woodland is <10ha in which case lower threshold of 10% does not apply	21- 40% of woodland has areas of temporary open space	More than 40% of woodland has areas of temporary open space	
7	Woodland regeneration[5]	All three classes present in woodland; trees 4-7cm dbh, saplings and seedlings or advanced coppice regrowth	One or two classes only present in woodland	No classes or coppice regrowth present in woodland	
8	Tree health	Tree mortality less than 10%, no pests or diseases and no crown dieback	11% to 25% mortality and/or crown dieback or low risk pest or disease present	Greater than 25% tree mortality and or any high risk pest or disease present	
9	Vegetation and ground flora	Ancient woodland flora indicators present	Recognisable NVC plant community present	No recognisable NVC community	
10	Woodland vertical structure[6]	Three or more storeys across all survey plots or a complex woodland	Two storeys across all survey plots	One or less storey across all survey plots	
11	Veteran trees[7]	Two or more veteran trees per hectare	One veteran tree per hectare	No veteran trees present in woodland	
12	Amount of deadwood	50% of all survey plots within the woodland parcel have standing deadwood, large dead branches/ stems and stumps	Between 25% and 50% of all survey plots within the woodland parcel have standing deadwood, large dead branches/ stems and stumps	Less than 25% of all survey plots within the woodland parcel have standing deadwood, large dead branches/ stems and stumps	
13	Woodland disturbance[8]	No nutrient enrichment or damaged ground evident	Less than 1 hectare in total of nutrient enrichment across woodland area and/or less than 20% of woodland area has damaged ground	More than 1 hectare of nutrient enrichment and/or more than 20% of woodland area has damaged ground	
				Total score (out of a possible 39)	

Condition Assessment Result	Condition Assessment Score
Total score >32 (33 to 39)	Good (3)
Total score 26 to 32	Moderate (2)
Total score <26 (13 to 25)	Poor (1)

Notes

Footnote 1 - See EWBG method INDICATOR 1 for more information. If tree species is not a birch, cherry or Sorbus: 0 – 20 years (Young); 21 - 150 years (Intermediate); and >150 years (Old). A recognisable age class should be a consistent recognisable layer across the woodland or stand being assessed. Presence of a few saplings would not indicate that the woodland has an 'age class' of young trees.

Footnote 2 - See EWBG method INDICATOR 2 for more information. Browsing pressure is considered to be significant where >20% of vegetation visible within each survey plot shows damage from any type of browsing pressure listed.

Footnote 3 - See EWBG method INDICATOR 3 for more information. Check for presence of the following invasive non-native species: American skunk cabbage *Lysichiton americanus;* Himalayan balsam *Impatiens glandulifera;* Japanese knotweed *Fallopia japonica;* Cherry Laurel *Prunus lauroceraus;* Shallon *Gaultheria shallon;* Snowberry *Symphoricarpos albus;* Variegated yellow archangel *Lamiastrum galeobdolon subsp. argentatum;* and Rhododendron *Rhododendron ponticum.*

Footnote 4 - See EWBG method INDICATOR 6 for more information. Open space within woodland in this context is temporary open space in which trees can be expected to regenerate (e.g. glades, rides, footpaths, areas of clear-fell). This differs from permanent open space where tree regeneration is not possible or desirable (e.g. tarmac, buildings, rivers). Area is at least 10m wide with less than 20% covered by shrubs or trees.

Footnote 5 - See EWBG method INDICATOR 8 for more information. This indicator measures regeneration potential of the woodland by considering three classes: seedlings; saplings; and young trees of 4-7 cm DBH. All three classes would fall in the 'young' category of the 'age distribution of trees' indicator, the regeneration indicator is gathers additional information by considering regeneration potential i.e. if seedlings, saplings and young trees are all present that means natural regeneration processes are happening.

Footnote 6 - This indicator is looking at structural diversity and is useful to understand in conjunction with the age of trees in a woodland. Vertical structure is defined as the number of canopy storeys present. Possible storey values are: 1) Upper; 2) Complex: recorded when the stand is composed of multiple tree heights that cannot easily be stratified into broad height bands (such as upper, middle or lower); 3) Middle; 4) Lower; and 5) Shrub layer.

Footnote 7- See EWBG method INDICATOR 12 for more information. All ancient trees are veteran trees, but not all veteran trees are ancient. A veteran tree may not be very old, but it has decay features, such as branch death and hollowing. These features contribute to its biodiversity, cultural and heritage value. Veteran trees can be classified if they have four out of the five following features:

1. Rot sites associated with wounds which are decaying >400 cm^2;
2. Holes and water pockets in the trunk and mature crown >5 cm diameter;
3. Dead branches or stems >15 cm diameter;
4. Any hollowing in the trunk or major limbs;
5. Fruit bodies of fungi known to cause wood decay.

Footnote 8 - See EWBG method INDICATOR 15 for more information. Examples of disturbance are: significant nutrient enrichment; soil compaction from trampling, machinery or animal poaching; litter.

Urban non-priority

Condition Sheet: URBAN - NON PRIORITY Habitat Type	
UKHab Habitat Type	
Sparsely vegetated land - Ruderal/ephemeral **Urban - Allotments** **Urban - Bioswale** **Urban - Brown roof** **Urban - Cemeteries and churchyards** [Use Urban condition sheet as default. Where there are areas of grassland, woodland or scrub above the minimum mappable area, record and assess these as the relevant habitat type] **Urban - Extensive green roof** **Urban - Façade-bound green wall** **Urban - Ground based green wall** **Urban - Intensive green roof** **Urban - Open mosaic habitats on previously developed land** **Urban - Rain garden** **Urban - Sustainable urban drainage feature** [in the context of the Biodiversity Metric, this habitat type refers to open SUDS with vegetation and/or open water] **Urban - Vacant / derelict land / bare ground**	
Habitat Description	
See UKHab	
Condition Assessment Criteria	
CORE CRITERIA - applicable to **all urban habitat types:**	
1	Vegetation structure is varied, providing opportunities for insects, birds and bats to live and breed. A single ecotone (i.e. scrub, grassland, herbs) should not account for more than 80% of the total habitat area.
2	There is a diverse range of flowering plant species, providing nectar sources for insects. These species may be either native, or non-native but beneficial to wildlife. NB - To achieve GOOD condition, criterion 2 must be satisfied by native species only (rather than non-natives beneficial to wildlife).
3	Invasive non-native species (Schedule 9 of WCA) cover less than 5% of total vegetated area. NB - To achieve GOOD condition, criterion 3 must be satisfied by a complete absence of invasive non-native species (rather than <5% cover).
ADDITIONAL CRITERION - only applicable to **Open mosaic on previously developed land** habitat type:	
4a	The site shows spatial variation, forming a mosaic of at least four early successional communities (a) to (h) PLUS bare substrate AND pools. (a) annuals; (b) mosses/liverworts; (c) lichens; (d) ruderals; (e) inundation species; (f) open grassland; (g) flower-rich grassland; (h) heathland.
ADDITIONAL CRITERION - only applicable to **Bioswale and SUDS** habitat types:	
4b	The water table is at or near the surface throughout the year. This could be open water or saturation of soil at the surface.
Condition Assessment Result	**Condition Assessment Score**
If 3 criteria assessed:	
• Passes 3 of 3 core criteria; AND • Meets the requirements for good condition within criteria 2 and 3	Good (3)
• Passes 2 of 3 core criteria; OR • Passes 3 of 3 core criteria but does not meet the requirements for good condition within criteria 2 and 3	Moderate (2)
• Passes 0 or 1 of 3 core criteria	Poor (1)
If 4 criteria assessed:	
• Passes 3 of 3 core criteria; AND • Meets the requirements for good condition within criteria 2 and 3; AND • Passes additional criterion 4a or 4b	Good (3)
• Passes 2 of 3 of 4 criteria; OR • Passes 4 of 4 criteria but does not meet the requirements for good condition within criteria 2 and 3	Moderate (2)
• Passes 0 or 1 of 4 criteria	Poor (1)
Notes	

Appendix 3 List of species recorded

Annual meadow grass	*Poa annua*
Ash	*Fraxinus excelsior*
Autumn hawkbit	*Leontodon autumnalis*
Barren brome	*Bromus strerilis*
Bird's-foot trefoil	*Lotus corniculatus*
Black medick	*Medicago lupulina*
Bramble	*Rubus fruticosus*
Bristly oxtongue	*Helminthotheca echioides*
Broad leaved dock	*Rumex obtusifolius*
Broadleaved willowherb	*Epilobium montanum*
Burdock	*Arctium sp.*
Bur-reed	*Sparganium sp.*
Bush vetch/tare	*Vicia sepium*
Catsear	*Hypochaeris radicata*
Cleavers	*Galium aparine*
Cock's-foot	*Dactylis glomerata*
Coltsfoot	*Tussilago farfara*
Common alder	*Alnus glutinosa*
Common bent	*Agrostis capillaris*
Common broom	*Cytisus scoparius*
Common centaury	*Centaurium erythraea*
Common feather moss	*Kindbergia praelonga*
Common honeysuckle	*Lonicera periclymenum*
Common ivy	*Hedera helix*
Common moss	*Rhytidiadelphus squarrosus*
Common mouse-ear	*Cerastium fontanum*
Common ragwort	*Senecio jaccobea*
Common reed	*Phragmites australis*
Common sorrel	*Rumex acetosa*
Common stork's-bill	*Erodium cicutarium*
Common vetch/tare	*Vicia sativa*
Compact rush	*Juncus conglomeratus*
Cotoneaster	*Cotoneaster horizontalis*
Couch grass	*Elymus repens*
Cow parsley	*Anthriscus sylvestris*
Crack willow	*Salix fragilis*
Creeping bent	*Agrostis stolonifera*
Creeping buttercup	*Ranunculus repens*
Creeping cinquefoil	*Potentilla reptans*
Creeping soft grass	*Holcus mollis*
Creeping thistle	*Cirsium arvense*
Crested dogstail	*Cynosurus cristatus*
Cuckoo flower	*Cardamine pratensis*
Curled dock	*Rumex crispus*
Daisy	*Bellis perennis*
Dandelion	*Taraxacum officinale agg.*
Dog rose	*Rosa canina*
Dogwood	*Cornus sanguinea*
Dove's-foot cranesbill	*Geranium molle*
Downy birch	*Betula pubescens*
Elder	*Sambucus nigra*
False oat grass	*Arrhenatherum elatius*
Field horsetail	*Equisetum arvense*
Field maple	*Acer campestre*
Field speedwell	*Veronica persica*
Figwort	*Scrophularia nodosa*
Forgetmenot	*Myosotis sp.*
Foxglove	*Digitalis purpuea*

Garlic mustard	*Alliaria petiolata*
Germander speedwell	*Veronica chamgedrys*
Glaucous sedge	*Carex flacca*
Goat willow	*Salix caprea*
Goat's beard	*Tragopogon pratensis*
Gorse	*Ulex europaeus*
Greater stitchwort	*Stellaria holostea*
Groundsel	*Senecio vulgaris*
Hard rush	*Juncus inflexus*
Hawkweed	*Hieracium agg.*
Hawthorn	*Crataegus monogyna*
Herb robert	*Geranium robertianum*
Hop trefoil	*Trifolium campestre*
Jointed rush	*Juncus articulatus*
Kidney vetch	*Anthyllis vulneraria*
Knapweed	*Centaurea nigra*
Male fern	*Dryopteris filix-mas*
Meadow buttercup	*Ranunculus acris*
Meadow foxtail	*Alopecurus pratensis*
Meadow vetchling	*Lathyrus pratensis*
Michaelmas daisy	*Aster amellus*
Mugwort	*Artemisia vulgaris*
Nettle	*Urtica dioica*
Oak	*Quercus sp.*
Oxeye daisy	*Leucanthemum vulgare*
Pendulous sedge	*Carex pendula*
Perennial rye grass	*Lolium perenne*
Perennial sow thistle	*Sonchus arvensis*
Perforate St. John's wort	*Hypericum perforatum*
Pineapple weed	*Matricaria discoidea*
Rat's tail/ greater plantain	*Plantago major*
Red clover	*Trifolium pratense*
Red fescue	*Festuca rubra agg.*
Reedmace	*Typha latifolia*
Ribwort plantain	*Plantago lanceolata*
Rosebay willowherb	*Chamerion angustifolium*
Rough meadow grass	*Poa trivalis*
Rowan/mountain ash	*Sorbus aucuparia*
Scots pine	*Pinus sylvestris*
Selfheal	*Prunella vulgaris*
Sheep fescue	*Festuca ovina*
Sheep's sorrel	*Rumex acetosella*
Silver birch	*Betula pendula*
Smooth meadow grass	*Poa pratensis*
Soft rush	*Juncus effusus*
Spear thistle	*Cirsium vulgare*
Timothy grass	*Phleum pratense*
Tufted hair grass	*Deschampsia cespitosa*
White clover	*Trifolium repens*
White deadnettle	*Lamium album*
Wood avens	*Geum urbanum*
Wood sage	*Teucrium scorodonia*
Wych elm	*Ulmus glabra*
Yarrow	*Achillea millefolium*
Yorkshire fog	*Holcus lanatus*
wavy hair grass	*Deschampsia flexuosa*
mouse eared hawkweed	*Pilosella officinarum*

Appendix 4 Explanatory Notes and Resources Used

Site Context

Aerial photographs published on commonly used websites were studied to place the site in its wider context and to look for ecological features that would not be evident on the ground during the walkover survey. This approach can be very useful in determining if a site is potentially a key part of a wider wildlife corridor or an important node of habitat in an otherwise ecologically poor landscape. It can also identify potentially important faunal habitat (in particular ponds) which could have a bearing on the ecology of the application site. Ponds may sometimes not be apparent on aerial photographs so we also refer to close detailed maps that identify all ponds issues and drains.

Designated Sites

A search of the MAGIC (Multi-Agency Geographic Information for the Countryside) website was undertaken. The MAGIC site is a Geographical Information System that contains all statutory (e.g. Sites of Special Scientific Interest [SSSI's]) as well as many non-statutory listed habitats (e.g. ancient woodlands and grassland inventory sites). It is a valuable tool when considering the relationship of a potential development site with nearby important habitats. In addition, information from the local record holders was referred to on locally designated sites.

Functional linkage with off-Site habitats

When assessing these we consider whether the Site could be functionally linked to them, considering links such as:

- Hydrological links - is the Site upstream downstream, or could ground water issues affect it?
- Physical links - is the site in close proximity and could it be directly or indirectly affected by construction and operational effects? Conversely it may be that despite proximity major barriers separate the two.
- Recreational links - do footpaths and roads make it likely that increased recreational pressure could be felt?
- Habitat links - is the site part of a network of similar habitat types in the wider area? These could be joined by linear corridors or could simply be 'stepping stones of habitat of similar form or function.

Method

Phase 1 habitat survey methodology (JNCC, 2010). This involves walking the site, mapping and describing different habitats (for example: woodland, grassland, scrub). The survey method was "Extended" in that evidence of fauna and faunal habitat was also recorded (for example droppings, tracks or specialist habitat such as ponds for breeding amphibians). This modified approach to the Phase 1 survey is in accordance with the approach recommended by the Guidelines for Baseline Ecological Assessment (IEA, 1995) and Guidelines for Preliminary Ecological Appraisal (CIEEM 2017).

Faunal Appraisal

This section first looks at the types of habitat found on Site or within the sphere of influence of potential development, then considers whether these could support protected, scarce or NERC Act 2006 Section 41 species (referred to collectively as 'notable species').

Records of notable species supplied from a 2km area of search by Barnsley Biological Records Centre are used to inform this appraisal.

We discuss further only notable species or groups which could be a potential constraint due to the presence of suitable habitat and their presence (or potential presence) in the wider area. We screen out and do not present accounts of notable species or groups which do not meet these criteria – in some cases it may be necessary to explain this reasoning.

Consideration is given to the Local Biodiversity Action Plan (LBAP), which for this site is the 'Barnsley Local BAP'.

Species/Group	Habitat
Hedgehog	Mixed deciduous woodland
Bats	Upland oakwood
Water Vole	Wet woodland
Otter	Parkland and veteran trees
Grey Partridge	Traditional orchard
Bittern	Scrub
Kestrel	Coniferous woodland
Little Ringed Plover	Hedgerows
Lapwing	Arable field margins
Barn Owl	Acid grassland
Skylark	Neutral grassland
Tree Sparrow	Floodplain grazing marsh
Twite	Amenity grassland
Great Crested Newt	Upland heathland
Salmon	Lowland heath
Bullhead	Reedbeds
White-clawed Crayfish	Lowland fen
Glow Worm	Upland flushes, fens and swamps
Dingy Skipper	Rush pasture
Bluebell	Blanket bog
	Standing water and ponds
	Running water, rivers & streams
	Open Mosaic Habitats on Previously Developed Land
	Built environment and gardens

Bats

Bat roosting potential is classified according to the following criteria set out below, taken from the Bat Conservation Trust Good Practice Guidelines (2016).

Bat Roosting Suitability of Buildings and Trees

Suitability	Criteria
Negligible	Negligible habitat features on site likely to be used by roosting bats.
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions, and/or suitable surrounding habitat to be used on a regular basis or by a larger numbers of bats (i.e. unlikely to be suitable for maternity or hibernation). A tree of sufficient size and age to contain PRFs but with none seen from the ground or features seen with only very limited roosting potential.
Moderate	A structure or tree with one or more potential roost sites that could be used due to their size, shelter, protection, conditions, and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only - the assessments in this table are made irrespective of species conservation status, which is established after presence is confirmed).
High	A structure or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protections, conditions and surrounding habitats.

Evaluation

In evaluating the Site, the ecologist will take into account a number of factors in combination, such as:

- the baseline presented above,
- the site's position in the local landscape,
- its current management and
- its size, rarity or threats to its integrity.

There are a number of tools available to aid this consideration, including established frameworks such as Ratcliffe Criteria or concepts such as Favourable Conservation Status. Also of help is reference to Biodiversity Action Plans in the form of the Local BAP and Section 41 of the NERC Act (2006) to determine if the site supports any Priority habitats or presents any opportunities in this respect.

The assessment of impacts considers the generic development proposals from which potential effects include:

- Vegetation and habitat removal
- Direct effects on significant faunal groups or protected species
- Effects on adjacent habitats or species such as disturbance, pollution and severance
- Operation effects on wildlife such as noise and light disturbance

Appendix 5 Bat Activity Survey Rationale

The Bat Conservation Trust Guidelines (BCTG) (Collins 2016) is now widely accepted as providing a basis and rationale for scoping and conducting bat surveys. It is acknowledged that the guidelines provide a wealth of background and are a very useful tool in standardising approaches to survey, it is also felt that an over reliance on some of the guidelines within this document can result in the provision of complicated surveys where they have significant consequences for the cost, or timescale of a large project, but could never deliver positives for bat conservation.

Taking the BCTG document as a whole, Chapter 2 helps the reader understand whether or not surveys are required, and that in the context of planning and development survey is required in relation to ensure;

- the avoidance of legal offences, and;

- the provision of a sufficient level of information - such that will allow the Local Planning Authority to make an informed decision on the proposals and their potential impacts on the Favourable Conservation Status (FCS) of bats.

Attendance at seminars presented by, and discussions with, those involved in production of the BCTG document has emphasised the point that it is within the remit of the consultant ecologist to make a decision on the necessity and scope of surveys - they will use the guidelines in doing so but are not in any way bound by them: this is reflected in Section 1.1 of the guidelines -

'The Guidelines do not aim to either override of replace knowledge and experience. It is accepted that departures from the guidelines (e.g. either decreasing or increasing the number of surveys carried out or using alternative methods) are often appropriate. However, in this scenario an ecologist should provide documentary evidence of (a) their expertise in making this judgement and (b) the ecological rationale behind the judgement. '

Such decisions require a consideration of the potential of the project to impact on bat habitat, alongside analysis of the value of habitat on and around the site and of local records and the likelihood that bats might occur in significant numbers. Our reports aim to present information on how we have arrived at our decision on the Site, what assumptions we have based this on, and where further survey is recommended we indicate what the objective of this survey should be and how best this would be achieved.

Survey is recommended in order to assess the Sites baseline use by this group. An assessment of the Sites suitability for bats has been made by Christopher Shaw BSc (Hons) MCIEEM. Chris has over 10 years' experience of carrying out bat surveys in a professional capacity and is registered to use the Class Survey Licence WML CL18 (Bat Survey Level 2) and Bat Mitigation Class Licence WML CL21 Annex B.

Appendix 6 Wildlife Legislation, Policy and Guidance

This is not an exhaustive list but sets out briefly the relevance of Legislation, Policy and Guidance in terms of planning applications and this assessment.

Legislation

Council Directive 92/43/EEC on the Conservation of natural habitats and of wild fauna and flora (EC Habitats Directive).
Provides framework at an international (EU) level for the consideration / protection of European Protected Species (EPS), and habitats through the designation of sites.
Council Directive 79/409/EEC on the Conservation of wild birds (EC Birds Directive) and The Ramsar Convention on Wetlands of International Importance (1971)
Provides framework at an international (EU) level for the consideration / protection of important bird populations and the sites on which they are dependant.
The Conservation of Habitats and Species Regulations (2010)
This transposes 1) into UK law and provides the basis on which all EPS are protected and impacts on them can be licensed in the UK.
The Wildlife and Countryside Act (1981) as amended
This provides the basis on which UK species are legally protected or restricted and confers protection on Sites of Special Scientific Interest SSSIs. It contains annexes of plants and animals which are legally protected as well as those which are considered to be invasive or harmful. It provides the basis on which impacts on such species can be licensed in the UK and provides controls on work on or near SSSIs.
The Countryside and Rights of Way Act 2000 (CRoW)
Provides a statutory basis for nature conservation, strengthens the protection of SSSIs and UK protected species and requires the consideration of habitats and species listed on the UK and Local Biodiversity Action Plans (UKBAP / LBAP).
Natural Environment and Rural Communities Act 2006 (NERC)
Sets out the responsibilities of Local Authorities in conserving biodiversity. Section 41 of the Act requires the publishing of lists of habitats and species which are "of principal importance for the purpose of conserving biodiversity". At present these largely reflect those making up the UKBAP lists.
Hedgerows Regulations (1997)
Define and provide protection for Important Hedgerows.
Protection of Badgers Act (1992)
Protects badgers from persecution, this includes excavation / development in the proximity of setts.

Protected Sites

Statutory EU / International Protected Sites
Special Areas of Conservation (SACs); and Special Protection Areas (SPAs) and Ramsar Sites contain examples of some of the most important natural ecosystems in Europe. Work on or near these sites is strictly protected and Local Authorities will be expected to carry out 'Appropriate Assessment' of development in proximity of them. In this case there is often an increased burden on the developer in relation to provision of information and assessment.
Statutory UK Protected Sites
Local Nature Reserves (LNRs); National Nature Reserves (NNRs); Sites of Special Scientific Interest (SSSIs) all receive strict protection under UK legislation. Work in or in proximity to these sites would be restricted with any needing to be agreed with Natural England. Natural England now provide guidance on the nature of development which could impact on SSSIs through Impact Risk Zones.
Locally Protected Sites
Local Authorities have a variety of protected wildlife sites designated at a local or regional level. These are gradually being brought under the banner of Local Wildlife Sites (LWS) but at present a plethora of different designations exist - all subject to local policy.
Protected Species
European Protected Species
A number of species (most relevantly bats, great crested newts [GCN], and otters) receive strict protection from killing, injury and disturbance under The Conservation of Habitats and Species Regulations (2010). Protection is also conferred on the habitats on which they rely such as roost space in the case of bats and ponds and fields etc. in the case of GCN.
UK Protected Species
A number of species (including bats, GCN, watervole and white clawed crayfish) are strictly protected under The Wildlife and Countryside Act (1981) as amended, from killing, injury, disturbance and damage or destruction of their resting places etc. Certain species (such as reptiles) and some birds (such as barn owl) receive partial protection e.g. at certain times of the year or form certain activities only. All nesting bird species are protected from damage or destruction of their nests - whilst active.

Invasive species

Schedule 9 of the Wildlife and Countryside Act (1981) as amended, lists these species and makes it an offence to cause or allow their spread in the wild. This often has impacts on development and planning in relation to the presence of invasive plant species such as: himalayan balsam (*Impatiens glandulifera),* japanese knotweed (*Fallopia japonica*) and giant hogweed *(Heracleum mantegazzianum*).

Planning Policy / Guidance

The National Planning Policy Framework (NPPF):

The National Planning Policy Framework was updated in July 2021. The most relevant paragraphs from the NPPF are set out below.
The approach to assessing the natural environment is now embedded within the definition of what 'sustainable development' is and this falls under one of three objectives of the planning system – the 'environmental objective' applying in this case. Paragraph 8c (P8c) of the NPPF states that sustainable development should "*protect and enhance our natural, built and historic environment"*, including "*improving biodiversity*". P10 sets out the Framework's presumption in favour of sustainable development.
Section 11 of the NPPF details making effective use of land. The Framework states that planning policies and decisions should *"take opportunities to achieve net environmental gains – such as developments that would enable new habitat creation"* and should "*recognise that some undeveloped land can perform many functions, such as for wildlife"* (P120).
Section 15 details conserving and enhancing the natural environment; policies and decisions should be "protecting and enhancing valued landscape [and] sites of biodiversity […] value", "recognise the intrinsic character and beauty of the countryside" and contribute to conserving and enhancing the natural environment and reducing pollution (P174). Allocations of land for development should, "allocate land with the least environmental or amenity value, where consistent with other policies in this Framework" and "take a strategic approach to maintaining and enhancing networks of habitats" (P175).
The Framework sets out ways to minimise the impacts on biodiversity through plans which "identify, map and safeguard components of local wildlife rich habitats and wider ecological networks, including the hierarchy of international, national and locally designated sites of importance for biodiversity" and promote the "conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity" (P179).
It is made clear in P180 that local planning authorities should apply a set of principles when determining planning applications. Planning permission should be refused *"if significant harm to biodiversity resulting from development cannot be avoided […], adequately mitigated, or, as a last resort, compensated for"*. Development should not normally be permitted where an adverse effect on a SSSI is likely, and "*opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity"*.

Biodiversity 2020: A Strategy for England's Wildlife and Ecosystem Services.

This strategy builds on the Natural Environment White Paper (June 2011) - Setting out the current UK Government's approach to nature conservation. It promotes a more coherent and inclusive approach to conservation and the valuing in economic and social terms of economic resources.
The strategy promotes initiatives such as Biodiversity Offsetting, Nature Improvement Areas and a focus on well-connected natural networks and introduces the concept of securing a 'no net loss' situation with regard to UKBAP / Section 41 habitats and species.
ODPM circular 06/05 (2005) Biodiversity and Geological Conservation - Statutory Obligations and Their Impact Within the Planning System Provides guidance to Local Authorities on their obligations to biodiversity – particularly in relation to assessing planning applications and ensuring the adequacy of information.

BSI (2013) British Standards Institute BS 42020:2013 Biodiversity — Code of Practice for Planning and Development.

Provides a standard for the biodiversity assessment and development industries and decision makers such as Local Planning Authorities to work to.