
EXTENDED PHASE 1 HABITAT SURVEY

**Land off Wakefield Road, Athersley,
Barnsley**

Harworth Group



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Field Investigations and Data

Where field investigations have been carried out these have been restricted to a level of detail required to achieving the stated objectives of the work. Where any data supplied by the client or from other sources have been used it has been assumed that the information is correct. No responsibility can be accepted by AES-LTD for inaccuracies in the data supplied by any other party.

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1.0 INTRODUCTION

- 1.1 Applied Ecological Services Ltd. was commissioned to undertake an Extended Phase 1 Habitat Survey including a protected species risk assessment, within an area of land off Wakefield Road, Athersley, Barnsley, South Yorkshire S71 1NX. The purpose of the survey was to map and identify habitats and species that are present within the site boundary and to provide baseline data of the site and highlight areas for further investigation that may provide a constraint to development. Following preliminary survey of the site, further dedicated surveys were recommended for amphibians, breeding birds and bats. This report presents an assessment of these potential ecological constraints to the development of the site based on the results of the surveys along with recommendations for mitigation and site enhancement.
- 1.2 The land within the site boundary at Athersley is the location for a proposed Residential Development. The site is situated 2.44km north north east of the centre of Barnsley within a semi-rural setting. The centre of the site is at OS grid reference SE 34736 08719.
- 1.3 The site comprises East Gawber Farm and associated residential gardens, improved and semi-improved grassland, hedgerows, fences, scattered and dense scrub, ephemeral/short perennial grassland (ESP), an area of swamp, watercourse and is bounded to the south by an area of broadleaved woodland.

2.0 THE PROPOSED DEVELOPMENT

SITE LOCATION

- 2.1 The survey area (red line boundary) covers approximately 7.73ha (19.10 acres) and is located at grid reference SE 34736 08719 (approximate central point). The survey area will be referred to as the site or the survey area within the report and it is situated just west of Wakefield Road (A61).

Figure 1: Site Location



- 2.2 The development proposals are understood to include the redevelopment of the site to provide a 5.70ha (14.10 acres) residential development and associated infrastructure, open space and landscaping.

3.0 SURVEY AND SITE ASSESSMENT METHODS

DESK STUDY

3.1 In order to compile existing baseline information, relevant ecological information was requested from the following organisations which for the purposes of this report, included:

- Multi Agency Geographic Information for the Countryside (Magic) website;
- Sheffield Biological Records Centre (SBRC);
- South Yorkshire Badger Group, and
- South Yorkshire Bat Group

3.2 A 5km radius was searched for sites of International nature conservation importance, such as Special Areas of Conservation (SACs) and Special Protection Areas (SPAs), and a 2km radius for statutory sites of national, regional and local importance, such as Sites of Special Scientific Interest (SSSIs) and Local Nature Reserves (LNRs), and non-statutory designated sites such as Local Wildlife Sites (LWS) and also for records of protected and notable species.

3.3 Further inspection, using colour 1:25,000 OS base maps (www.ordnancesurvey.co.uk) and aerial photographs from Google Earth (www.maps.google.co.uk), was also undertaken in order to provide additional context and identify any features of potential importance for nature conservation in the wider area.

FIELD SURVEY

HABITATS / FLORA

3.4 The site was surveyed on the 3rd May and 19th June, 2017 by Charlotte Mercer MSc, BSc. Hons and Dr Caroline Hillier MCIEEM. Charlotte is principal ecologist and company director and Caroline is senior ecologist, both are experienced field biologists with Applied Ecological Services Ltd (AES-LTD). Caroline holds Natural England Survey licences for both bats (2015-155181-CLS-CLS) and great crested newt (2015-16700-CLS-CLS). The habitat survey was undertaken using the standard Extended Phase 1 Habitat Survey methodology (JNCC, 2010)¹ as recommended by Natural England to identify specific habitats of ecological interest.

¹ JNCC, (2010), Handbook for Phase 1 habitat survey - a technique for environmental audit

Target notes were used to record features of interest or specific habitats and species identified during the survey. Whilst a species list should not be regarded as exhaustive, sufficient information was gained during the survey to enable classification and assessment of major habitat types.

- 3.5 Any habitats suitable for, or features with the potential to support, protected or notable species were also assessed and recorded.
- 3.6 Checks for notifiable plant species, such as Japanese knotweed *Fallopia japonica* were also made during the survey.

FAUNA

Badgers

- 3.7 Land within the survey area and peripheral adjacent habitat (where suitable), approximately 30m from the redline boundary was surveyed on 19th June 2017 following the methodology outlined by Harris *et al* (1989)². This involves a walkover of the site searching for field signs which would indicate the presence of badgers as follows:

- Setts: including earth mounds and evidence of bedding and or runways between identified setts;
- Latrines: often located close to setts; at territory boundaries or adjacent to favoured feeding areas;
- Prints and established track or runways;
- Hairs caught on rough wood or fencing; and
- Other evidence: including snuffle holes, feeding and playing areas and scratching posts.

Great Crested Newt (HSI)

- 3.8 The ponds and surrounding habitats were surveyed in order to calculate their Habitat Suitability Index (HSI) score. The HSI was developed by Oldham *et al.* (2000)³ and is used by

² Harris, S., Cresswell, P. & Jefferies, D. 1989. Surveying for badgers. Occasional Publication of the Mammal Society No. 9. Mammal Society, Bristol.

³ Oldham R.S., Keeble J., Swan M.J.S. & Jeffcote M. (2000). Evaluating the suitability of habitat for the Great Crested Newt (*Triturus cristatus*). Herpetological Journal 10 (4), 143-155

Natural England as part of the evaluation system for the European protected species licensing process. It is a scoring system based on an assessment of habitat quality. In general, ponds with a high HSI are more likely to support a great crested newt population than those with a low HSI score

The categorisation of HSI scores is as follows:

<0.5	Poor
0.5-0.59	Below average
0.6-0.69	Average
0.7-0.79	Good
>0.8	Excellent

Great Crested Newt Survey

3.9 Survey methodology conformed to the standard national guidelines as outlined in English Nature's *Newt Mitigation Guidelines 2004*. A combination of methods were used to detect the presence of great crested newts. These included:

- **Bottle trapping** – bottle traps were set at 2m intervals around the margins of the pond and retrieved the following morning. The species, sex and number of newts caught were be recorded;
- **Torching** – a 500,000 candle powered torch was used to undertake a torch light survey between dusk and dark, when newts are generally active. The species, sex and number of newts sighted was recorded;
- **Netting** – netting was undertaken around the margins of the pond so that any newts resting within the vegetation or on the bottom of the pond were detected. The species, sex and number of newts caught were recorded;
- **Egg searching** – emergent and submerged vegetation was searched for evidence of egg laying by newts. Where present, a distinction was made between eggs of smooth and great crested newts
- **Hand Searching** - hand searches were made of other suitable areas situated in the survey area that may have been providing temporary refugia for terrestrial based amphibians; Including potential natural refugia. During the hand searching periods, stones, boulders, vegetation, and other materials such as occasional litter were visually inspected on their undersides for the presence of amphibian species.

- 3.10 On each survey occasion, a combination of at least three of the survey techniques was used in accordance with Natural England's survey guidelines. A total of four survey occasions are required under the Natural England survey guidelines to confirm presence/ absence of great crested newts. Six surveys are required where great crested newts are found.

Breeding Bird Surveys

- 3.11 Survey design, methodology, fieldwork and assessment has been carried out in accordance with standard guidance Bibby *et al.* 1992⁴ and Gilbert *et al.* 1998⁵
- 3.12 During survey visits predetermined transect routes were walked at a slow pace so that all birds can be located, identified and recorded using standard British Trust for Ornithology (BTO) notation. Also, three vantage points (VP's) were located and a period of 20 minutes was spent on each VP recording bird activity in the viewable area. Binoculars were used throughout to scan the open for the presence of birds. All species are identified by their common name followed by their Latin equivalent. Bird species are listed with their BTO Code and their Conservation Status, UK Biodiversity Action Plan Species (UKBAP), Local Biodiversity Action Plan Species (LBAP) and BoCC species are also identified. All birds that were observed during the surveys were recorded including passing individuals and species on migration.
- 3.13 Results obtained from the walkover survey allowed breeding bird territory distribution and quantity to be estimated. This was achieved by isolating the registrations recorded for a single, selected species in each survey visit, and then plotting all of those registrations together on a single map. The resulting clusters of registrations are then interpreted by an experienced ornithologist to define distinct territories.
- 3.14 One survey per month was undertaken over the summer season from May 2017 to July 2017. Information obtained from the surveys will help towards building a picture of the of the general use of the site and its surroundings by all bird species during the breeding months.

⁴ Bibby, C.J., N.D. Burgess & D.A. Hill (1992): Bird Census Techniques. London: Academic Press.

⁵ Gilbert *et. al.* (1998) Bird Monitoring Methods. RSPB. Sandy.

Bat Activity Surveys

- 3.15 A programme of activity surveys were carried out including a suite of bat transect surveys and the deployment of static bat detectors. The bat surveys were carried out in accordance with current guidelines (Collins, 2016)⁶ and will continue into September 2017. For the evening transect surveys from sunset surveyors walked a pre-determined route for 2-3 hours after dusk. Bats were counted and the species, time and location of detected bats were noted, as was their direction of flight.
- 3.16 AES-LTD licensed bat surveyors were equipped with Echo Meter (EM3+) detectors which were used to record the calls of bats on site, these bat calls were transferred to Kaleidoscope for analysis of species composition. Batbox III or Magenta 5 bat detectors were used by the other surveyors to assist in bat detection. Bat activity on site was mapped, including direction of flight, foraging areas and any points of emergence as applicable.
- 3.17 Static detectors (SM2+) were deployed at two locations within the site on a monthly basis for five consecutive nights on each survey occasion between May and September.

Data analysis

- 3.18 The RAW files recorded by the EM3+ and SM2+ were analysed using Wildlife Acoustics' Kaleidoscope post-processing software. The free version of this software can convert from WAC, WAV and Zero Crossing (ZC) formats whilst filtering out unwanted signals. Bat calls recorded in the field were analysed using AnaLook Analysis software. The output is recorded as WAC files which were analysed to produce sonograms and frequency spectra. Regarding the EM3+, the heterodyne channel also provided further audible verification of identity, especially for species with distinctive heterodyne calls.

SURVEY LIMITATIONS

- 3.19 There were no limitations associated with the survey, the survey timing was appropriate and allowed for habitat types to be readily identified.

¹Collins J. (Ed.) (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn). The Bat Conservation Trust, London.

SITE ASSESSMENT

- 3.20 In order to determine the value of the habitats and species found through the surveys detailed above, the baseline and survey results were assessed against the criteria in **Table 1**, below:

Table 1: Hierarchy of Receptors

Designation
International (Europe);
National (UK);
Regional (South Yorkshire);
Metropolitan Borough (Barnsley);
Local (up to approximately 2km from the Proposed Site);
Less than local or value in the Proposed Site only

- 3.21 Receptors of less than local value are referred to as being of 'less than local' value. Effects are only assessed for receptors of sufficient value that impacts upon them could be significant in terms of either legislation or policy, i.e. in this case, those considered to be of local, or greater, ecological value.

4.0 RELEVANT LEGISLATION & POLICY

LEGISLATION

HABITAT REGULATIONS

- 4.1 The Conservation of Habitats and Species Regulations 2010 transpose Council Directive 92/43/EEC on the Conservation of Natural Habitats and Wild Flora and Fauna (Habitats Directive) into English law, making it an offence to deliberately capture, kill or disturb⁷ wild animals listed under Schedule 2) of the Regulations (such as all bat species and great crested newts). It is also an offence to damage or destroy a breeding site or resting place of such an animal (even if the animal is not present at the time).

WILDLIFE & COUNTRYSIDE ACT

- 4.2 The Wildlife and Countryside Act 1981, as amended by the Countryside and Rights of Way Act (CROW) 2000 and the Natural Environment and Rural Communities Act (NERC) 2006, consolidates and amends existing national legislation to implement the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention, making it an offence to:
- Intentionally kill, injure or take any wild animal listed under Schedule 5 to the Act; intentionally or recklessly damage, destroy or obstruct any place used for shelter or protection by any wild animal listed under Schedule 5 to the Act; intentionally or recklessly disturb certain Schedule 5 animal species while they occupy a place used for shelter or protection; and
 - Pick or uproot any wild plant listed under Schedule 8 of the Act. Sites of Special Scientific Interest (SSSI) are designated under this Act.

POLICY

NATIONAL PLANNING POLICY FRAMEWORK

- 4.3 The Government published the National Planning Policy Framework (NPPF) on 27th March 2012. This sets out new guidance for local authorities, focusing on helping to produce planning policies that are clear and easier to understand. The NPPF is effective immediately; however the local plans are still valid, for the time being, even if they have

⁷ Disturbance, as defined by the Conservation of Habitats and Species Regulations 2010, includes in particular any action which impairs the ability of animals to survive, breed, rear their young, hibernate or migrate (where relevant); or which affects significantly the local distribution or abundance of the species.

been produced prior to the NPPF. There is emphasis on the need for economic growth through designing planning policies which are in favour of development but this will not be achieved in isolation from social and environmental development. Section 11 sets out the requirements for conserving and enhancing the natural environment. Land previously used for development (brownfield sites) should be favoured as long as they are not considered to be of high environmental value. Of particular note is paragraph 152 of the Plan-Making Section which states, “Local planning authorities should seek opportunities to achieve each of the economic, social and environmental dimensions of sustainable development, and net gains across all three. Significant adverse impacts on any of these dimensions should be avoided and, wherever possible, alternative options which reduce or eliminate such impacts should be pursued. Where adverse impacts are unavoidable, measures to mitigate the impact should be considered. Where adequate mitigation measures are not possible, compensatory measures may be appropriate”. The Framework is guidance for local planning authorities on the content of their Local Plans, but is also a material consideration in determining planning applications. The NPPF has replaced much existing planning policy guidance, including Planning Policy Statement 9: Biological and Geological Conservation. However, the government circular 06/05: Biodiversity and Geological Conservation - Statutory Obligations and their Impact within the Planning System, which accompanied PPS9 remains valid.

BIODIVERSITY ACTION PLANS / BIODIVERSITY 2020

- 4.4 The UK Biodiversity Action Plan (UKBAP) (Anon, 1995) was organised to fulfil the Rio Convention on Biological Diversity in 1992, to which the UK is a signatory. A list of national priority species and habitats has been produced with all listed species/habitats having specific action plans defining the measures required to ensure their conservation. Regional and local BAPs have also been organised to develop plans for species/habitats of nature conservation importance at regional and local levels.
- 4.5 The ‘[UK Post-2010 Biodiversity Framework](#)’, published in July 2012, succeeds the UK BAP and ‘Conserving Biodiversity – the UK Approach’, and is the result of a change in strategic thinking following the publication of the CBD’s ‘[Strategic Plan for Biodiversity 2011–2020](#)’ and its 20 ‘Aichi Biodiversity Targets’, at Nagoya, Japan in October 2010, and the launch of the new [EU Biodiversity Strategy \(EUBS\)](#) in May 2011. The Framework demonstrates how the work of the four countries and the UK contributes to achieving the Aichi Biodiversity

Targets, and identifies the activities required to complement the country biodiversity strategies in achieving the targets. The UKBAP is no longer an active strategy, and has been replaced by biodiversity strategies in England, Northern Ireland, Scotland and Wales. While the UKBAP is no longer an active policy, species listed on the UKBAP have been incorporated into the new biodiversity strategies for each country. In England under Biodiversity 2020: A strategy for England's wildlife and ecosystem services and under section 41 of The Natural Environment and Rural Communities (NERC) Act 2006, where UKBAP species were recognised as of principal importance for the conservation of biodiversity. Section 40 of the NERC Act 2006 requires all public bodies to have regard for biodiversity conservation when carrying out their function. This is commonly referred to as the '**biodiversity duty**'.

NATURAL ENVIRONMENT AND RURAL COMMUNITIES (NERC) ACT (2006)

- 4.7 Public authorities have a duty to conserve biodiversity under the Natural Environment and Rural Communities (NERC) Act, which came into force in 2006. This states that 'any public body or statutory undertaker in England and Wales must have regard to the purpose of conservation of biological diversity in the exercise of their function and that decisions of public bodies work with the grain of nature and not against it' (Part 3, Paragraph 60). The Act also includes a range of measures to strengthen the protection of wildlife and habitats.

LOCAL STRUCTURE PLANS

- 4.6 County, District and Local Councils have Structure Plans and other policy documents that include targets and policies which aim to maintain and enhance biodiversity. These are used by Planning Authorities to inform planning decisions. Barnsley Council's adopted Core Strategy (2011) makes various references to biodiversity including:

Strategic Objectives: OBJECTIVE 8: To protect and improve the countryside and natural environment by:

- 4.7 protecting and improving Barnsley's countryside, biodiversity and heritage This will be achieved through the following Core Strategy Policy:

CSP 36 Biodiversity and Geodiversity:

- 4.8 Development will be expected to conserve and enhance the biodiversity and geological features of the borough by: protecting and improving habitats, species, sites of ecological

value and sites of geological value with particular regard to designated wildlife and geological sites of international, national and local significance, ancient woodland and species and habitats of principal importance identified in Section 74 of the Countryside and Rights of Way Act 2000 and in the Barnsley Biodiversity Action Plan; maximising biodiversity and geodiversity opportunities in and around new developments; conserving and enhancing the form, local character and distinctiveness of the river corridors of the Dearne and Dove as natural floodplains and important strategic wildlife corridors. Development which may harm a biodiversity or geological feature will not be permitted unless effective mitigation and/or compensatory measures can be ensured.

WILDLIFE LEGISLATION

- 4.9 In addition to the above, a range of legislation is in place to ensure that habitats and species of conservation importance are protected from harm, either directly or indirectly. A summary of this legislation is given in **Table 2**.
- 4.10 Due to its location the site may have the potential to support or provide habitat for a number of those species protected by the various pieces of legislation summarised in **Table 2**. A summary of the key legislation for protected species is given in **Table 3**.

Table 2: Overview of Key Legislation

Legislation	Relevance
The Conservation of Habitats and Species Regulations 2010	<p>This transposes the EC Habitats Directive 1992 (<i>Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Flora and Fauna</i>) and the EC Birds Directive 1979 (<i>Council Directive 79/409/EEC on the protection of wild birds</i>) into UK law.</p> <p>Annexes I and II of the Habitats Directive list (respectively) habitats and species for which member states are required to establish and monitor SACs. The EC Birds Directive provides a similar network of sites (SPAs) for all rare or vulnerable species listed in Annex I and all regularly occurring migratory species, with particular focus on wetlands of international importance. Together with SACs, SPAs form a network of pan-European protected areas known as ‘Natura 2000’ sites.</p> <p>The Habitats Regulations also make it an offence (subject to exceptions) to deliberately capture, kill, disturb, or trade in the animals listed in Schedule 2, or pick, collect, cut, uproot, destroy, or trade in the plants listed in Schedule 4.</p>
The Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention 1979)	The Bern Convention aims to ensure conservation and protection of all wild plant and animal species and their natural habitats (listed in Appendices I and II of the Convention), to increase cooperation between contracting parties, and to afford special protection to the most vulnerable or threatened species (including migratory species).
The Wildlife and Countryside Act (WCA) 1981 (as amended)	The WCA is the primary UK mechanism for statutory site designation (Sites of Special Scientific Interest, SSSIs) and the protection of individual species listed under Schedules 1, 2, 5 and 8 of the Act, each subject to varying levels of protection.
The Countryside and Rights of Way Act 2000	This legislation strengthens the provision of the 1981 WCA (as amended), both in respect of statutory sites such as SSSIs and protected species. It also places a statutory obligation on Local Authorities and other public bodies to further conservation of biodiversity in the exercise of their functions, thus providing a statutory basis to the Biodiversity Action Plan (BAP) process, which began in 1994. Section 74 of the Act lists the habitat types and species of principal importance in England.
Hedgerow Regulations 1997	The Hedgerow Regulations 1997 are intended to protect important countryside hedges from destruction or damage in England and Wales.
Natural Environment and Rural Communities Act 2006	The ‘NERC’ Act makes provision in respect of biodiversity, pesticides harmful to wildlife, protection of birds and invasive non-native species. Section 40 of the act also introduced a new duty on public bodies to have regard to the purpose of conserving biodiversity in the exercise of their functions.

4.11 Due to its location the site has the potential to provide habitat for a number of species protected by the various pieces of legislation summarised in **Table 2**. A summary of the key legislation is given in **Table 3**.

Table 3: Key Legislation for protected species

Species	Key legal protection
Bats (all species)	<p>All European species of bat are listed on Annex IV of the EC Habitats Directive as being in need of “strict protection”. This is implemented in Britain under The Conservation of Habitats and Species Regulations 2010. All British bats are included on Schedule 5 of the WCA (1981) and the whole of Section 9 of The Act applies to European bat species. In summary, the above legislation collectively prohibits the following:</p> <ul style="list-style-type: none"> • Deliberately or recklessly capturing, injuring, taking or killing of a bat; • Deliberately or recklessly harassing a bat; • Intentionally or recklessly disturbing of a bat in its place of rest (roost), or which is used for protection or rearing young; • Deliberately or recklessly damaging, destroying or obstructing access to any resting place or breeding area used by bats; • Deliberately or recklessly disturbing a bat in any way which is likely to significantly affect the local populations of the species, either through affecting their distribution or abundance, or affect any individuals ability to survive, reproduce or rear young; • Possession or advertisement/sale/exchange of a bat (dead or alive) or any part of a bat. <p>In England, licences are issued by Natural England for any actions that may compromise the protection of a European protected species, including bats, under the Habitats Regulations 2010. This includes all developments, regardless of whether or not they require planning permission. Bats are also protected by the Wild Mammals (Protection) Act 1996 and selected species are listed on the UK Biodiversity Action Plan (BAP) and the Hull Biodiversity Action Plan (LBAP)</p>
Great crested newt	<p>Great crested newts are protected under European and British law, having the same level of protection as bats (see above). Licenses are issued by Natural England for any actions that may compromise the protection of this species, under the Habitat Regulations 2010. This includes all developments, regardless of whether or not they require planning permission. The species is also listed on the UK and Local BAPs.</p>
Otter	<p>Otter are protected under European and British law and receive the same level of protection as bats (see above.) The species is listed under Annex II and IV of the Habitats Directive, which is implemented in Britain under The Conservation of Habitats and Species Regulations 2010. Otter are also protected under Schedules 5 and 6 of the WCA 1981, The Wild Mammals (Protection) Act 1996 and are listed as a priority species in Appendix II of the Bern Convention. The species is also listed on the UK and Local BAPs.</p>
Water Vole	<p>Water vole is protected under Schedule 5 of the WCA 1981 (as amended). This makes it an offence to:</p> <ul style="list-style-type: none"> • Intentionally kill, injure or take water voles; • Possess or control the species; • Damage or destroy any place used by water vole for shelter or protection; • Disturb water vole while they occupy such places of shelter; • Sell, possess or transport water vole for the purpose of sale; and • Advertise the buying or selling of water vole. <p>The species is also protected under the Wild Mammals (Protection) Act 1996 and listed on the UK and Local BAPs.</p>

Species	Key legal protection
Birds	<p>The majority of bird species, with the exception of some species listed on Schedule 2, are protected under the WCA 1981 (as amended). This makes it an offence to intentionally or recklessly:</p> <ul style="list-style-type: none"> • Kill, injure or take any wild bird; • Take, damage or destroy any nest which is in use or being built; and • Take, damage or destroy the eggs of any such bird. <p>Additional protection against disturbance whilst at the nest is also afforded to any bird species, whether an adult bird or their dependant young, which is listed on Schedule 1 of the Act.</p> <p>Council Directive 2009/147/EC on the conservation of wild birds (the 'Birds Directive') provides for the conservation and management of all wild bird species naturally occurring in the European Union, their nests, eggs and habitats. The Birds Directive bans activities that directly threaten birds (e.g. deliberate killing and destruction of nests and young), regulates hunting of selected species, bans non-selective and large scale killing of birds, and promotes research for bird conservation and management.</p> <p>Article 4(4) of the Birds Directive requires that member states "should strive to avoid pollution or deterioration of habitats." The Conservation of Habitats and Species (Amendment) Regulations 2012 provide a fuller transposition of the Birds Directive into English law. Regulation 8 introduces a new Regulation 9A to the Habitats Regulations for duties of appropriate authorities in relation to wild bird habitat. Regulation 9A(3) addresses the transposition of Article 2 of the Birds Directive, while Regulation 9A(8), requiring competent authorities to "use all reasonable endeavours" to "avoid any pollution or deterioration of habitats of wild birds."</p> <p>Certain species are also listed as being of priority conservation importance on the UK and Local BAPs.</p>
Badger	<p>Badger are protected under the Protection of Badgers Act 1992, which makes it an offence to:</p> <ul style="list-style-type: none"> • Knowingly kill, capture, injure or disturb any individual; • Intentionally damage or destroy a badger sett, or any part thereof; • Obstruct access to an area which is used for breeding, resting or shelter; and • Disturb a badger while it is using any place used for breeding, resting or shelter. <p>The species is also protected by the Wild Mammals (Protection) Act 1996.</p>

5.0 RESULTS

DESKTOP ASSESSMENT

- 5.1 The desktop assessment indicates that there are no sites of International Nature Conservation interest within 5km of the study area. Denby Grange Colliery Ponds SAC lies just within the 10km buffer to the north west of the survey area.
- 5.2 A search for statutory sites of national, regional and local importance using Magic website indicates that there is one Local Nature Reserves (LNR) within a 2km radius of the site. Sheffield Biological Records Centre indicates the presence of two non-statutory designated sites comprising two Local Wildlife Sites (LWS), a further LWS Cliff Wood was located just out of the 2km buffer.

DESIGNATED SITES

- 5.3 There is one statutory site and two non-statutory designated sites within 2km of the site boundary (**Table 4**). The location of the statutory and non-statutory designated sites within 2km of the survey area are illustrated on **Drawing 1**.

Table 4: Statutory and non-statutory designated sites

Designation	Site Name & Description	Grid Ref.	Distance & Direction from Site
LNR	Dearne Valley Park Acidic oak woodland with mosaic of wetland habitats	SE 360 069	1.40km SSE
LWS	Barnsley Canal at Wilthorpe Woodland / wet pasture & standing water	SE 337 084	0.37km SE to 1.94km E
LWS	Old Mill Lane Deciduous woodland, wetland and grassland	SE 348 075	0.71km SE

- 5.4 Local Nature Reserve (or LNR) is a statutory designation made under Section 21 of the National Parks and Access to the Countryside Act 1949, and amended by Schedule 11 of the Natural Environment and Rural Communities Act 2006, by principal local authorities. LNRs are designated for their nature conservation interest, local importance for education or research, and they provide an opportunity for informal enjoyment of nature by the public.
- 5.5 Local Wildlife Sites (LWS) are areas of land which are rich in wildlife and are equivalent to Sites of Importance for Nature Conservation (SNCI). Criteria for selection take in threats and

declines in certain species, national priorities and local distinctiveness. The LWS system is managed, in partnership, by The Wildlife Trust, local authorities, statutory nature conservation agencies, local naturalists and landowners. Local Wildlife Sites were previously known as County Wildlife Site (CWS) in the past. LWS are non-statutory sites of County level importance, and protected under planning policies of the component district authorities.

ECOLOGICAL RECORDS

- 5.6 Sheffield Biological Records Centre (SBRC) returned 1147 protected and priority species records within 2km of the site on 26th April 2017. The data were filtered to the last 10 years (2007-2017) leaving 937 records. None of the records relate to the Site. South Yorkshire (SY) Badger group did not have any records of badger within 2km of the site (12th July 2017). South Yorkshire Bat Group returned 225 bat records within 2km of the site on the 13th July 2017. The data were filtered to the last 10 years (2007-2017) leaving 69 records.
- 5.7 The location of protected species records in relation to the site is illustrated on **Drawing 2**.

PROTECTED SPECIES

Great crested newt

- 5.8 SBRC returned 11 records of GCN from around the same location around Barnsley Canal at Wilthorpe LWS. The records were approximately 0.89km to the south west of the site boundary. All the records of GCN are located on the opposite side of the River Dearne to the site, a considerable barrier to the movement of GCN.

Mammals

Bats

- 5.9 SBRC returned 19 records of bats from between the years 2007 -2013. Seven of the records were of Daubenton's bats from Old Mill Lane LWS - only one of these records was of a roost. Six of the records were from Barnsley Canal at Wilthorpe LWS (Daubenton's and common pipistrelle). Three records were from the River Dearne at Wilthorpe Marsh 1.17km to the east of the site species present here were soprano pipistrelle and common pipistrelle. The remaining records were of common pipistrelle droppings from a private address 1.75km to the south east of the site boundary and one of a noctule bat commuting at North Gawber

5.10 SY bat group returned 15 roost records; the closest record (x2 records for same roost) was from 2010 for a private house, species unknown, 0.83km to the east of the site boundary. 10 of the records were for the same roost spanning between the years 2010 – 2013, a roost of daubenton's bats at a culvert / bridge on the River Dearne at Old Mill Lane. One of the records was for a common pipistrelle roost from 2014 from a private house located 1.98km to the south of the site boundary. Two records were from Monk Bretton, both private houses from 2007 and 2009 respectively; the first a roost of common pipistrelle located 1.74 km to the south east and the second of a roost of pipistrelle species located 2.01 km to the south east of the site. Nine of the records were of bat care i.e. for when a bat had been injured and collected and were from various locations. The rest of the records were of bats foraging or commuting, with the majority of the records from the River Dearne or Wilthorpe Marsh. Species represented in the records were Common and soprano pipistrelle, daubenton's, noctule and one leiser's record (Wilthorpe Road, 2.39km the south south west of the site boundary).

5.11 A search on Magic website for granted European Protected Species Applications indicates that there is one licence applications relating to bats within 2km of the site. The application is EPSM 2013-6477 for the destruction of a resting place of common pipistrelle bats between 18th October 2013 and 30th September 2014 1.44km to the south, south west of the site.

Otter

5.12 SBRC returned four records of otter from between the years of 2007 and 2012. The records were from Old Mill Lane LWS to the south east of the site.

Water vole

5.13 SBRC returned 55 records of water vole from two sites. The majority of the records were at a waterbody at Athersley North approximately 1.66km north north east of the site. There were several further records downstream at Carlton approximately 2.02km North East of the site. The records were from between the years 2009 and 2012.

Badger

5.14 SBRC returned two records of badger at Monk Bretton, a minimum of 1.5km east south east of the site.

5.15 SY badger group reported a road kill from Laithes Lane (B6132) a minimum of 0.56km to the north of the site boundary but no details of a grid reference were provided.

Bird species

5.16 SBRC returned 791 bird records comprising 52 species within a 2km radius of the site. The records include nine birds protected under schedule 1 part 1 of the Wildlife and Countryside Act 1981 (as amended). The majority of the protected bird species are recorded at Willthorpe Marsh, Fleets wetland area at Old Mill Lane LWS and Barnsley Canal at Wilthorpe and include the following species:

- redwing *Turdus iliacus*;
- fieldfare *Turdus pilaris*;
- brambling *Fringilla montifringilla*;
- green sandpiper *Tringa ochropus*;
- hobby *Falco Subbuteo*,
- peregrine *Falco peregrinus*;
- red kite *Milvus milvus*;
- kingfisher *Alcedo attis*; and
- little ringed plover *Charadius dubius*

Crustacean

5.17 SBRC returned two records of white clawed crayfish from the River Dearne at Old Mill Lane LWS, both from 2010

PRIORITY SPECIES

Amphibians

5.18 Common toad, common frog and smooth newt are recorded at the Barnsley Canal at Wilthorpe LWS and from ponds at Darton in the wider area. Toad are UK BAP priority species.

Birds

5.19 SBRC returned records of 10 species that were UK BAP Priority species, species include cuckoo *Cuculus canorus*, grasshopper warbler *Locustella naevia*, grey partridge *Perdix perdix*, lapwing *Vanellus vanellus*, lesser redpoll *Carduelis cabaret* reed bunting *Emberiza schoeniclus* tree sparrow *Passer montanus* tree pipit *Anthus trivialis*, yellowhammer *Emberiza citronella*. The

majority of the records are from Wilthorpe Marsh and Barnsley Canal at Wilthorpe. There were 94 records of house sparrow *Passer domesticus* recorded at various locations across the 2km buffer to the site. Lapwing and grey partridge are also Barnsley Biodiversity Action Plan priority species.

Mammals

- 5.20 SBRC holds one record of hedgehog a UKBAP and Barnsley BAP species from 2012.

Terrestrial invertebrates

- 5.21 WYES returned 19 records of terrestrial invertebrates comprising seven species that are UK BAP priority species. The records are from Mapplewell Tip, North Gawber , Willthorpe marsh and Barsley Canal at Wilthorpe. Species recorded in the area include dingy skipper *Erynnis tages* , small heath *Coenonympha pamphilus*, wall *Lasiommata meger*, buff ermine *Spilsoa lutemu*, cinnabar *Tyria jacobaeae*, dusky brocade *Apamea remissa* and small square-spot *Diarsia rubi*

Plants

- 5.22 SBRC did not return any records of notable or priority plant species.

INVASIVE/NON-NATIVE SPECIES

- 5.23 SBRC did not return any records of invasive non-native species.

FIELD SURVEY

GENERAL SITE DESCRIPTION - HABITATS

- 5.24 Habitats within the survey area include improved pasture, semi-improved neutral grassland, swamp, amenity grassland, ephemeral/short perennial grassland, marshy grassland, a watercourse, scattered and dense scrub, hedgerows, fences, stone walls and bare ground. At the periphery there is an area of deciduous woodland to the south west of the site and an area of plantation woodland to the south, both are outside of the site boundary (third party trees), but the tree canopy overhangs the survey area.
- 5.25 The locations of the habitats described in the following sections can be found on the Phase I Habitat Plan **Drawing 3**.

IMPROVED PASTURE

- 5.26 To the east of East Gawber Farm there is a field of improved pasture (T1). This grassland is characterised by abundant perennial rye-grass *Lolium perenne* with locally abundant false-oat-grass *Arrhenatherum elatius*, frequent Yorkshire fog *Holcus lanatus*, meadow foxtail *Alopecurus pratensis* and occasional cock's-foot *Dactylis glomerata*. Herbaceous species typically include meadow buttercup *Ranunculus acris*, white clover *Trifolium repens*, ribwort plantain *Plantago lanceolata*, broad-leaved dock *Rumex obtusifolius*, black medic *Medicago lupulina*, nettle *Urtica dioica*, common mouse-ear *Cerastium fontanum*, red clover *Trifolium pratense*, dandelion *Taraxacum officinalis*, cow parsley *Anthriscus sylvestis* and black knapweed *Centaurea nigra*.

DENSE SCRUB

- 5.27 T2 is an area of dense bramble *Rubus fruticosus agg.* scrub at the northern boundary of the improved pasture. Species include locally abundant bramble, occasional elder *Sambucus nigra*, nettle, creeping thistle *Cirsium arvense*, and hedge bindweed *Calystegia sepium*.
- 5.28 Within the eastern field there is a linear depression and primarily along the length of this there are areas of dense scrub. Some like T7 also comprise trees. T7 is characterised by locally abundant bramble underscrub with frequent hawthorn and occasional elder, blackthorn *Prunus spinosa* and goat willow *Salix capreae* in the scrub layer and a semi-mature ash *Fraxinus excelsior*. Honeysuckle *Lonicera periclymenum* is locally abundant climbing through the scrub. Other species include rosebay willowherb *Chamerion angustifolium*, creeping

thistle, nettle and wood sage *Teucrium scorodonia*. T8 has a group of crab apple *Malus sylvestris* to the south east of the dense scrub, the remainder of the areas of scrub along the depression comprise hawthorn and bramble scrub. T9 is an area of dense bramble scrub and T10 is a dense area of hawthorn, grey willow *Salix cinerea*, ash and sycamore *Acer pseudoplatanus* near to the reed swamp. T11 is an area of blackthorn, hawthorn and goat willow along a third party boundary.

PLANTATION WOODLAND

- 5.29 T12 is a relatively young plantation woodland, a linear feature planted as a screen along the boundary of the adjacent Stagecoach Depot. The trees are outwith the site but the tree canopy overhangs into site. Species include sycamore, silver birch *Betula pendula*, goat willow, grey willow, hawthorn, ash and Norway spruce *Picea abies*.

HEDGEROWS

- 5.30 T3 is a row of hawthorn *Crataegus monogyna*, probably a remnant of a hedgerow which is now defunct and overgrown. The shrubs reach a height of approximately 6m and a width of 3m. Other species include frequent blackthorn, occasional dog-rose *Rosa canina* agg. and locally abundant bramble. Suckering blackthorn is also locally abundant.
- 5.31 T4 is an ornamental hedgerow dominated by Leyland cypress *Cupressus × leylandii* along the tarmac driveway just outside of the survey area boundary to the north.
- 5.32 T15 is not strictly a hedgerow, more of a linear boundary feature comprising of self-set trees along either side of a dirt access track. Very dense in places to the southern end of the group with scattered self-set trees towards the northern end. Species include grey willow, silver birch and hawthorn.

EPHEMERAL/SHORT PERENNIAL GRASSLAND

- 5.33 T5 is an area of ephemeral/short perennial grassland (ESP) to the south of the driveway leading to East Gawber Farm. The ESP is associated with an area of compacted hardcore to the south of the driveway which is vegetated by an open grassland. Grasses include frequent perennial rye-grass, creeping bent *Agrostis stolonifera*, squirrel-tail fescue *Vulpia bromoides* and occasional Yorkshire fog and false oat-grass. Herbaceous species include pineapple weed *Matricaria discoidea*, bird's-foot-trefoil *Lotus corniculatus*, mouse-ear hawkweed *Hieraceum*

pilosella, yarrow *Achillea millefolium*, common cat's-ear *Hypochaeris radicata*, black medic, common ragwort *Senecio jacobaea* and dove's-foot crane's-bill *Geranium molle*.

SEMI-IMPROVED NEUTRAL GRASSLAND

- 5.34 There are several areas of semi-improved grassland within the site divided by fences and a hedgerow. To the east of the site the grassland is more species diverse (T6). Grasses within the sward include locally abundant false oat-grass and red fescue *Festuca rubra*, locally frequent sterile brome *Bromus sterilis* with frequent creeping bent, common bent *Agrostis capillaris*, meadow foxtail, perennial rye-grass, soft brome *Bromus hordeaceus*, Yorkshire fog and occasional cock's-foot. Field wood-rush *Luzula campestris* was also locally abundant on some of the grassy slopes. Herbaceous species were quite diverse and included common sorrel *Rumex acetosa*, creeping cinquefoil *Potentilla reptans*, red dead-nettle *Lamium purpurea*, cow parsley, common vetch *Vicia sativa*, cleavers *Galium aparine*, meadow buttercup, creeping buttercup *Ranunculus repens*, broad-leaved dock, ribwort plantain, mouse-ear hawkweed, black knapweed, white dead-nettle *Lamium album*, nettle, bird's-foot-trefoil, common ragwort, germander speedwell *Veronica chamaedrys*, daisy *Bellis perennis*, dandelion, common field speedwell *Veronica persica*, yarrow, white campion *Silene latifolia*, red clover, redshank *Persicaria maculosa*, common knotgrass *Polygonum aviculare*, common spotted orchid *Dactylorhiza fuchsia*, northern marsh orchid *D. purpurella*, purple toadflax *Linaria purpurea*, common toadflax *L. vulgaris*, wood sage, red bartsia *Odontites vernus*, colt's-foot *Tussilago farfara*, rosebay willowherb, self-heal *Prunella vulgaris*, common mouse-ear, perforate St John's-wort *Hypericum perforatum*, common cat's-ear, field bindweed *Convolvulus arvensis*, oxeye daisy *Leucanthemum vulgare*, cut-leaved crane's-bill *Geranium dissectum*, dove's-foot crane's-bill, creeping thistle and spear thistle *Cirsium vulgare*. There is also locally abundant pointed spear-moss *Calliergonella cuspidata* and occasional common earthballs *Scleroderma citrinum*.
- 5.35 The semi-improved pasture to the west of the site (T13) is more heavily grazed and less species diverse than the grassland to the east. The sward is a similar composition to that of T6; herbaceous species include locally abundant creeping buttercup and creeping cinquefoil with locally frequent red bartsia, greater plantain, white clover and frequent dandelion, black knapweed. Occasionally recorded species included bird's-foot-trefoil, common mouse-ear, meadowsweet *Filipendula ulmaria*, meadow buttercup, common toadflax, broad-leaved dock and meadow vetchling *Lathyrus pratensis*.

AMENITY GRASSLAND

- 5.36 Lawned area (T18) which is part of the garden associated with East Gawber Farm. The lawn is a typical perennial rye-grass mix with common species such as daisy, dandelion, greater plantain *Plantago major* and white clover.

MARSHY GRASSLAND

- 5.37 There are two areas of marshy grassland, an area to the north of the linear depression which runs through the eastern part of the site (T16) and an area associated with the outfall pipes (T17) at OS grid reference SE 34775 08664. T16 is dominated by great willowherb *Epilobium hirsutum*, with locally abundant water figwort *Scrophularia auriculata* and creeping buttercup with frequent nettle, cleavers, creeping thistle and occasional Yorkshire fog and broad-leaved dock. T17 comprises locally abundant water figwort and nettle with locally frequent great willowherb and creeping buttercup with frequent wavy bitter-cress and soft rush *Juncus effuses*.

SWAMP

- 5.38 Area of reed swamp with locally abundant great reedmace *Typha latifolia* and locally frequent yellow-flag *Iris pseudacorus* where water seasonally pools in the south of the site. Other species at the periphery of the swamp include gypsywort *Lycopus europaeus*, water figwort, wavy bitter-cress *Cardamine flexuosa*, creeping buttercup, creeping cinquefoil and curled dock *Rumex crispus*. There is some bramble scrub on the drier margins. Results of the HSI for the swamp was 0.66 (See Table 5)

Table 5: HSI for waterbody within proposed development site (03.05.17)

Waterbody Ref	Swamp
S11 - Location	1
S12 - Pond area	0.4
S13 - Pond drying	0.1
S14 - Water quality	0.67
S14 - Shade	1
S16 - Fowl	1
S17 - Fish	1
S18 - Ponds	0.7
S19 - Terr'l habitat	1
S110 - Macrophytes	0.8
HSI	0.66

WATERCOURSE

- 5.39 T18 is shown on the plan as a watercourse. This waterbody arises at an area where two culverts discharge, one appears to discharge surface water and the other sewage effluent. These outfall pipes lead to the area to the south of the site being periodically flooded resulting in an area of swamp. The channel is polluted and heavily shaded and there is no in-channel vegetation associated with it.

SCATTERED SCRUB

- 5.40 Scattered scrub throughout the site was mostly hawthorn with the occasional dog-rose and bramble underscrub.

BROADLEAVED WOODLAND

- 5.41 This feature (T19) is outside of the site boundary. Species include sycamore, silver birch, hawthorn, ash, goat willow, grey willow, English oak *Quercus robur* and sessile oak *Quercus petraea*.

HARD STANDING/BARE GROUND

- 5.42 Mostly comprises the Tarmacadam driveway to East Gawber Farm and areas of hardstanding for stored materials and a dirt track along the north western boundary of the western field of semi-improved pasture.

OTHER BOUNDARY FEATURES

- 5.43 Boundary features within and at the periphery of the site included stone walls, post and rail and post and wire fences.

FAUNA

- 5.44 Fauna recorded during the phase 1 habitat survey included meadow brown *Maniola jurtina*, large white *Pieris brassicae*, speckled wood *Pararge aegeria*, common blue *Polyommatus icarus*, common hawker *Aeshna juncea*, rabbits *Oryctolagus cuniculus*, St Marks fly *Bibio marci*, wood pigeon *Columba palumbus*, magpie *Pica pica*, crow *Corvus corone*, pheasant *Phasianus colchicus* and blackbird *Turdus merula*.

PROTECTED AND PRIORITY SPECIES

PLANTS/HABITATS

- 5.45 There are no protected or notable plants within the survey area.
- 5.46 Potential UK BAP, NERC S.41 and Local BAP priority habitats within the survey area include:
- hedgerows (UK BAP, S.41 & local BAP);
 - rivers and streams (UK BAP, S.41 & local BAP)
 - Semi-improved neutral grassland (local BAP)
- 5.47 Hedgerows are defined as any boundary line of trees or shrubs over 20m long and less than 5m wide, and where any gaps between the trees or shrub species are less than 20m wide. The hedgerow in the centre of the site would be considered a priority habitat.
- 5.48 As the watercourse is actually an open sewer it would not be classified as a priority habitat.
- 5.49 All unimproved and semi-improved grassland is considered important for biodiversity in Barnsley.

PROTECTED AND PRIORITY SPECIES

FAUNA

BATS

- 5.50 There are no buildings within the survey area, so there is no potential use of buildings by roosting bats. Individual trees within the site didn't have any roosting opportunities for bats and neither did the trees outside of the site adjacent to the survey area boundary. Many were of a similar age, obviously planted for screening the Stagecoach depot. All of the trees were of an insufficient girth to be considered suitable for roosting bats. The waterbody, scrub, hedgerows and woodland and woodland edges have the potential to provide foraging habitat and flyways for local bats. Bat activity surveys comprising transect surveys and the deployment of static detectors is ongoing and has been carried out once monthly from May and will continue until September. Preliminary results indicate that the majority of bats recorded within the survey area are common pipistrelle.

WATER VOLE

- 5.51 There is a watercourse within the site, but it is shaded, polluted with sewage effluent, has shallow unvegetated banks and is ecologically disconnected from surrounding watercourses as it is culverted upstream and downstream of the reach of watercourse. No field signs indicative of the presence of water vole were noted during the survey and the habitats on site are sub-optimal for water vole. Water vole are not considered an ecological constraint for the development.

OTTER

- 5.52 SBRC returned four records of otter from Old Mill Lane LWS to the south east of the site. The watercourse within the survey area provided no habitat suitable for otter and otter are not considered to be an ecological constraint for the development.

BADGER

- 5.53 There were two badger records a minimum of 1.5km from the site. There were no characteristic field signs of badger such as setts, latrines, hairs or footprints recorded within the site. Badger are a mobile species and could potentially colonise the area as there is suitable foraging habitat within the site and the surrounding area, but due to the paucity of records in the wider area and lack of field signs badger are not considered an ecological constraint for the development of the site.

AMPHIBIANS

- 5.54 The area of swamp and a wetland to the south of the site were surveyed for the presence of great crested newt during May and June 2017. The swamp was dry by the 3rd survey visit (3rd June 2017). No GCN were recorded during the course of the survey, with only common frog tadpoles found in the swamp and froglets and common toad tadpoles/ toadlets recorded in the wetland. The results of the survey are detailed in full in the Great Crested Newt and other Amphibian Species Survey Report (AES-LTD, 2017).

CRUSTACEANS

- 5.55 SBRC returned two records of white clawed crayfish from the River Dearne at Old Mill Lane LWS. The watercourse within the survey area does not provide habitat suitable for white-clawed crayfish and they are not considered an ecological constraint for the development.

BIRDS/NESTING BIRDS

5.56 Nine species of bird protected under Schedule 1 part 1 of the Wildlife & Countryside Act (1981) as amended are recorded within 2km of the site. However no protected bird species were recorded throughout the course of the breeding bird surveys undertaken in 2017. 40 species of bird were recorded during the course of the breeding bird surveys; of these species, 26 were confirmed, probable or possible breeders within the application site. This included eight species that are of conservation interest being listed on the UKBAP / NERC S.41 or are Birds of Conservation Concern (bullfinch, dunnock, house sparrow, mistle thrush, common whitethroat, linnet, song thrush and willow warbler). The avian fauna of the site is detailed in full in the breeding bird survey report (AES-LTD, 2017). The scrub, hedgerow, woodland and grassland provide good foraging and nesting habitat for birds and birds have been considered in the development plans.

TERRESTRIAL INVERTEBRATES

5.57 The desktop study revealed there were 19 records of terrestrial invertebrates comprising seven species that are UK BAP priority species. Species recorded in the area include dingy skipper *Erynnis tages*, small heath *Coenonympha pamphilus*, wall *Lasiommata meger*, buff ermine *Spilsova lutemu*, cinnabar *Tyria jacobaeae*, dusky brocade *Apamea remissa* and small square-spot *Diarsia rubi*. The grassland swards comprise fescues, bent and herbaceous species that are food plants for some of the more common and widespread BAP priority moth and butterfly species recorded in the wider area e.g. wall and small heath.

HEDGEHOG

5.58 SBRC holds one record of hedgehog within 2km from 2012. Hedgehogs are widespread mammals found in most lowland habitats, but are most commonly seen in areas where there is grassland close to woodland, scrub or hedgerow. Urban and suburban gardens have become particularly important to hedgehogs seeking food and nest sites. The site does provide foraging habitat suitable for hedgehogs if they accessed the site. The surrounding stone walls and fencing and busy roads surrounding the site could inhibit movement onto the site. The area has suitable habitat for foraging hedgehog but it is unlikely to be an important resource for the local population.

6.0 SUMMARY & RECOMMENDATIONS

SUMMARY

- 6.1 The desktop assessment indicates there are no sites of international nature conservation interest within 5km of the site.
- 6.2 There is one statutory site and two non-statutory designated sites within 2km of the site boundary. No negative impact is expected on any statutory or non-statutory sites of nature conservation interest as a result of the development of the site as there is no feasible mechanism by which the development of the site could negatively impact upon them.
- 6.3 The land off Wakefield Road supports a range of habitat types and has some potential for protected/priority species to be present. These include:
- foraging and commuting bats;
 - breeding/nesting birds;
 - common toad;
 - terrestrial invertebrates, and
 - hedgehog
- 6.4 Hedgerows are UK BAP, BAP and NERC S.41 priority habitats. Continuous native hedgerow such as T3 in the centre of the site fulfils the criteria to be considered a priority habitat and is of local conservation interest.
- 6.5 All semi-improved and unimproved grassland is considered to be of local importance for nature conservation in Barnsley. The semi-improved neutral grassland to the east of the site (T6) and associated features such as scrub etc. would be at least of local conservation interest.

RECOMMENDATIONS

- 6.6 It is recommended that any vegetation clearance be undertaken outside of the bird breeding season. This includes all ground level vegetation as well as scrub, hedgerows and standard trees. The bird breeding season can extend from March until August (inclusive), weather

and species depending, but generally birds have completed breeding by the end of July. Where vegetation clearance cannot be undertaken outside the bird breeding season, all such areas would be subject to a thorough walkover survey by a suitably qualified ecologist prior to any clearance or disturbance work being undertaken.

- 6.7 Impacts as a result of increased lighting will be mitigated by implementing a sensitive lighting regime. To minimise impact on foraging and commuting bats a sympathetic lighting strategy which avoids strong illumination of the hedgerows and tree lines will be implemented. The Institute of Lighting Engineers and The Bat Conservation Trust (BCT & ILE 2008) have produced guidance on lighting to minimise impact on bats and an excerpt is reproduced below.

2. FORAGING AND COMMUTING

Type of lamp (light source)

The impact on bats can be minimised by the use of low pressure sodium lamps or high pressure sodium instead of mercury or metal halide lamps where glass glazing is preferred due to its UV filtration characteristics.

Luminaire and light spill accessories

Lighting should be directed to where it is needed and light spillage avoided. This can be achieved by the design of the luminaire and by using accessories such as hoods, cowls, louvres and shields to direct the light to the intended area only. Planting can also be used as a barrier or man-made features that are required within the build can be positioned so as to form a barrier.

Lighting column

The height of lighting columns in general should be as short as is possible as light at a low level reduces the ecological impact. However, there are cases where a taller column will enable light to be directed downwards at a more acute angle and thereby reduce horizontal spill. For pedestrian lighting this can take the form of low level lighting that is as directional as possible and below 3 lux at ground level. The acceptable level of lighting may vary dependent upon the surroundings and on the species of bat affected.

Predicting where the light cone and light spill will occur

There are lighting design computer programs that are widely in use which produce an image of the site in question, showing how the area will be affected by light spill when all the factors of the

lighting components listed above are taken into consideration. This should be a useful tool to inform the mitigation process.

Light levels

The light should be as low as guidelines permit. If lighting is not needed, don't light.

Timing of lighting

The times during which the lighting is on should be limited to provide some dark periods. Roads or trackways in areas important for foraging bats should contain stretches left unlit to avoid isolation of bat colonies. These unlit stretches should be 10 metres in length either side of commuting route.

- 6.8 Pollution of waterbodies will be avoided and the water quality improved considerably by preventing raw sewage effluent from entering the culverted stream within the site.
- 6.9 A new species-rich hedgerow / 10m width woodland buffer will be planted up on the northern boundary of the site to maintain habitat connectivity around the site, create a new bat flyway and to provide foraging and nesting habitat for breeding birds.
- 6.10 The existing hedgerow features being retained will be appropriately managed. This will involve gapping-up existing hedgerows to maintain habitat connectivity around the site and improve them as bat flyways.
- 6.11 Native species of local provenance will be incorporated into the landscape scheme when choosing species for specimen trees, hedgerows and shrub beds.
- 6.12 The creation of a SUDS pond and drainage will be implemented appropriate to the scheme. The SUDS pond will be planted up with native species of local provenance. The biodiversity will be enhanced further by surrounding the SUDS features with species-rich wildflower meadow/marshy grassland species. Emorsgate seeds have a seed mix that would be suitable for this purpose called EM8F – Wild flowers for wetlands (<https://wildseed.co.uk/mixtures/view/31>). EM8F contains wild flower species suitable for seasonally wet soils and is based on the vegetation of traditional water meadows. Soils in wet meadows may flood for short periods in winter, but are usually well drained in summer.

6.13 All garden fences (if fences are the chosen boundary feature) will incorporate hedgehog highways i.e. 13cm x 13cm gaps at the bottoms of the fences to provide connectivity across the gardens for foraging hedgehogs.

6.14 The final housing layout is not available at present but it is recommended that 5 houses along the south western boundary and 5 houses on the south eastern boundary, with a suitable south or west facing gable end have bat boxes integrated into them. Bat boxes such as the Istock enclosed bat box 'C' would be ideal. This bat box is designed for the pipistrelle bat and is self-contained. It is ideal for new builds as it can be integrated directly into the brickwork to produce a discrete but attractive home for bats. The inside of the box is designed to create several roosting zones which are ideal for crevice dwelling bats such as the pipistrelle. The bottom entrance means that no maintenance is required as dropping simply fall out the bottom. This box is available in two sizes (Small Box - 215 x 215mm, Large Box - 215 x 290mm) in smooth red, smooth blue or smooth cream brick. This box is durable and fully frost resistant.



6.15 Bird nesting facilities will be incorporated into the fabric of the buildings. It is recommended that 'good quality' boxes are installed into the properties. X8 Sparrow terraces will be installed (www.birdbrickhouses.co.uk / www.habibat.co.uk / or woodcrete / Schwegler 1SP), X4 starling nest box (50mm aperture) will be installed (www.birdbrickhouses.co.uk / www.habibat.co.uk or woodcrete Schwegler 1S). AES-LTD to advise on the installation of bird boxes

6.16 Areas of species-rich semi-improved grassland will be retained and some of the area within the linear depression that has a high proportion of ruderal species such as creeping thistle will be enhanced by creating additional wildflower areas and features to benefit local biodiversity. Early, mid and late flowering plant species should be used to provide pollen, nectar, food and shelter for birds, invertebrates and small mammals over a long growing season.

- 6.17 Site clearance has the potential to impact on hedgerows, plantation woodland and individual trees where they are being retained. Adhering to the guidelines in British Standard BS 5837: 2012 Trees in relation to design, demolition and construction is recommend in situations such as this, in particular implementing measures to prevent root damage, for example, protective measures to prevent heavy plant vehicles etc. from entering the root protection area. This usually involves identifying the root protection area and erecting a protective barrier around the trees, hedgerow or woodland to be retained.

APPENDIX 1 PHOTOGRAPHS



Photograph 1 Improved pasture (T1) and defunct hedgerow (T3).



Photograph 2 Woodland (T19), swamp (T15) and dense scrub (T10).



Photograph 3 Hedgerow (T3).



Photograph 4 Semi-improved pasture (T6) and hedgerow (T3).



Photograph 5 Semi-improved pasture (T13) and defunct hedgeline (T14).





