Preliminary Ecological Appraisal

Land off Lundhill Road, Barnsley

Report reference: R-2667-01.2

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Report Reference:	R-2667-01.2
Written by:	Rob Weston BSc MSc MCIEEM Technical Director
Technical review:	Sam Kitching BSc (Hons) Grad CIEEM Ecologist
QA review:	Peter Brooks BSc (Hons), MA, MCIEEM, CEnv Managing Director
Approved for issue	Peter Brooks BSc (Hons), MA, MCIEEM, CEnv Managing Director
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The information which we have prepared and provided is true and has been prepared and provided in accordance with the CIEEM's Code of Professional Conduct. We confirm that the opinions expressed are our true and professional bona fide opinions. This report does not constitute legal advice.

Brooks Ecological
Grounded advice

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

Contents

Non-technical Summary **3**

Introduction **4**

Site context **5**

Designated Sites 8

Extended Phase 1 Habitat Survey **9**

Faunal Appraisal **16**

Invasive Species **18**

Key Findings **19**

Further ecological input required 23

Non-technical Summary

Purpose of report

This report is produced to present an initial assessment of the potential ecological constraints and opportunities relating to a Site known as land off Lundhill Road, Wombwell, Barnsley; to inform the Site's potential for development.

The report is suitable in its current form for submission to planning.

Methodology

The 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 August 2016.

Findings Key-Points

The Site is suitable for the proposed development but the layout and design is likely to need to account for the retention of semi-improved grassland and the retention of habitat for great crested newt.

Further pre-planning surveys in relation to bats, great crested newt and water-vole are recommended to support a planning application.

A large stand of Japanese knotweed (Fallopia japonica) is present on one of the Site boundaries – this plant will require eradication prior to works.

Introduction

1. Brooks Ecological Ltd was commissioned by Persimmon Homes to carry out a Preliminary Ecological Appraisal of land at Lundhill Road, Wombwell, Barnsley SE 405 018.

2. This report is produced with reference to British Standard BS42020 'Biodiversity Code of Practice for Planning and Development' and the CIEEM (2013) Guidelines for Preliminary Ecological Appraisal.

Scope

3. The application site 'the Site' is a series of four fields of mixed use situated on the southern edge of Wombwell. It is defined in figure 1 below.

4. 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 and blue outlined areas)

Proposals

5. Proposals for the Site have yet to be detailed, assessment is based on the provision of residential development with associated access and open space.

Site context

6. The site is underlain by mixed geology of the middle coal measures and the oaks rock sandstone formation. This geology is likely to lead to neutral to slightly acidic soil conditions in the area. The Site lies on land which slopes gently above the Dearne Valley and from the abandoned Elsecar Canal which is found to its south.

7. Immediate boundaries are formed by residential development to the north and east and the Elsecar Canal and a small landholding to the south. To the west is Lundhill Road.

8. Beyond the canal to the south the landscape is characterised by the busy dual carriageway of the A6195 Dearne Valley Parkway and a large retail park development. To the north extends the residential development of Wombwell and then Barnsley. In other directions, open countryside is not far away, this being typified by open arable fields and Wombwell Woods to the west, with the Dearne Valley and its wetland bird reserves to the east.

Wildlife corridors

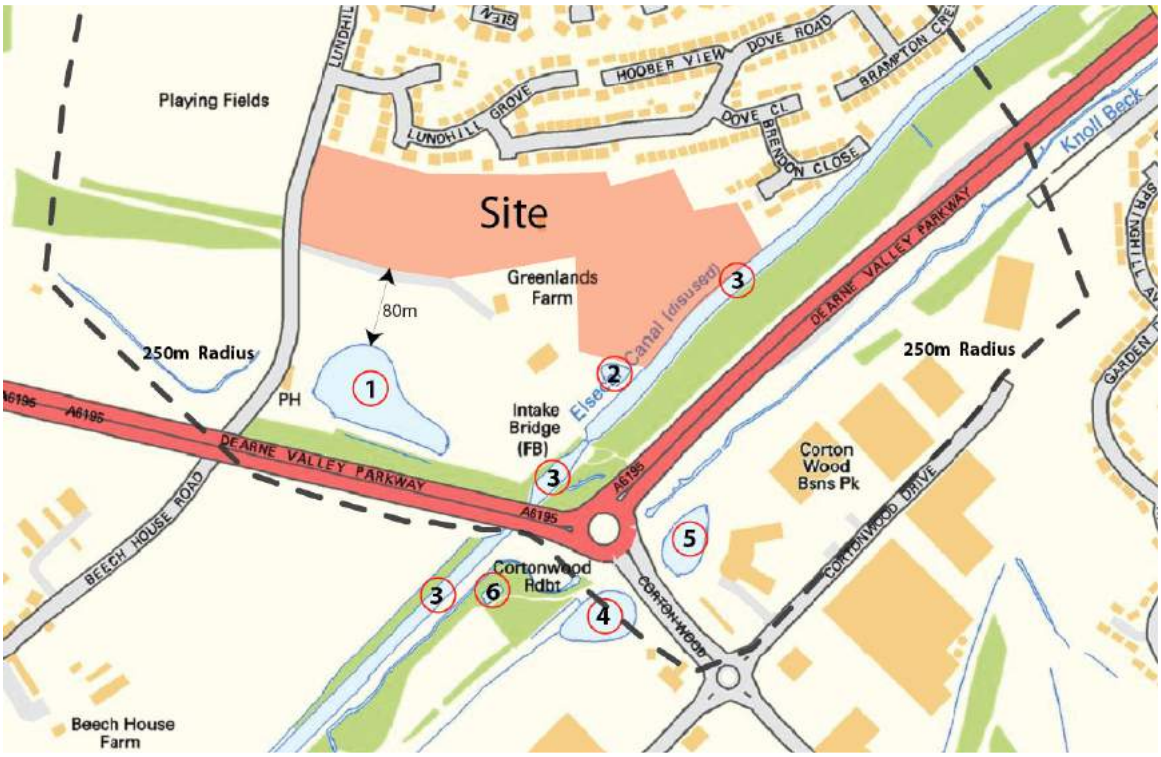
9. The Elsecar Canal passes the Site to the south and provides a somewhat tenuous link with the open habitats described above to the east and west. Otherwise the Dearne Valley Parkway, Lundhill Road and residential development result in the Site's being isolated from surrounding higher value habitats and it could not be said to play any key part in local ecological networks.

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

Water bodies

10. There are several waterbodies within the vicinity of the Site. These are summarised in the plan below.

Figure 3 Local waterbodies in relation to the Site numbered ponds are discussed below



11. Pond 1 is a large and well established balancing pond behind the pub on Lundhill Road. This is fringed by marginal vegetation dominated by reedmace (Typha latifolia), but has a significant area of open water. This pond is separated from the Site by c.80m of rough grassland.

12. Pond 2 is much smaller and is dominated by dense greater reed mace. Aerial photographs suggest it is has terrestrialised significantly over recent years and it contained no open water during survey in August 2016. This pond borders the Site directly.

13. Pond 3 is the linear 'pond like structure' created by the dead arm of the Elsecar Canal. It seems likely that the Canal still takes some flow of water, however this is imperceptible close to the Site. The canal is steep sided in most places although it banks are now silted up and colonised by riparian vegetation including reed mace,

greater willowherb (Epilobium hirsutum) and burr reed (Sparganium erectum). Much of the canal is colonised by a dense screen of floating duckweed (Lemma sp.). The canal supports a good head of fish with many perch being apparent during the survey, and introduced red-necked terrapin could be seen basking next to the Site. The canal borders the Site directly.

Figure 4

Pond 1 viewed from its perimeter fence.

Figure 5

Pond 2 viewed from the west looking back towards the Site.

Figure 6

The canal viewed from the Site – note terrapin in centre.

Figure 7

The canal viewed from the footbridge to the south east - looking up the canal with the pond 2 and then the Site boundary on the left.

14. Other numbered ponds are balancing features apparently created as part of works to the Pennine Trail and the Cottonwood Retail Park. Although not completely isolated form the Site, access between these ponds and the Site is made very difficult by a combination of the canal, the fast-flowing Knoll Beck and the Dearne Valley Parkway.

15. The only watercourse in the vicinity of the Site is Knoll Beck. This is separated from the Site by the canal and has no hydrological links with it.

Designated Sites

Statutory Designations

16. A search of the Magic database revealed no international statutory designations within 10km of the Site or national designations within 2km.

SSSI Impact Risk Zones (IRZs)

17. The Site lies within the IRZ for Denaby Ings SSSI, but does not fall into one of the highlighted categories which requires consultation between the Local Planning Authority (LPA) and Natural England (NE). The development is of a scale and nature which is unlikely to impact on this SSSI.

Non-Statutory Designations

18. There is a single locally designated site within 1km of the Site this is Parkhill Nature Reserve Candidate Site c. 1km to the north of the Site. This is separated from the Site by a broad swathe of residential and industrial development and the two have no functional links. This Site would not be impacted by the proposed development.

Habitats

Method

19. The survey was carried out during August 2016[1] and followed Phase 1 habitat survey methodology (JNCC, 2010).

Limitations

20. The vast majority of the Site was accessible with exceptions being the densest bramble scrub - which accounts for no more than 5 % of the Site by area.

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

Results

22. The Site comprises four fields, three used for grazing by horses and one occupied by recently created improved grassland. Habitats suggest that the three northern fields have at one time supported more diverse grassland managed more traditionally. Present now in these fields is grassland reflecting the transition of this to a semi-improved sward of less value - presumably the result of improvement through fertilisation, or simply management through grazing with horses.

23. The fields contain an increasing scrub element and discrete areas of damp marshy grassland vegetation.

24. The following habitats were identified within the Site and on its immediate boundaries:

- Semi-improved neutral grassland
- Tall ruderal vegetation
- Scrub
- Marshy grassland
- Improved grassland
- Hedgerows
- Buildings

[1] This Report has been prepared during December 2016 following a visit to the site in August 2016 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.

Figure 8

Characteristic picture of the Site. This looking across the semi improved grassland in the north of the Site - viewed from east to west.

Semi-improved neutral grassland

25. This habitat is the basis of the three northern fields used for grazing horses and is typical of this management having short areas which are tightly grazed along with longer coarser patches avoided by grazing. The shorter habitat supports a dense sward dominated by common grasses including perennial rye grass (Lolium perenne), timothy (Phleum pratense), red fescue (Festuca rubra), common bent (Agrostis capillaris), yorkshire fog (Holcus lanatus) and rough meadow grass (Poa trivialis). Forbs are a constant component of this sward at relatively low levels and include birdsfoot trefoil (Lotus coniculatus), white clover (Trifolium repens), red clover (Trifolium pratense), greater plantain (Plantago major), red bartsia (Odontites vernus), dandelion (Taraxacum vulgare agg.), bush vetch (Vicia sepium), ribbed melilot (Meliotus officionalis), creeping buttercup (Ranunculus repens), field bindweed (Convolvulus arvensis), meadow buttercup (Ranunculus acris), and broad leaved dock (Rumex obustifolius).

Figure 9

Typical view of the mix of neutral semi-improved grassland in the north of the Site.

26. In areas where the sward is longer, species include the grasses cocksfoot (Dactylis glomerata) and false oat grass (Arrhenatherum elatius) alongside meadow vetchling (Latyrus pratensis), hoary ragwort (Senecio erucifolius), tufted vetch (Vicia cracca), hairy tare (Vicia hirsuta) creeping thistle (Cirsium arvens) and knapweed (Centaurea nigra).

27. A section in the south of this part of the Site slopes down to meet the track to Greenland Farm. This bank is south facing and is in parts dominated by knapweed alongside occasional teasel (Dipascus fullonum), yarrow (Achillea millefolium), mugwort (Artemesia vulgaris), creeping cinquefoil (Potentilla reptans) and tansy (Tanacetum vulgare). This area is indicated as target note 1 on plan D-2667-01.1.

Figure 10

Knapweed dominated bank at target note 1

Tall ruderal vegetation

28. This is not really found as discrete parcels within the Site but grades between the areas of scrub and wetland vegetation described below into the grassland. Typical species include greater willowherb (Epilobium hirsutum), hoary ragwort (Senecio erucifolius), rosebay willowherb (Chamerion angustifolium), bracken (Pteridium aquilinum), comfrey (Syphytum officionale), raspberry (Rubus idaeus) and in one part of the Site a large stand of invasive Japanese knotweed (Fallopia japonica) - this is identified as target note 2 on plan D-2667-01.1. Field horsetail (Equisetum arvensis) is also found within this boundary.

Scrub

29. In many parts of the Site scrub is taking over from the coarse grass and tall ruderal components described above. It is scattered throughout but forms more distinctive dense scrub in the north-eastern field where it will now exclude grazing. Scrub is dominated by hawthorn (Crataegus monogyna) but also includes bramble (Rubus fruticosus agg.), dog rose (Rosa canina) and blackthorn (Prunus spinosa).

Figure 11

Tall ruderal vegetation grading into scrub and wetland vegetation in the north east of the Site.

Figure 12

Large stand of knotweed at target note 2

Marshy grassland

30. Small parts of the Site hold a distinctive wetland vegetation suggestive of permanent flushing or terrestrialisation of former waterbodies. No standing water could be found in these areas during the survey. In addition to the species listed above these areas also support greater birdsfoot trefoil (Lotus pedunculatus), soft rush (Juncus effusus), hard rush (Juncus inflexus), tufted hair grass (Deschampsia cespitosa), sharp flowered rush (Juncus acutifolius), glaucous sedge (Carex flacca) and meadowsweet (Filipendula ulmaria).

31. A small damp area is present in the far north eastern corner of the Site supporting yellow loosestrife (Lysimachia vulgaris) and a damp area in the far eastern corner of the southern field contains sharp flowered and compact rushes (Juncus conglomeratus).

32. Bordering the southern boundary of the northern field (see target not 4 on plan D-2667-01.1) are the remnants of a ditch or old footings, these are occasionally wet

(holding c.200mm of water during August 2016) and support reedmace (Typha latifolia), hairy sedge (Carex hirta) and creeping bent (Agrostis stolonifera).

Figure 13

An area of marshy vegetation in the north of the Site.

Improved grassland

33. The southern field has been ploughed and seeded. It supports grassland dominated by perennial rye grass (Lolium perenne) with timothy (Phleum pratense), broad leaved dock (Rumex obustifolius), dandelion (Taraxacum vulgare agg.), nettle (Urtica dioica) and creeping buttercup (Ranunculus repens).

Hedgerows

34. The southern field has some defined hedgerow boundaries; the most substantial is the southwestern which is comprised of large stems of hawthorn (Crataegus monogyna) and field maple (Acer campestre) with poplar (Populus sp.) standards. This hedge continues in part as a gappy line of scrub along the southern boundary with the canal. A ditch accompanies the boundary at this point, at the time of survey it contained very shallow water.

35. The boundary between the southern and northern fields is defined by a gappy row of goat willow (Salix caprea), ash (Fraxinus excelsior) and hawthorn. A ditch also accompanies the boundary at this point, although at the time of survey it was largely dry.

36. This boundary extends to separate the southern field from land to the east, at this point it comprises a good mature hedgerow with hazel (Corylus avellana), holly (Ilex aquifolium) and elder (Sambucus nigra).

37. The northern fields are defined by post and wire fencing or their boundaries with adjacent housing.

38. None of the boundaries supports any distinctive hedgerow understorey.

Buildings

39. The only buildings on the Site are a series of sheds of sheet wood and corrugated metal construction. These are used as stabling for horses and being of simple construction with no enclosed cavities or crevices, do not have any Bat Roost Suitability.

Figure 14

The Site's buildings viewed from the east.

Off-site Habitats

Canal

40. This is the primary off-Site habitat with potential to be impacted by development of the Site; it is described above (see figures 6 & 7). It is notable that the canal is set above the lower part of the adjacent field and separated from it by a bank of scrub and ruderal vegetation.

Figure 15

Boundary of the southern field and the canal (to the right)

Habitats Summary

41. The Site comprises mainly of ubiquitous habitats which would not be considered to present a constraint to development.

42. There is some low-level interest in the presence of remnants of more floriferous neutral grassland and patches of wetland vegetation, under the site's current management these habitats are not likely to be sustainable and there is little prospect of their rehabilitation in the absence of development. The presence of these areas would not present any bar to development, but they should be retained if possible. Their loss, if required, should be mitigated elsewhere on Site.

43. Hedgerow boundaries present minimal interest but should be protected and retained and brought into management in the Site's Biodiversity Enhancement and Management Plan (BEMP).

Fauna

Bats

45. There are no buildings or trees on the Site with any potential to support roosting by bats.

46. The Site is likely to be used for low levels of foraging, following the Site boundaries. This is likely to be by common species of bats such as pipistrelles or *Myotis* bats using the adjacent canal. The canal is likely to constitute the primary feature of value to bats locally, and they are likely to use it as a commuting corridor and a foraging resource. Care will need to be taken to avoid the potential impacts of lighting on the canal.

47. There are no roosts recorded in local housing and the proposed development does not intersect any potentially important commuting corridors between the canal and housing.

48. Bat surveys of the Site have been carried out by Whitcher Wildlife Ltd. during 2016, the results of will be provided after surveys in spring 2017 are completed.

Amphibians

49. There are records of common frog and common toad in the Study Area but not from the Site. There are no records of great crested newt (GCN) in the Study Area. Local waterbodies which could be used by amphibians for breeding have been discussed and described above.

50. Due to the presence of local waterbodies suitable for breeding, and the potential for GCN to occur within the Site (if breeding locally), eDNA analysis of the ponds numbered in Figure 3 was carried out during spring 2016 by Whitcher Wildlife Ltd.

51. The results of this analysis provided a positive result for GCN in all ponds except pond 6 (negative) and pond 1 (not surveyed).

52. Given the context provided by the local records and the presence of multiple local nature reserves which are well studied, these results are surprising. However, false positive results from eDNA analysis are not uncommon and it is recommended that these tests are re-run alongside traditional studies to assess the status of this species in nearby ponds and the small areas of standing water found within the Site.

Birds

53. The Site will provide habitat for a range of bird species, and has the potential to support BAP farmland birds such as skylark, yellowhammer and song thrush. Records have been returned for a range of birds – most of which are wildfowl associated with the nearby wetland bird reserves. Those of potential relevance to the Site relate to skylark, tree sparrow, grey partridge and snipe (the latter seen on the Site during survey). None of these records come from within the Site. The nature and scale of the Site, and the preponderance of higher value habitat for birds in the wider area make it very unlikely that local bird populations would have any dependency on it.

54. Local residents reported a barn owl in a barn just to the west of the southern part of the Site. A brief and careful inspection of the barn in August found evidence of the use of the barn by this species and it is likely that the barn is used for nesting. Given the size and nature of the Site any barn owl nesting here is unlikely to have a dependency on the Site, but will make use of the good foraging grounds associated with the canal and the Dearne Valley beyond. Efforts should be made to retain connectivity and potential foraging for this species alongside the canal.

55. The Site is unlikely to be of value as a roosting or mustering site for wintering or passage birds due to the lie of land (poor sight lines) and proximity of footpaths, roads and disturbance by humans.

Water Vole

56. Water voles are recorded within the Study Area the nearest records being at Gypsy Marsh LWS in 2010 and the Elsecar Canal in 2012. The Site does not support suitable habitat for this species, although there is potential for them to occur within the stretch of the Elsecar Canal adjacent to the south of the Site, where there is some limited potential for them to establish burrows.

Otter

57. Otter are not recorded in the study area, although they continue to expand their range in the UK and there is some limited potential for them to forage in the Elsecar Canal. However, this habitat is not suitable for holting and there is no significant potential for the proposals to impact on this species.

Badger

58. No evidence of badger could be found within the Site during the survey and impacts on this species seem unlikely. Areas of dense scrub could however not be accessed and a precautionary approach to clearance of any such areas should be taken, with any large burrows reported to the ecologist immediately.

White Clawed Crayfish

59. Whilst there is the potential for this species to occur in the adjacent canal, the lack of any outfall from the Site into the canal makes the potential for impacts on them very limited indeed. Should the need for works to the canal become apparent they should be informed by survey for this species.

Reptiles

60. The Site presents marginal habitat for this group – especially in contrast to the wetland habitats in the wider area. There are no records of reptiles from the study area and this group is not considered further.

Hedgehog

61. Of the other species of primary importance, hedgehog is the most likely to use the Site and to have any dependency on it. Given the surrounding habitats the temporary loss of the Site to this species (during construction) would not be expected to have any significant impact; however, steps should be taken to ensure that the developed Site is accessible to them.

Invasive Species

Japanese knotweed (Fallopia japonica)

62. Japanese knotweed (Fallopia japonica) is listed on Schedule 9 of the Wildlife and Countryside Act (1981), making it an offence to cause or allow it to grow in the wild. It has been found in the areas marked indicatively on plan D-2667-01.1 as target note 2. This plant should be removed from the Site (prior to any works) by a suitably licensed contractor, which would involve spraying, stem injection or mechanical removal.

Horsetails

63. Horsetails are not listed on Schedule 9 of the Wildlife and Countryside Act (1981) but can cause damage to roads and paving post development.

Some horsetail has been found on the Site and is marked indicatively on plan D-2667-01.1 as target note 3.

Key Findings

64. The Site is relatively un-constrained in relation to the habitats present here. Where possible areas of marshy grassland and areas of remnant meadow habitat should be retained. Where this is not possible the loss of these habitats should be mitigated elsewhere on the Site so that the extent of these habitats can be retained.

65. Where they border the Site, hedgerows should be protected and retained. There is some good potential to extend the network of hedgerows around the Site boundary.

66. Great crested newt (GCN) present the only identified species constraint, although the extent of this can only be fully understood once surveys of local ponds can be completed in spring 2017. If they do breed in ponds close to the Site, they are likely to rely to some degree on the habitat within it for terrestrial foraging and refuge. As such, habitat for this species would have to be retained and enhanced specifically for this species and they would have to be temporarily removed and excluded from the Site prior to, and during development.

67. Potential constraints are highlighted in red on the plan below. This shades areas of wet vegetation, hedgerow and better grassland; also parts of the Site which could be within the 100m (core habitat) area around potential breeding ponds. Mitigation is likely to be required for the loss of any core habitat, however enhancement of a smaller area of habitat could be sufficient in this respect.

Figure16 Constraints - orange

Further Surveys and the Planning Situation

Great Crested Newt

68. Further surveys are required in establishing the Site's baseline for planning – particularly in relation to understanding the constraint posed by great crested newt (GCN). Surveys for this species should include ponds 1- 2 and the wet ditches / footings present within the Site.

69. During December 2016, Natural England NE issued new policies relating to licensed mitigation for GCN, these policies remain un-tested and NE has stated that guidance will not be provided until such a time that example case studies are available.

70. Policy 4 relates to the level of survey required to support a license application and is reproduced below:

> ***Policy 4 - Appropriate and relevant surveys where the impacts of development can be confidently predicted***
>
> *Natural England will be expected to ensure that licensing decisions are properly supported by survey information, taking into account industry standards and guidelines. It may, however, accept a lower than standard survey effort where: the costs or delays associated with carrying out standard survey requirements would be disproportionate to the additional certainty that it would bring; the ecological impacts of development can be predicted with sufficient certainty; and mitigation or compensation will ensure that the licensed activity does not detrimentally affect the conservation status of the local population of any EPS.*

71. Whilst this policy provides some hope that a reduced scope of survey may be suitable, <u>in some situations,</u> it remains our advice that (in the absence of specific guidance to the contrary) that for a license decision to be "properly supported by survey information" full surveys for GCN are still likely to be required. There is, however, an opportunity to seek advice on this matter from NE through their Discretionary Advice Service (DAS) prior to the survey season.

72. The new licensing policies do appear to signal a more flexible approach to EPS licensing for development and this may provide the LPA with some reassurance in considering the application ahead of the availability of full survey results.

Bats

73. It is standard practice to carry out bat activity surveys on sites of this size and nature. A minimum scope of three seasonal surveys (spring, summer and autumn) is

recommended alongside suitable remote monitoring. The results of these surveys would feed into the mitigation and landscaping of the Site.

Birds

74. Local residents have raised concerns with the surveyor in relation to birds and are knowledgeable about the Site in this respect. Whilst issues relating to birds are very unlikely to constrain the Site is it recommended that a breeding bird survey would better allow any related concerns to be addressed by presenting evidence.

Water vole

75. There is potential for water vole to occur within the Elsecar Canal adjacent to the south of the Site, if present in this area development of the Site could lead to impacts on this species. Survey should be carried out to inform precaution and potentially mitigation required.

Ecological Enhancement

76. The requirement for development to make a positive contribution to biodiversity is clearly set out guidance such as the NPPF and BS:42020 - beyond mitigating or compensating any potential impacts.

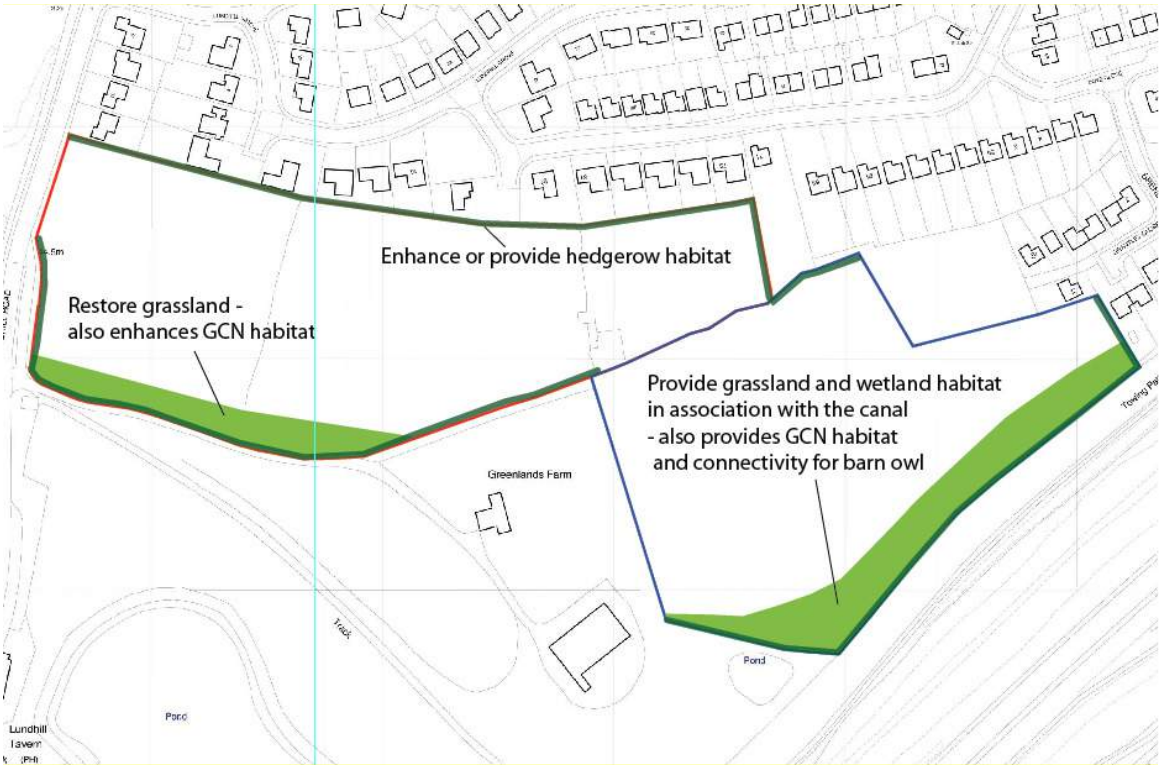
77. Figure 17 has set out how the layout could incorporate the following themes, providing opportunities for the proposals to deliver such a contribution:

- Provision of good quality habitat in association with the canal. A mix of wetland and grassland is recommended in this area.
- Restoration of the better neutral grassland found on the Site. This is on a south facing bank and could be managed in the longer term for the benefit of invertebrates.
- The provision of additional native hedgerows around the Site boundary.

78. The Site could also be enhanced through the provision of a range of faunal habitat boxes integral to, or mounted on new buildings.

79. Ecological enhancement would be detailed and agreed in a Biodiversity Management Plan (BMP) produced as a standard condition of planning - see BS 42020 for example conditions.

Figure 17 Enhancement Opportunities



Further ecological input required

80. Guidance provided by Clause 8 BS:42020 and ODPM circular 06/05 (2005) makes it clear that proposals and planning decisions should be informed by sufficient information - this is particularly the case in respect of European Protected Species (EPS).

81. Additional surveys will be required in terms of confirming and supporting this preliminary assessment. These are summarised in the tables below:

Table 1 Additional survey required **pre-planning**

Survey	Rationale	Timing
GCN	Required to establish the nature and amount of mitigation required in respect of this species. Should be sufficient to support EPSM license application. Standard surveys and eDNA analysis have been commissioned for 2017.	March - May 2017. 6 survey visits with at least 2 within the period mid-April to mid-May. Re-run eDNA analysis (mid-April).
Breeding Birds	Will provide detail on required mitigation and allow any concerns of local residents to be addressed.	3 visits April – June 2017
Bat activity survey	Will provide detail on required mitigation. It is understood that these surveys have been carried out in 2016.	3 visits (with remote monitoring) Spring, Summer and Autumn** periods.
Water vole	Will provide detail on level of caution required for works adjacent to the canal. Surveys for water vole have been commissioned and commenced in Autumn 2016 (no presence noted) and will conclude in Spring 2017.	2 visits Autumn** and Spring

* Information on relevant legislation is provided in Appendix 5 of the report
** Surveys completed

82. Some further surveys will inform precautions taken during the Site's development, but will not impact on the layout or planning decisions. These are best carried out once timescales are known. They can be time constrained and information on those required at this Site is provided below to aid project planning.

Table 2 Additional survey required **pre-commencement**

Survey	Rationale	Timing
White clawed crayfish	Only if works impacting directly on the canal to be required.	Trapping – April or July - October
Pre-development checks for badgers, knotweed and horsetail.	Should these be required by the developer	Those for plants are restricted to the growing season April-October.
Nesting bird surveys	Destruction of active nests is prohibited by law* Survey will be needed prior to the Site clearance of only if carried out during the period March - August (inclusive). This would allow and active nests to be identified and protected.	Immediately prior to clearance

* Information on relevant legislation is provided in Appendix 5 of the report

Issues to be addressed in layout or project design

83. The following features should be incorporated into the project in relation to the protection of ecology and compliance with policy and best practice.

Table 3 Issues to be addressed in layout or project design

Feature	Rationale / Comments
GCN Mitigation	To be designed on a worst-case scenario basis and in accordance with Natural England EPS licence requirements, surveys to be undertaken April-June 2017 to inform requirement for license. The LPA should be consulted on their opinion as to considering the planning application before GCN populations can be fully assessed.
See Constraints and Opportunities plans above.	Loss of grassland types will require mitigation.
A Construction Environment Management Plan (CEMP) should be provided by the projects main	Good practice requirement BS 42020:2013 (Clause 10).

Feature	Rationale / Comments
contractor. This would include a chapter on biodiversity with specific input from and ecologist and would set out (amongst other issues) the protection of hedgerows and the canal.	

Appendices

1. Extended Phase 1 Habitat Plan
2. Explanatory Notes and Resources
3. Bat Activity Survey Rationale
4. Information on legislation / protection

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JNCC (2010). *Handbook for Phase 1 Habitat Survey: A technique for environmental audit*.

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

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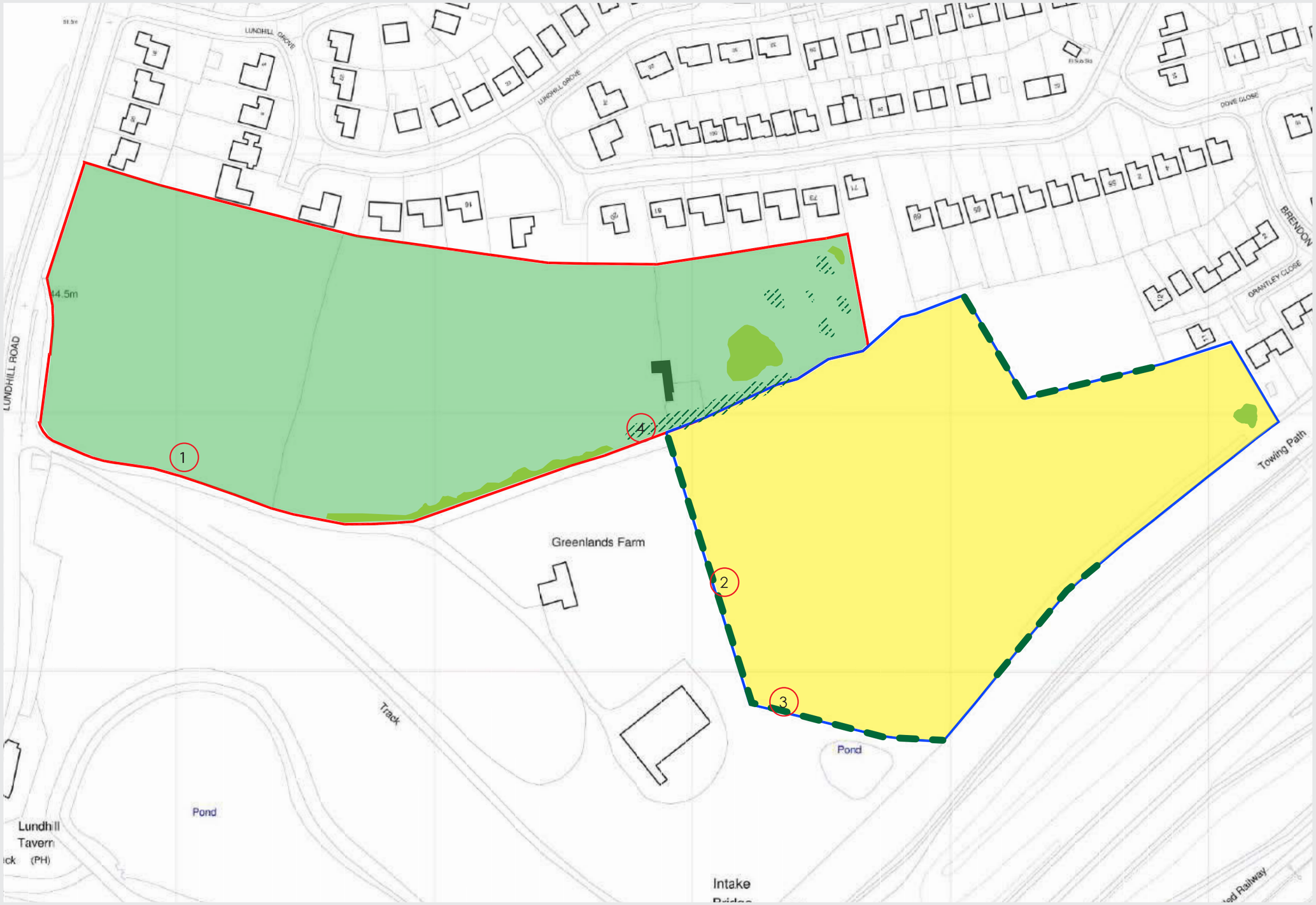
Appendix 1 – Extended Phase 1 Habitat Plan



Improved grassland

Semi improved neutral grassland

Buildings

Marshy grassland

Scrub

Hedgerow

Target notes:

1 Knapweed dominated grassland

2 Japanese knotweed

3 Field horsetail

4 Old footings holding water

Brooks Ecological
Grounded advice

Unit A, 1 Station Road
Guiseley
Leeds
LS20 8BX
www.brooks-ecological.co.uk

T: 01943 884451

Project: Land off Lundhill Road

Title: Ecological Features Plan

Drawing Number: D-2667-01.1

Scale: Do not scale Date: December 2015

Revision:

Appendix 2 – Explanatory Notes and Resources Used

Site context

84. 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. We use Promap Street + scale maps for this purpose.

Designated Sites

85. 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

86. 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

87. 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 2012).

Faunal appraisal

88. 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').

89. Records of notable species supplied from a 2km area of search by West Yorkshire Ecology(WYE) are used to inform this appraisal.

90. 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.

Evaluation

91. 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.

92. 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.

93. 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

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

Species Action Plans _____ Habitat Action Plans

Species/group	**Habitat**
Hedgehog	Upland Oakwood
Bats	Lowland Mixed Deciduous Woodland
Water Vole	Wet Woodland
Otter	Wood Pasture and Parkland
Grey Partridge	Hedgerows
Bittern	Arable Field Margins
Kestrel	Floodplain Grazing Marsh
Little Ringed Plover	Lowland Meadows
Lapwing	Lowland Dry Acidic Grassland

Barn Owl
Skylark
Tree Sparrow
Twite
Great Crested Newt
Salmon
Bullhead
White-clawed Crayfish

Glow Worm
Dingy Skipper
Bluebell

Lowland Heathland
Upland Heathland
Blanket Bog
Purple Moor Grass and Rush Pasture
Reedbeds
Ponds
Rivers
Open Mosaic Habitats on Previously Developed Land

Appendix 3 – Bat Activity Survey Rationale

95. 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.

96. 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.

97. 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 behinethe judgement. '*

98. 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.

99. The site presents a large area of relatively poor bat foraging habitat, along small areas with more structure and more likelihood of use. It does not lie in any strategic location for commuting. The proposals present a limited risk of impact on foraging or commuting and seasonal (spring, summer and autumn surveys are likely to be sufficient in understanding the potential impacts and providing any mitigation required. This assessment was made by Surveys were directed by Rob Weston BSc (Hons) MSc MIEEM. Rob is a Registered Consultant (RC065) under the Bats Low Impact Class License and is registered to use the Class Survey Licence WML CL18 (Level 2).

100. Objectives of recommended surveys should be:

- confirm levels of use and the assemblage of bats present on the site generally
- confirm patterns of activity and identify key features
- identify levels of use of the affected foraging or commuting features to be and inform levels of mitigation required (if any).

Appendix 4 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 published in 27 March 2012 replacing the majority of previous Planning Policy Guidance notes (PPGs) and Planning Policy Statements (PPSs). The most relevant paragraphs from the NPPF are set out below.

The general approach to assessing the natural environment is now embedded within the definition of what 'sustainable development' is. Paragraph 7 (P7) of the NPPF states that sustainable development should "contribute to protecting and enhancing our natural environment" and "help to improve biodiversity". There is also a need for positive inclusion of the natural environment in development design and "moving from a net loss of bio-diversity to achieving net gains for nature" (P9). P14 sets out the Frameworks presumption in favour of sustainable development.

The natural environment is stated within the NPPF core principles: development should "*recognise the intrinsic character and beauty of the countryside*" and contribute to conserving and enhancing the natural environment and reducing pollution. Allocations of land for development should, "*prefer land of lesser environmental value, where consistent with other policies in this Framework*" (P17).

Section 11 of the NPPF details the approach to the natural environment. The Framework states that development should "*minimise impacts on biodiversity and provide net gains in biodiversity, where possible, contributing to the Government's commitment to halt the overall decline in biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures*" (P109).

The Framework sets out ways to minimise the impacts on biodiversity through "*promoting the preservation, restoration and re-creation of priority habitats, ecological networks and the protection and recovery of priority species populations, linked to national and local targets*" (P117).

The NPPF requires the consideration of the impacts of development on the natural environment. The Framework also encourages "*opportunities to incorporate biodiversity in and around developments*" (P118). Importantly this paragraph (P118) sets out the hierarchy of avoiding, mitigating and compensating harm from development - plans should ensure that they can demonstrate engagement with this hierarchy when required.

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

This strategy builds on the Natural Environment White Paper (June 2011) - The Natural Choice: securing the value of nature. 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.