



Ecological Appraisal

Baldon Mills

Report reference: R-2576-01

July 2016

Report Title:	Ecological Appraisal Baildon Mills
Report Reference:	R-2576-01
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Date	20/07/16

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.



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Contents

Non-technical Summary	3
Introduction	4
Site context	5
Designated Sites	7
Habitats	9
Fauna	13
Invasive Species	14
Bat Survey	15
Emergence Survey	19
Key Findings	23
Ecological Enhancement	25
Further ecological input required	24

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 Baildon Mills; to inform the site's potential for development.

The report has been prepared to advise the client of potential ecological constraints and opportunities, in preparing an application for planning permission.

This survey is considered sufficient in its current form to support an application for planning permission, without the need for further survey.

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 May 2016.

Findings Key-Points

The site represents a limited range of relatively low value habitats, which are not considered a significant constraint to the proposed development. In support of this conclusion the following additional work is recommended:

Survey of the mill pond will be required to assess the status of white-clawed crayfish.

A Biodiversity Enhancement and Management Plan (BEMP) should be produced to ensure delivery of biodiversity enhancement on site.

Potential negative impacts on the mill pond should be avoided by the production of a Construction Environment and Management Plan (CEMP).

Introduction

1. Brooks Ecological Ltd was commissioned by KMRE Group Ltd to carry out an Ecological Appraisal of Baildon Mills, Baildon, Shipley, BD17 6JX (SE 154 398).
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 an early 19th century mill, with 20th century additions / alterations and associated car-parking found within the town of Baildon, Bradford, West Yorkshire. The Site boundary is defined in figure 1 below.
4. The assessment uses a 2 km area of search around the Site for records of protected and notable species and locally or nationally designated wildlife sites.

Figure 1 The Site



Proposals

- Proposals for the Site are for the conversion of the original mill building for residential use, as well as the demolition of areas to facilitate the erection of new buildings - flats / houses. This is shown in the figure below.

Figure 2 Proposed development from Niemen Architects DWG no.2810-0-002-E



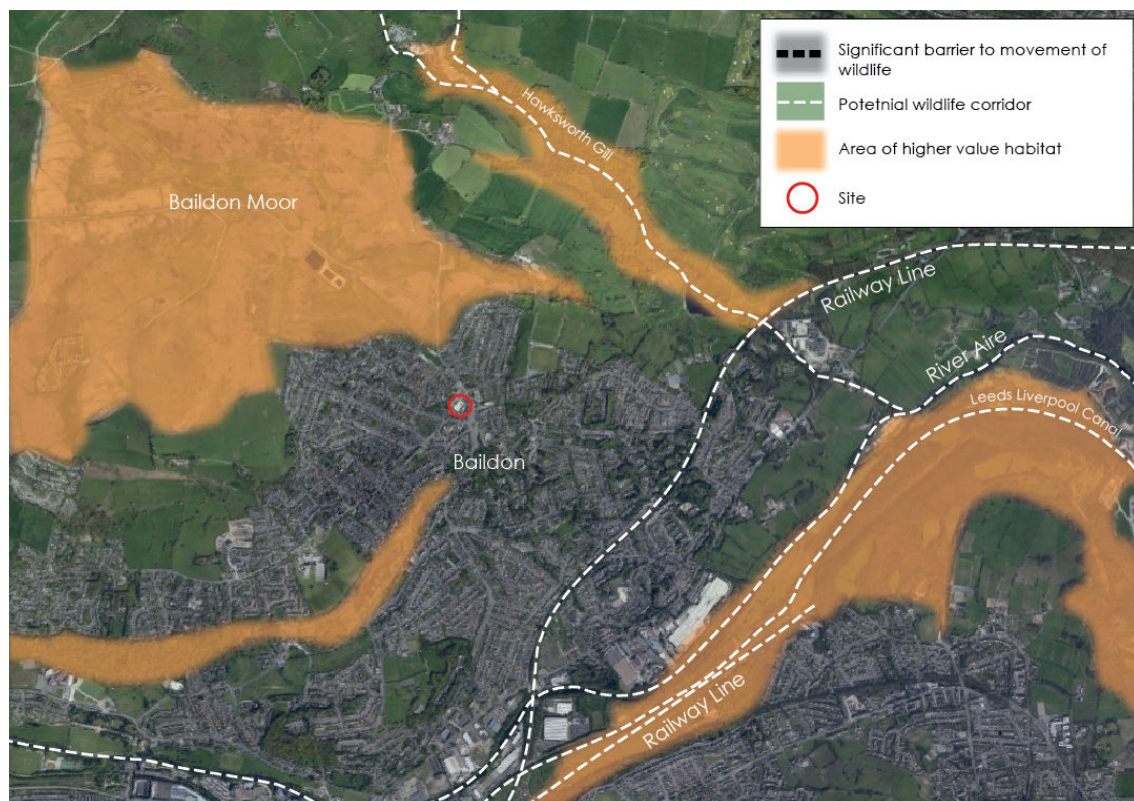
Site context

- The Site is located within the town of Baildon, surrounded on all sides by roads, and residential / commercial development.
- The wider area is dominated by residential development associated with Baildon, the bulk of which is found to the south. Approximately 250m to the north the development of Baildon gives way to Baildon Moor, and open farmland interspersed with areas of woodland.
- To the east and west, along the River Aire are a number of towns, the development of which becomes increasingly dense and contiguous towards Leeds to the east.

Wildlife corridors

9. The Site is not found in close proximity to, nor does it contribute to any notable wildlife corridors through the area. Features such as Baildon Moors to the North, the River Aire, Leeds-Liverpool Canal and Gill Beck (with associated woodland) can all be considered separated by the development which encloses the Site.

Figure 3 Analysis of wildlife corridors and higher value habitat in relation to the Site



Water bodies

10. A former mill pond is located on Site, at the northern boundary. No off-Site water bodies are found on mapping within 500m.

Designated Sites

Statutory Designations

11. No statutory designations are located within 2km of the Site.
12. Part of the South Pennine Moors Special Area of Conservation (SAC) and South Pennine Moor Phase 2 Special Protection area (SPA) is found c.3km to the north. At this distance, a development of this size is considered very unlikely to impact on these designations directly. The potential for indirect impacts is considered in the Habitat Regulations Assessment (HRA) report, provided as an appendix.

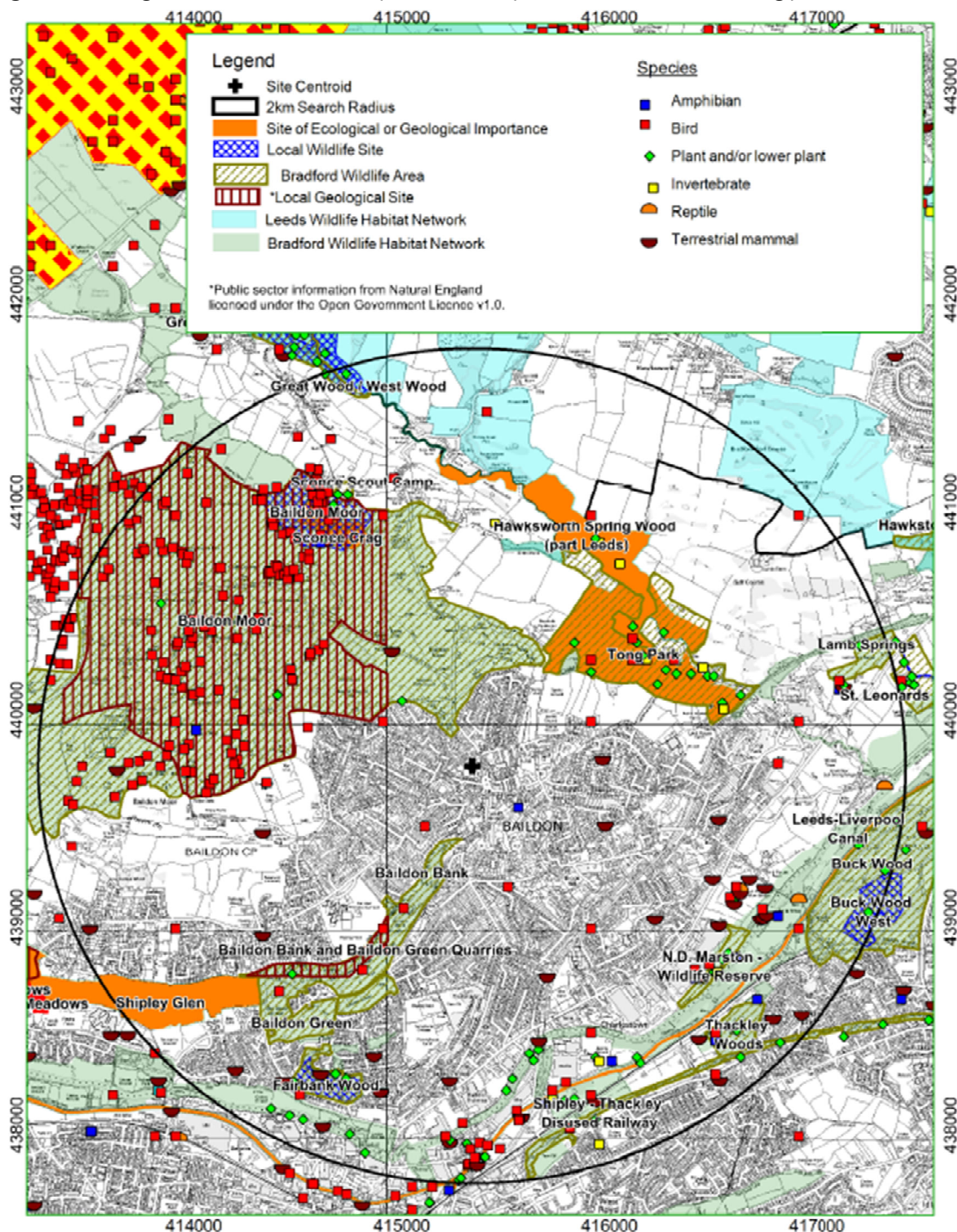
SSSI Impact Risk Zones (IRZs)

13. The site lies within the IRZ for multiple Sites of Special Scientific Interest, 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 these designations.

Non-Statutory Designations

14. There are 21 locally designated sites within 2km of the Site, including 5 Sites of Ecological or Geological Importance (SEGI), 4 Local Wildlife Sites (LWS), and 12 Bradford Wildlife Areas (BWA). None of these sites are considered to be within the ecological sphere of influence of the development, and negative impacts are not anticipated. The location of these sites is shown in the figure below.

Figure 4 Designations within 2km provided by West Yorkshire Ecology



Habitats

Method

15. The survey was carried out during May 2016¹ and followed Phase 1 habitat survey methodology (JNCC, 2010).

Limitations

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

Results

17. The Site is dominated by buildings and hard-standing, with occasional mature trees, and a mill at the northern boundary.
18. The following habitats were identified within the Site and on its immediate boundaries:
 - Buildings
 - Trees
 - Hardstanding
 - Mill Pond

Buildings

19. Buildings on Site consist of the original 19th century mill building, onto which multiple more modern extensions have been built. A summary of the buildings found on Site is provided in the figure below.

¹ This Report has been prepared during July 2016 following initial walkover of the site in May 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 5**

Building summary

20. Areas labelled 'A' are components of the original mill building which have the original stone tiles. Areas labelled 'B' are the original mill buildings which have had more modern roofing installed in the form of either corrugated asbestos, or corrugated metal.
21. Area 'C' comprises of modern additions with a combination of brick, stone and corrugated metal walls, with corrugated metal, or flat felt lined roofing.
22. Area 'D' projects from the original mill building, and is stone built, and partially covered with wooden weather boarding, with a slate tile roof.
23. Buildings are described in more detail in the Bat Roost Suitability section of this report.

Trees

24. Trees are scattered throughout the Site, with a mix of self-set trees along Site boundaries, and more mature trees within the car park to the west, and around the mill pond. Species include lime (*Tilia* sp.), ash (*Fraxinus excelsior*), sycamore (*Acer Pseudoplatanus*) and elder (*Sambucus nigra*). Around the mill pond species include mature cherry (*Prunus* sp.), weeping willow (*Salix* sp.) and ash. Also found on the boundaries of the Site are occasional shrubs such as cherry laurel (*Prunus laurocerasus*), and berberis.
25. A number of Leyland cypress (*Cupressus × leylandii*) are also found on the north western boundary.
26. Where present, and particularly around the Site boundaries, heavily shaded areas around trees are occupied by species such as nettle (*Urtica dioica*), cleavers (*Galium aparine*), ivy, and broad leaved dock (*Rumex obtusifolius*).



Figure 6

Showing trees around mill pond



Figure 7

Trees in car park to the south-west.

Hard-standing

27. Around the mill buildings are areas currently used as car parking / access. These areas are for the most part devoid of significant vegetation. Some areas of compacted gravel have some short ephemeral perennial vegetation with a limited range of common colonising species such as fescues (*Festuca rubra* agg.), Perennial rye (*Lolium perenne*), dandelion, white clover (*Trifolium repens*), daisy (*Bellis perennis*), creeping buttercup (*Ranunculus repens*) and broad-leaved willowherb (*Epilobium montanum*).



Figure 8

Short ephemeral vegetation on compacted gravel.

Mill Pond

28. The mill pond is surrounded by a vertical stone retaining wall, and heavily shaded by overhanging trees.

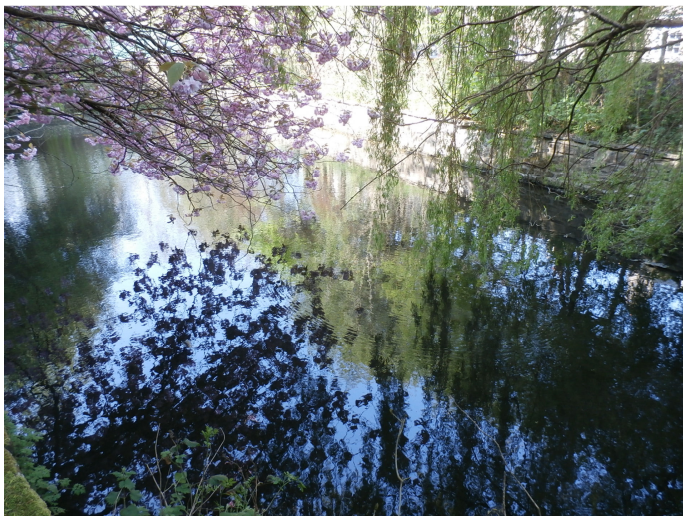


Figure 9

View of the mill pond.

Fauna

Bats

Roosting

29. The suitability of the Site for supporting roosting bats is discussed later in this report.

Foraging

30. The Site is dominated by built development, which will be of low value to foraging bats, and do not appear to form part of, or contribute to any significant wildlife corridors through the area.
31. The mill pond in the north of the Site is likely to represent relatively higher value habitat for foraging bats. This feature will be retained within the proposed development, and as such any value can be maintained, provided certain precautions are put in place with regards to sensitive lighting.

Amphibians

32. Records were returned of smooth newt, palmate newt, common frog and common toad within 2km of the Site. No records were returned of the protected great crested newt (GCN).
33. The mill pond is well separated from higher value habitat for this group by development and roads, with the closest off Site water body being beyond 500m. It is therefore considered unlikely that this pond would support significant amphibian populations. Additionally, the pond is known to support fish, reducing its suitability.
34. In support of this conclusion the likely absence of GCN, eDNA analysis was carried on using water samples taken from the pond. This procedure followed the accepted field protocol for sampling (Biggs et al. 2014). Analysis returned a negative result for the sample, confirming the absence of GCN from the mill pond. The lab results for the analysis are provided as an appendix.

Birds

35. Buildings and areas of significant vegetation on Site have the potential to support nesting birds during the nesting season (March – August inclusive). This is likely to be of common and widespread garden / urban species. In order to ensure no nests are destroyed during the works, any clearance of vegetation required within this period should follow standard precautions.

36. Kingfisher records have been returned from within 2km. The mill pond has the outside potential to support foraging by this species, however the likely lack of suitable nesting habitat in proximity to the Site reduces any value to this species. As the pond is to be retained in the proposals, any value to local bird populations can be retained through development.

White Clawed Crayfish

37. Records of white-clawed crayfish have been returned from within a 2km radius, the closest of which originates from Gill Beck, c.1.1km to the east, a water course which is not hydrologically connected to the on Site mill pond.
38. The Mill pond, which is fed from watercourses originating on Baildon Moors, has the potential to support white-clawed crayfish and further survey will be required to assess the status of this species on Site.

Invasive Species

39. No species listed on Schedule 9 of the Wildlife and Countryside Act (1981) were found at the Site during the survey.

Bat Survey

Bat Roost Suitability Assessment

40. A thorough daytime inspection of the site was made in May 2016 in order to look for evidence of bats and assess suitability for roosting. Evidence of bats may take the form of droppings, feeding remains, live bats, dead bats, stains on masonry or timber from the oils in bats' fur and claw marks made by bats regularly roosting in the same location.
41. The Buildings on Site have been classified according to the criteria set out in Table 2, taken from the Bat Conservation Trust Good Practice Guidelines (2016).

Table 1 Bat Roosting Suitability of buildings and trees

Suitability	Criteria
<i>Negligible</i>	Negligible habitat features on site likely to be used by roosting bats.
<i>Low</i>	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.
<i>Moderate</i>	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).
<i>High</i>	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.

42. 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).

Records

43. The local records provider (West Yorkshire Ecology) were asked to provide all records from within a 2km radius of the site. A total of 26 records were returned including common pipistrelle, soprano pipistrelle, brown long-eared, Noctule and Daubenton's bats.
44. None of these records relate to the Site, or adjacent properties, but are indicative of reasonable levels of common species within the area.

Survey Results

45. The buildings on Site consist of a combination of original stone mill buildings, as well as more modern extensions.
46. The original buildings, although in general good condition presents multiple potential roosting features, predominantly in the form of gaps in mortar. These may provide access to the wall cavity, which has the potential to support roosting.



Figure 10

Showing example of displaced mortar and gaps in masonry in area adjacent to mill pond.

Point A on D-2576-01.1

47. A single area of the mill is covered with weather boarding which covers the upper section of the walls. A small gap is present along the bottom of the boarding which leads to a crevice between the wood, and the masonry. This potentially provides cavity space for roosting bats. No retained droppings were noted under this feature, which would have been expected should large numbers of bats be using it as a roost.



Figure 11

Gap beneath weather boarding on area of original mill.

Point B on D-2576-01.1

48. The eaves are for the most part obscured by guttering, and therefore inspection was not possible from ground level. Gaps are noted between the guttering and masonry which may lead to the eaves / wall tops.
49. Much of the original stone tile roof of the mill has been replaced with a combination of corrugated metal or asbestos, and where still in place, the original roofing is in good condition with tiles for the most part in place and intact. Any occasional slipped tiles may provide roosting opportunities for individual bats roosting on a transient basis. Ridges are well-sealed by mortar, offering no opportunities for access to the ridge cavity.



Figure 12

Example of area with corrugated metal roofing

50. Metal and asbestos roofed areas are well sealed however occasional areas where asbestos wraps over the verge at the gables. The cavity created between the asbestos verge guard and the masonry provide potential roosting opportunities.



Figure 13

Showing gap between asbestos verge and gable. Point C on D-2576-01.1.

51. The later additions to the mill are constructed from a combination of stone and brick, with a combination of corrugated metal / asbestos and flat felt lined roofing. These buildings are all in good condition and well-sealed to bats. Only a single area is noted on the south eastern elevation where mortar is displaced at a meeting point between a vertical pillar with stone façade, and external brick works, potentially providing a roost space for bats.



Figure 14

Gap at meeting between stone façade and brick work on south-western elevation of mill.

Point D on D-2576-01.1

52. Multiple trees are found on Site which are of a sufficient age and height to support features suitable for roosting, although no features were apparent from inspection at ground level. The locations of these trees are labelled on D-2576-01.1.
53. Based on the features present and surrounding habitat the buildings on Site are assessed as having low suitability for roosting. Trees highlighted in D-2576-01.1 are classified as having low suitability. This assessment was communicated with the client, and further survey was commissioned in the form of emergence survey to assess the status of roosting. The results of the emergence survey are presented below.

Emergence Survey

54. Brooks Ecological specialise in bat surveys ranging from individual buildings through to complex sites requiring numerous visits with large teams. In terms of the survey effort, number of personnel required and number of visits required to be able to properly evaluate the building(s) use by bats we refer to the Bat Conservation Trust, Survey Good Practice Guidelines (2016). However, these guidelines are not prescriptive and we approach each site individually as required using our professional judgement and significant experience base.
55. In this case, 3 visits with a team of up to 5 surveyors, was deemed necessary to fully evaluate the potential use of the site for roosting. The surveys were carried out on the 7th, 22nd June, and the 19th July with surveyors positioned around the buildings to cover all aspects where bats could potentially emerge, and to establish activity levels around the site.
56. The surveyors, using heterodyne detectors, were in place at least half an hour before dusk and left once all species of bat would be expected to have left a roost and patterns of activity within the site had been appraised. Conditions and dates are summarised in table 1 below:

Table 2 Survey summary

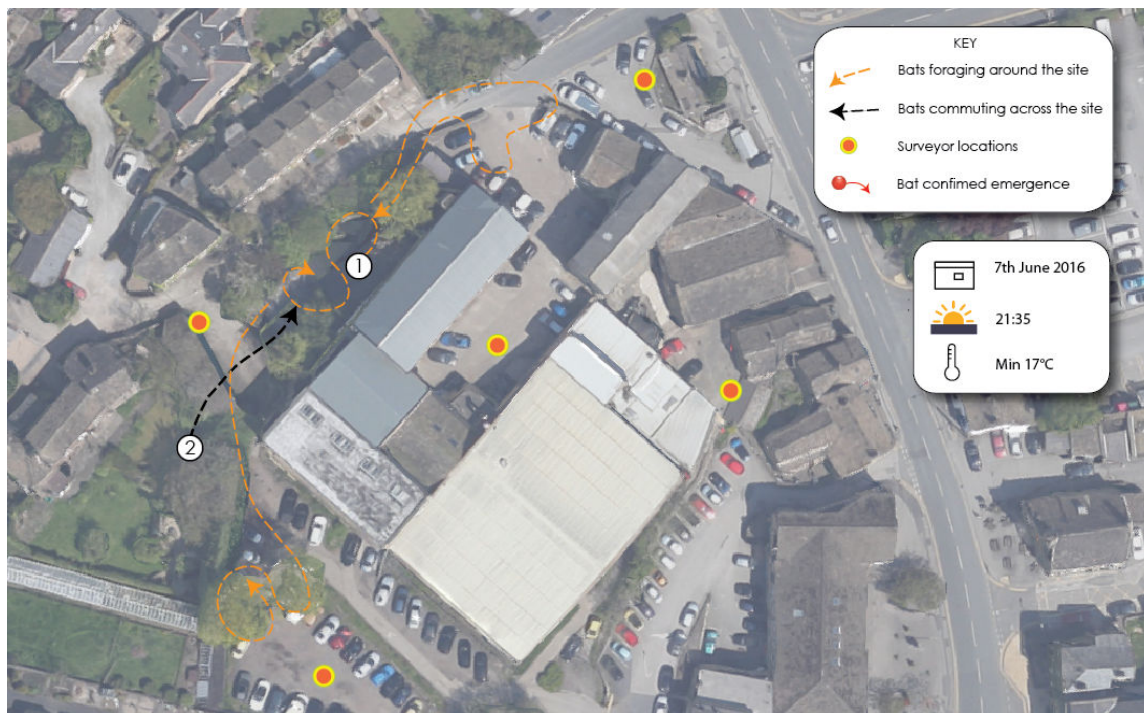
Date of Survey	Temperature Start/End	Weather	Invertebrate activity
07/06/16	17°C / 16°C	Clear, dry, low wind	Moderate
22/06/16	18°C / 17°C	90% cloud cover, dry, low wind	Low
19/07/16	26°C / 25°C	Clear, dry, low wind	High

Results

Emergence Survey 1 – 7th June 2016 – Sunset 21:35

57. The first bat seen was a common pipistrelle at 21:46, 11 minutes after sunset. This bat was first noted over the mill pond and was not seen to arrive from off-Site (point 1 on figure below). Given the proximity to sunset, it is considered likely that it emerged from nearby buildings, or from the mill itself.
58. At 21:50, two bats were observed arriving on the Site from the tree line to the west, before foraging over the mill pond (point 2 on figure below). The area around the mill pond is obscured by large trees which reduces visibility. It is though possible that the first bat arrived via this same route, over the tree line from the west but was not seen until already foraging over the pond.
59. Bats foraging over the mill pond occasionally flew back to the west from where they had entered Site, as well as flying around the to the south-western elevation and foraging among trees within the car park.
60. Activity elsewhere on Site was very low and consisted of low numbers of common pipistrelle, with a maximum of 1 bat foraging at any one time.

Figure 15 Bat emergence summary – Survey 1



Emergence Survey 2 – 22nd June 2016 – Sunset 21:42

61. The first bat seen was a common pipistrelle at 10:00, 18 minutes after sunset. This bat was around the mill pond – and as was the case during the first survey, the exact location from which it arrived on Site was uncertain. A further 2 bats were observed arriving from the tree line to the west, foraging over the mill pond for much of the survey, occasionally flying off Site to the west, and around to the south-west elevation of the building.
62. As was the case during the first survey, activity was concentrated over the mill pond, and to the west of the Site, with only occasional activity of single common pipistrelle foraging briefly elsewhere, with occasional commuting bats noted flying over the Site.
63. At 22:02 a Noctule was observed commuting directly over the south-west of the Site, traveling from the south-east to the north west (point 3 on figure below).

Figure 16 Bat emergence summary – survey 2



Emergence Survey 3 – 20th July 2016 – Sunset 21:25

64. Given the uncertainty surrounding possible emergence from features around the mill pond, the third survey focused on this area.
65. The first bat seen was a common pipistrelle at 21:47, 22 minutes after sunset. This bat arrived to the mill pond from over the tree line to the north, before continuing to forage over the mill pond, and the trees that surround it for the remainder of the survey, occasionally flying over the tree line to the north and foraging along Providence Row.
66. At 22:00 a second bat arrived from off-site to the west. This bat joined the first in foraging over the mill pond for the remainder of the survey.
67. At no points any bats seen to, or suspected to have emerged from the building.

Figure 17 Bat emergence summary – survey 3



Key Findings

68. The Site comprises a limited range of common, species poor habitats, which are not considered to be a significant constraint to the proposed development.
69. Mature trees located on Site should be retained where possible, in particular the mature willows around the mill pond, which given their age would be difficult to replace adequately. It is accepted that current proposals are likely to require the removal of much of the existing vegetation on Site. The loss of trees should be compensated by the planting of native species throughout landscaping.
70. All vegetation on Site has the potential to support nesting birds and should be cleared outside of the period March – August (inclusive). Clearance within this period should be preceded by nesting bird survey to ensure active nests can be identified and protected during development.
71. The mill pond has the potential to support white-clawed crayfish and further survey is recommended to assess the status of this species. As the mill pond is to be retained in the proposals, should white-clawed crayfish be found in the pond, it is not likely to have a significant impact on the proposals. It will however potentially impact on what works can be carried out in and around the area. Survey has been commissioned and trapping will commence between July and October 2016.
72. A Construction Environment Management Plan (CEMP) should be produced for the Site – this will detail how contamination of the mill pond will be avoided during the construction / conversion.

Bats

73. Emergence survey demonstrate the absence of roosting on Site. Given the complexity of the Site, and large number of potential features, should development not be commenced prior to the May 2018 further updating survey will be required.
74. The mill pond provides higher value habitat for local bat populations. This mill pond is to be retained, and its value can be maintained by the use of sensitive lighting, which would involve the following –
 - Use of narrow spectrum lights with no UV or warm white light;
 - Direct lighting downwards;
 - Use of low level lighting (e.g. 2m high lighting columns);
 - Use of hoods and cowls to direct lighting away from the mill pond.

Further ecological input required

75. 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).
76. No further surveys are deemed necessary in support of a planning application.
77. 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 3 Additional survey required **pre-commencement**

Survey	Rationale	Timing
White-clawed crayfish	<p>The development has the potential to impact negatively on the mill pond, and therefore on white-clawed crayfish if present.</p> <p>This species is in decline, and protected under UK legislation.</p> <p>Survey will inform the level of precaution required when working in and around the mill pond.</p>	July – October 2016
Nesting bird surveys	<p>Destruction of active nests is prohibited by law*</p> <p>Survey will be needed prior to the Site clearance of <u>only if carried out during the period March - August (inclusive)</u>. This would allow and active nests to be identified and protected.</p>	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

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

Table 4 Issues to be addressed in layout or project design

Feature	Rationale / Comments
Design of a sensitive lighting plan	In order to maintain the value of the mill pond to foraging bats.
Production of a CEMP	To outline how impact on the mill pond will be avoided.

Ecological Enhancement

79. 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.
80. The following themes provide opportunities for the proposals to deliver such a contribution, and will be best secured through the conditioning of a Biodiversity Enhancement and Management Plan:
- Enhancement of mill pond.
 - Installation of faunal boxes to include bats, and a range of bird boxes catering for a range of species likely to be present in the area.
 - Planting of native tree / shrub species across the Site.

Appendices

1. Extended Phase 1 Habitat Plan
2. Habitats Regulations Assessment Report
3. Great crested newt eDNA results
4. Explanatory Notes and Resources
5. Information on legislation / protection

References

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Appendix 1 – Extended Phase 1 Habitat Plan



- Ephemeral / short perennial
- Hardstanding
- Buildings
- Pond
- Trees
- A Note referred to in text

Target notes:

- 1 Tree with Low suitability for roosting Bats



Project: Baildon Mills

Title: Habitat Plan

Drawing Number: D-2576-01.1

Scale: Do not scale Date: July 2016

Revision:

Appendix 2 - Habitats Regulations Assessment Report

Introduction

81. Habitats Regulations Assessment (HRA) is a requirement of the Conservation of Habitats and Species Regulations 2010 (commonly referred to as 'the Habitats Regulations'), the UK's transposition of European Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora ('the Habitats Directive').
82. Under Regulation 102, a HRA must be applied to any plan or project in England and Wales with the potential to adversely affect (alone or in combination with other plans and projects) the ecological integrity of any sites designated for their nature conservation importance as part of a system known collectively as the Natura 2000 network of European sites.
83. As the application site falls in Zone B(ii) of the South Pennine Moors Zone of Influence a habitat regulation assessment is required in order to determine whether or not the proposed plans will adversely affect the integrity of the South Pennine Moors (Ilkley moor), in view of the site's conservation objectives.
84. This report is intended to assist City of Bradford Metropolitan District Council in making a Habitats Regulation Assessment / Appropriate Assessment in relation to this application.

Description of the South Pennine Moors

Special Area of Conservation (SAC) status

85. The SAC covers the Southern Pennines between Ilkley and the Peak District. Mostly in West Yorkshire, it also covers parts of Lancashire, Greater Manchester and North Yorkshire. The largest moorland blocks are Ilkley Moor, the Haworth Moors, Rishworth Moor and Moss Moor. The underlying rock is Millstone Grit which outcrops at Boulsworth Hill and on the northern boundary of Ilkley Moor. The moorlands are on a rolling dissected plateau between 300m and 450m AOD with a high point of 517m at Boulsworth Hill.
86. The gritstone is mostly overlain by peat with coarse gravely mineral soils occurring on lower slopes. The site is un-enclosed moorland in West Yorkshire containing the most diverse and extensive upland plant communities in the county. Extensive areas of blanket bog occur on the upland plateau and are punctuated by species rich acidic flushes and mires. There are also wet and dry heaths and acid grasslands.

Special Protection Area (SPA) status

87. Special Protection Areas (SPAs) are strictly protected sites classified in accordance with Article 4 of the EC Directive on the conservation of wild birds (79/409/EEC), also known as the Birds Directive, which came into force in April 1979. They are classified for rare and vulnerable birds, listed in Annex I to the Birds Directive, and for regularly occurring migratory species. The South Pennine Moors SPA includes the major moorland blocks of the South Pennines from Ilkley in the north to Leek and Matlock in the south. It covers extensive tracts of semi-natural moorland habitats including upland heath and blanket mire. The site is of European importance for several upland breeding bird species including birds of prey and waders.
88. Details on the primary reasons for selection are presented in Box 1.

Conservation Objectives

89. The conservation objectives for the European interests are:
1. to maintain, in favourable condition, the habitats for the populations of Golden Plover, Merlin and Short Eared Owl of European importance, with particular reference to:
 - blanket mire;
 - dwarf shrub heath;
 - acid grassland;
 - gritstone edges.
 2. to maintain, in favourable condition, the:
 - blanket bog (active only);
 - dry heaths;
 - northern Atlantic wet heaths with Erica tetralix;
 - transition mires and quaking bogs;
 - old oak woods with Ilex and Blechnum.

Habitat Regulations Assessment

90. The application site is approximately 2.7km from the SPA/SAC which occupies high ground to its north. The effects of the proposed development are considered in order to assess whether these are likely to be significant in terms of the SAC / SPA designation and its qualifying interests. To do this we consider with regard to the designation:

1. If development leads to loss of supporting habitat (i.e. habitat which though not within the SPA may be regularly used by the birds listed as 'qualifying interests'
 2. If development leads to likely direct effects on the SPA or SAC though increased:
 - air born dust or nitrate deposition caused by construction or operation of the site.
 - disturbance or impact from pedestrian traffic and access,
 - predation by pets, or eutrophication of soils through pet fouling,
 - visual or noise disturbance from the development, increased risk of fire
 - increased risk of fly-tipping, littering or release of invasive species
91. The following information set out in table A1 is provided to assist CBMDC in making an assessment of 'no significant effect'. The SPA/SAC is shortened to 'the Moor' in this table.

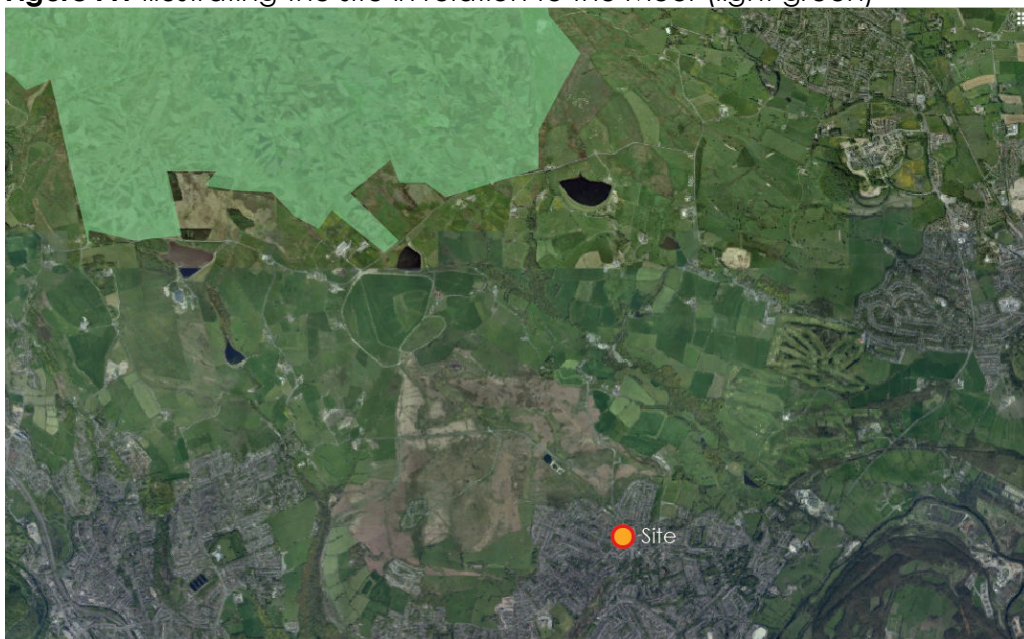
Table A1 Habitats Regulations - significance test

Impact	Summary assessment	Significant effects?
Recreational activity & Increases in access to SPA/SAC	<p>The Closest point of the South Pennine Moor SPA/SAC is c2.7km to the north of the application site.</p> <p>The site lies within existing residential development of Baildon. The increase in dedicated walks to the Moor is likely to be negligible, and any additional footfall as a proportion of current usage will be negligible. Baildon Moor SEGI / BWA lies between the site the South Pennine Moors Designation – this will likely buffer any impact, as footfall will be directed to more accessible areas such as Shipley Glen and Baildon Moor which are in closer proximity.</p> <p>Concentrated footfall associated with tourism to the moor is already directed to areas with appropriate infrastructure, such as the cow and calf rocks in Ilkley. Areas such as this are likely to remain the main hubs for access to the South Pennine moors, and the increase numbers due to the proposed small development will likely be negligible as a proportion of the total visitors.</p> <p>Levels of activity on the moor in these areas are currently high and marginal rises in levels of use could not be considered likely to lead to disturbance effects on wildlife not currently felt.</p>	No

Trampling and erosion	The Moors are sufficiently separated from the site, and served by a network of existing footpath; therefore impacts from any increase in usage are likely to be negligible.	No
Impact on supporting habitat	The application site does not include habitat likely to support SPA qualifying species. The Site is surrounded by mature development and does not support habitat which would be visited by the qualifying interest bird species.	No
Wind turbine developments	N/A	No
Increased risk of fire	The application site is sufficiently separated from the moor (>2km), and buffered by residential development. The risks of any on site fire spreading to the moors is considered negligible.	No
Increased risk of littering, fly tipping or release of invasive species.	The application site is not adjacent to the moor and will not create easier access to it for any of these activities. An increased risk in this respect would not be expected.	No
Pet predation/eutrophication	The development is significantly separated from the moors for any increase in pet activity to be negligible. There are also a number of BWA's in the area which will likely be used in preference to the moors by dog owners.	No
Urbanised avifauna	There are no reasons to suggest that the proposed development will have any net effect on populations of crow/magpie species in the area. No detrimental effect on upland breeding birds will be expected as a result of this.	No
Increased emissions to air	Although a small number of additional car journeys will be generated by increasing commuting to and from	No

	<p>the site, the site is served by a network of distributor roads that do not connect to arterial roads.</p> <p>Modern cars produce significantly less atmospheric pollution than older cars and it is unlikely that the increase in numbers of cars would lead to an increase in the atmospheric pollutants which could affect the Moor.</p>	
Visual or noise disturbance	The site is not visible from the moor and tall reflective or moving structures are not proposed. An increased impact in this respect would not be expected.	No
In combination impacts	In combination effects from the development of other consented sites are not likely to be felt as the same reasons for 'no significant effect' apply for other sites.	No

Figure A1 Illustrating the site in relation to the Moor (light green)



Box A1 SPA/SAC Primary Reasons for Designation

Primary Reason for Designation of the South Pennine Moors SAC

The site supports the following habitats:

European Dry Heaths: The site is representative of upland dry heath at the southern end of the Pennine range, the habitat's most south-easterly upland location in the UK. Dry heath covers extensive areas, occupies the lower slopes of the moors on mineral soils or where peat is thin, and occurs in transitions to acid grassland, wet heath and 7130 blanket bogs. The upland heath of the South Pennines is strongly dominated by heather *Calluna vulgaris*. Its main NVC types are H9 *Calluna vulgaris* – *Deschampsia flexuosa* heath and H12 *Calluna vulgaris* – *Vaccinium myrtillus* heath. More rarely H8 *Calluna vulgaris* – *Ulex gallii* heath and H10 *Calluna vulgaris* – *Erica cinerea* heath are found. On the higher, more exposed ground H18 *Vaccinium myrtillus* – *Deschampsia flexuosa* heath becomes more prominent. In the cloughs, or valleys, which extend into the heather moorlands, a greater mix of dwarf shrubs can be found together with more lichens and mosses. The moors support a rich invertebrate fauna, especially moths, and important bird assemblages.

Blanket Bogs: This site represents blanket bog in the south Pennines, the most south-easterly occurrence of the habitat in Europe. The bog vegetation communities are botanically poor. Hare's-tail cottongrass *Eriophorum vaginatum* is often overwhelmingly dominant and the usual bog-building *Sphagnum* mosses are scarce. Where the blanket peats are slightly drier, heather *Calluna vulgaris*, crowberry *Empetrum nigrum* and bilberry *Vaccinium myrtillus* become more prominent. The uncommon cloudberry *Rubus chamaemorus* is locally abundant in bog vegetation. Bog pools provide diversity and are often characterised by common cottongrass *E. angustifolium*. Substantial areas of the bog surface are eroding, and there are extensive areas of bare peat. In some areas erosion may be a natural process reflecting the great age (9000 years) of the south Pennine peats.

Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles: Around the fringes of the upland heath and bog of the south Pennines are blocks of old sessile oak woods, usually on slopes. These tend to be dryer than those further north and west, such that the bryophyte communities are less developed (although this lowered diversity may in some instances have been exaggerated by the effects of 19th century air pollution). Other components of the ground flora such as grasses, dwarf shrubs and ferns are common. Small areas of alder woodland along stream-sides add to the overall richness of the woods.

Primary Reason for Designation of the South Pennine Moors SPA

The site qualifies for the designation by supporting populations of European importance of the following species listed on Annex I of the Directive:

During the breeding season: - Golden plover *Pluvialis apricaria*, at least 3.3% of the breeding population in Great Britain - Merlin *Falco columbarius*, at least 5.9% of the breeding population in Great Britain - Peregrine *Falco peregrinus*, at least 1.4% of the breeding population in Great Britain - Short-eared owl *Asio flammeus*, at least 2.5% of the breeding population in Great Britain

The SPA supports an internationally important assemblage of birds. During the breeding season the area regularly supports *Actitis hypoleucos*, *Calidris alpina schinzii*, *Carduelis flavirostris*, *Gallinago gallinago*, *Numenius arquata*, *Oenanthe oenanthe*, *Saxicola rubetra*, *Tringa tetanus*, *Turdus torquatus*, *Vanellus vanellus*

References

Conservation of Habitats and Species Regulations (2010)
CBMDC Core Strategy Development Plan Document (20

Appendix 3 – Great Crested Newt eDNA analysis

Technical Report
Confidential

Folio No D1718
Report No: 1
Client: Brooks Ecological
Order No:
Attn: Daniel Ross
Date: 25th May 2016

TECHNICAL REPORT

EXAMINATION OF ENVIRONMENTAL DNA IN POND WATER FOR THE DETECTION OF GREAT CRESTED NEWTS

S.Humphrey



Methodology

When Great Crested Newts (GCN) inhabit a pond, they deposit traces of their DNA in the water as evidence of their presence. By sampling the water we can analyse these small environmental traces to detect GCN inhabitation.

The laboratory testing is conducted in two phases. The sample first goes through an extraction process where all 6 tubes are pooled together to acquire as much eDNA as possible. The pooled sample is then tested via real time PCR (or q-PCR). This process amplifies select part of DNA allowing it to be detected and measured.

qPCR combines PCR amplification and detection into a single step. This eliminates the need to detect products using gel electrophoresis. With qPCR, fluorescent dyes specific to the target sequence are used to label PCR products during thermal cycling. The accumulation of fluorescent signal during the exponential phase of the reaction is measured for fast and objective data analysis.

The primers used in this process are specific to a part of mitochondrial DNA only found in GCN ensuring no other DNA is amplified.

Samples are tested in a clean room and the different phases of testing are kept separate to reduce any risk of cross contamination.

Each pooled sample is replicated 12 times to ensure results are accurate. If one of the twelve replicates tests positive the sample is declared positive. The sample is only declared negative if no replicates show amplification.

Inhibition and degradation checks are also carried out on each sample using a known DNA marker. Results of these quality control tests are recorded with each sample.

Results

Lab Ref	Sample	Co-Ordinates	Inhibition Check	Sample integrity	Result
22236	Baildon	SE1538430825	Acceptable	Acceptable	Negative
22237					

Advice

Negative results may not indicate the absence of GCN just the presence of eDNA below the detection limits of the method. However this method is extremely sensitive. It is still advised to survey a pond using traditional methods within 2km of a positive result or a known habitat for GCN.

Positive results may be true positives but also may be due to contamination of samples from another pond or improper sampling technique. Please ensure traditional surveys are performed on positive ponds and care is taken to avoid spreading GCN DNA.

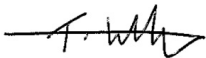
Samples undergo integrity scores to check for degradation post sampling. Samples which are not acceptable should be re-sampled. Sample integrity scores are based on the amount of degradation of an artificial DNA marker placed in the kits and analysed by qPCR.

PCR inhibitors can cause false results. Every effort is made to clean the sample pre-analysis however some inhibitors cannot be extracted. An unacceptable inhibition check will cause an indeterminate sample and must be sampled again.

Analysed and reported By: **Sam Humphrey**



Checked and approved: **Troy Whyte BSc**



Appendix 4 – Explanatory Notes and Resources Used

Site context

92. 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

93. 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

94. 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

95. 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

96. 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').

97. Records of notable species supplied from a 2km area of search by West Yorkshire Ecology(WYE) are used to inform this appraisal.
98. 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

99. 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.
100. 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.
101. 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
102. Consideration is given to the Local Biodiversity Action Plan (LBAP), which for this site is the '**Bradford Biodiversity Action Plan**'.

Species/group Action Plans	Habitat Action Plans
Freshwater White-clawed Crayfish	In Bye Grassland
Green Hairstreak	River corridors
Blue butterflies	Ancient and/or species-rich hedgerows
Lapwing	Upland oak woodland
Lesser Twayblade	
Twite	
Marsh Fern	
White Letter Hairstreak	
Yellowhammer	
Water Vole	
Brown Hare	
Otter	
Pipistrelle	
Grayling	

Appendix 5 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, water vole 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 from 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.