



Harworth Group

Rockingham Business Park, Barnsley

Breeding Bird Survey Report

June 2020

FPCR Environment and Design Ltd

Registered Office: Lockington Hall, Lockington, Derby DE74 2RH

Company No. 07128076. [T] 01509 672772 [F] 01509 674565 [E] mail@fpcr.co.uk [W] www.fpcr.co.uk

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1.0 INTRODUCTION

- 1.1 The following report has been prepared by FPCR Environment & Design Ltd. on behalf of Harworth Group Ltd and details the results of a suite of breeding bird surveys carried out on land to the west of Shortwood Business Park in Barnsley, South Yorkshire (central grid ref: SE 356 010). This report should be read in conjunction with the Ecological Appraisal for the site which includes the results of an extended phase 1 habitat survey. This report supersedes earlier bird surveys at the site, although may be read in conjunction with the earlier 2016 report.

Site Location and Context

- 1.2 The site includes parcels of land to the north and south of the A6195 dual carriageway consisting of a former colliery restored to arable and improved pasture with associated native hedgerows and plantation broad-leaved woodland. An attenuation pond and associated semi-improved grassland are in the southwest and further limited parcels of semi-improved grassland are associated with plantation margins.
- 1.3 In terms of surrounding habitats, the existing residential development of Birdwell is situated to the north-west and to the south the more extensive residential area of Hoyland. Junction 36 of the M1 Motorway lies less than 600m to the west. The surrounding land use is largely arable and pasture with an area of broad-leaved semi-natural woodland to the north.

Development Proposals

- 1.4 Proposals are for a business park development comprising warehousing with associated parking, lorry compounds and infrastructure.

Survey Objectives

- 1.5 The Breeding Bird Surveys were carried out during April - June 2020. The objectives of the survey were to:
- Identify the presence, species and distribution of breeding birds on the site;
 - Evaluate the conservation importance of habitats on site to local bird populations and identify any areas of ornithological interest and;
 - Make recommendations to minimize the potential impact of development and where feasible to consider opportunities for additional habitat creation.

Legislation & Status

Legislation

- 1.6 The Wildlife and Countryside Act 1981 (as amended) is the principal legislation affording protection to UK wild birds. Under this legislation all birds, their nests and eggs are protected by law and it is an offence, with certain exceptions to recklessly or intentionally:
- Kill, injure or take any wild bird;
 - Take, damage or destroy the nest of any wild bird while in use or being built;
 - Take or destroy the egg of any wild bird.
- 1.7 Species listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) are specially protected at all times. This extends their protection whereby they are protected against intentional disturbance whilst building or occupying a nest, and against disturbance of dependent young.
- 1.8 Certain species have also been identified Priority Species under Schedule 41 of the Natural Environment and Rural Communities (NERC) Act (2006)¹, some of which are listed on the Barnsley Biodiversity Action Plan².

Status

- 1.9 In addition to statutory protection, some bird species are classified according to their conservation status, such as their inclusion on the Red and Amber lists of Birds of Conservation Concern (BoCC) in the UK³:
- Red list (high conservation concern) species are those that are globally threatened according to IUCN criteria; those whose population has declined rapidly (50% or more) in recent years; and those that have declined historically and not shown a substantial recent recovery.
 - Amber list (medium conservation concern) species are those with an unfavourable conservation status in Europe; those whose population or range has declined moderately (between 25% and 49%) in recent years; those whose population has declined historically but made a substantial recent recovery; rare breeders; and those with internationally important or localised populations.
 - Green list (low conservation concern) species fulfil none of the above criteria.

1 <https://www.nhm.ac.uk/our-science/data/uk-species/checklists/NHMSYS0020515439/index.html>

2 <http://www.barnsleybiodiversity.org.uk/birds.html>

3 Eaton MA, Aebischer N, Brown A, Hearn R, Lock L, Musgrove A, Noble D, Stroud D and Gregory RD (2016) Birds of Conservation Concern 4: the population status of birds in the United Kingdom, Channel Islands and the Isle of Man. British Birds 108, pp708-746

2.0 METHODOLOGY

Desk Study

2.1 In order to compile existing baseline information, a desktop survey was undertaken for existing ecological data regarding statutorily and non-statutorily habitats / sites of interest to nature conservation and protected bird species. The following organisations were contacted:

- Multi Agency Geographic Information for the Countryside (Magic) website⁴
- Rotherham Biological Records Centre (RBRC)⁵

Field Survey

Breeding Bird Survey

2.2 The survey methodology employed was broadly based on that of territory mapping⁶ as used for the British Trust for Ornithology (BTO) Common Bird Census (CBC). Standard BTO species codes and symbols for bird activities were used to identify birds and denote activity, sex and age where appropriate. Birds were considered to be holding a territory and therefore likely to be utilizing the site for breeding activities if they were displaying breeding behaviours, such as: singing, nest building, food carrying or territorial defence. If birds did not display such behaviours, e.g. they were only recorded flying over the site, they were considered non breeders. Breeding evidence used in this report follows EOAC guidelines 1979, as shown in Appendix A.

2.3 To provide a reasonable level of accuracy for determining the population status of the breeding birds on the site, three surveys were undertaken between 05.00 and 11.00 during April, May and June 2020. A route was mapped out prior to the surveys being undertaken, paying attention to any linear features, such as hedgerows and tree lines, and natural features such as areas of scrub and woodland. Bird surveys were not undertaken in unfavourable conditions, such as heavy rain or strong wind, which may negatively affect the results. Table 1 below provides relevant survey details.

Table 1: Breeding Bird Survey Dates, Weather Conditions and Surveyor Details

Survey	Date	Surveyor	Cloud (%)	Rain	Wind ⁷	Visibility
1	09.04.2020	Matt Falconer Assistant Ecologist BSc Conservation Biology and Ecology, MSc Species Identification and Survey Skills.	100	None	2 (Light breeze)	Very good

⁴ <http://www.magic.defra.gov.uk/>

⁵ <https://www.rotherham.gov.uk/environment-waste/rotherham-biological-records-centre?documentId=351&categoryId=20009>

⁶ Bibby, C.J., N.D. Burgess & D.A. Hill, 2000: Bird Census Techniques: 2nd Edition. London: Academic Press

⁷ "Beaufort wind force scale". Met Office. Retrieved 27 November 2015.

Survey	Date	Surveyor	Cloud (%)	Rain	Wind ⁷	Visibility
2	04.05.2020	Hollie Fisher Assistant Ecologist BSc Wildlife Conservation	100	None	1 (Light air)	Very good
3	01.06.2020	Edward Winfield Ecologist BSc Zoology	0	None	3 (Gentle breeze)	Very good

Species & Assemblage Assessment

- 2.4 The Chartered Institute of Ecology and Environmental Management (CIEEM) guidance on ecological impact assessment assesses nature conservation importance within a geographical context⁸. To attain each level of importance, an ornithological resource or one of the features (species population or assemblage of species) should meet the criteria set out in Table 2. In some cases, professional judgment may be required to increase or decrease the allocation of importance, based upon local knowledge
- 2.5 The county annual bird report, the *Yorkshire Bird Report 2013*⁹ was consulted to inform the assessment. The abundance of species referred to by these reports is classified by the following criteria:
- Very rare – Fewer than ten records ever;
 - Rare – Ten or more records ever, but less than annual;
 - Scarce – Fewer than ten birds occurring or pairs breeding annually;
 - Uncommon – Between ten and 100 birds occurring or pairs breeding annually;
 - Fairly common – Between 100 and 1000 birds occurring or pairs breeding annually;
 - Common – Between 1000 and 10,000 birds occurring or pairs breeding annually;
 - Abundant – More than 10,000 birds occurring or pairs breeding annually.

⁸ http://www.cieem.net/data/files/Publications/EcIA_Guidelines_Terrestrial_Freshwater_and_Coastal_Jan_2016.pdf

⁹ Yorkshire Naturalists' Union. The Yorkshire Bird Report 2013

Table 2: Evaluation Criteria

Nature Conservation Value	Examples of Selection Criteria
International	A species which is part of the cited interest of an SPA and which regularly occurs in internationally or nationally important numbers. A species present in internationally important numbers (>1% of international population).
National	A species which is part of the cited interest of a SSSI and which regularly occurs in nationally or regionally important numbers. A nationally important assemblage of breeding or over-wintering species. A species present in nationally important numbers (>1% UK population). Rare breeding species (<300 breeding pairs in the UK).
Regional	Species listed as being of principal importance under NERC S.41 which are not covered above, and which regularly occurs in regionally important numbers. Species present in regionally important numbers (>1% of regional population). Sustainable populations of species that are rare or scarce within a region. Species on the BoCC Red List & which regularly occur in regionally important numbers.
County	Species listed as being of principal importance under NERC S.41 which are not covered above and which regularly occurs in county important numbers Species present in county important numbers (>1% of county population). Sustainable populations of species that are rare or scarce within a county, or are listed as being of principle importance under S41 of the NERC Act. A site designated for its county important assemblage of birds (e.g. a SINC Site). Species on the BoCC Red List & which regularly occur in county important numbers.
Local	Other species of conservation interest (e.g. all other species on the BoCC Red and Amber List or species listed as being of principal importance under NERC S.41 which are not covered above) regularly occurring in locally sustainable populations. Sustainable populations of species which are rare or scarce within the locality.
Site	Species that are common and widespread

3.0 RESULTS AND EVALUATION

3.1 Species hereinafter referred to as ‘notable’ species occur on one or more of the following lists as detailed in Section 1 – Legislation and Status.

- Schedule 1 of the Wildlife & Countryside Act 1981 (as amended)
- BoCC Red or Amber lists
- Section 41 of the NERC Act 2006

Desk Top Study

Designated Sites & Protected Species

3.2 The details of all designated sites & protected species records within the appropriate search areas are provided in the associated Ecological Appraisal and Environmental Impact Assessment Chapter.

3.3 There are no sites (within the search area) that are designated as a result of the bird populations they support. However, a number of ‘notable’ species records area were provided from within the search by RBRC, which are listed in Appendix B¹⁰. Many of these records originate from the following four designated sites, each of which are noted for their breeding bird populations. Habitats predominately shared with site are plantation woodland and grassland.

- Potter Holes Plantation LNR (located approximately 1.3km to the south) - Semi mature plantation woodland.
- Worsborough Country Park LNR (approximately 1.5km to the north) - Extensive reed bed, scrub fen, grasslands and ancient woodland.
- Short wood and Hay Green LWS (50m north) - Ancient woodland and semi-improved neutral grassland
- Barrow Colliery LWS (700m north-east) - Ancient woodland and semi-improved neutral grassland

Field Survey

Summary

3.4 A total of 44 bird species were recorded on site (Appendix A), 13 of which are ‘notable’ species. Table 3 provides a summary of the notable bird species recorded whilst their distribution on site is illustrated on Figure 1.

3.5 Of the 44 species recorded during breeding bird surveys, six (moorhen *Gallinula chloropus*, great tit *Parus major*, willow warbler *Phylloscopus trochilus*, blackcap *Sylvia atricapilla*, wren *Troglodytes troglodytes* and robin *Erithacus rubecula*) were confirmed as breeding, which are all (with the exception of willow warbler) BoCC Green-listed species (low conservation concern).

3.6 Thirteen species were considered probable breeders, including Skylark *Alauda arvensis*, song thrush *Turdus philomelos*, dunnoek *Prunella modularis*, and bullfinch *Pyrrhula pyrrhula*. The remaining nine probable breeding species were all BoCC Green-listed species (low conservation concern).

¹⁰ Notable species records include all those from the year 2000 onwards, and include descriptive locations for each species

3.7 The remaining 25 species recorded were considered possible breeders (17) or non-breeders (8).

Table 3: Protected, Species of Principal Importance and BoCC Red and Amber Listed Bird Species Recorded during Breeding Bird Surveys 2020, and their Recent Status within Yorkshire

Species	Legal/ Conservation status	Maximum Count / Number of Survey Occasions Recorded	Breeding Status on site	Recent Status in Yorkshire ¹¹
Lapwing	Red List, NERC ACT (S41)	1 / 2	Possible	Uncommon breeding resident and common passage migrant
Black-headed Gull	Amber List	33 / 3	Non- breeder	Common breeder
Cuckoo	Red List, NERC ACT (S41)	1 / 1	Possible	Uncommon breeding summer visitor
Kestrel	Amber List,	1 / 2	Non- breeder	Fairly common resident and passage migrant
Skylark	Red List, NERC ACT (S41)	5 / 3	Probable	Common resident and passage migrant
Willow warbler	Amber List	7 / 3	Confirmed	Common to abundant breeding summer visitor and passage migrant
Starling	Red List, NERC ACT (S41)	26 / 1	Non- breeder	Abundant resident and passage migrant
Song thrush	Red List, NERC ACT (S41)	5 / 3	Probable	Common resident and passage migrant
Mistle thrush	Red List	1 / 1	Possible	Common resident and scarce passage migrant
Dunnock	Amber List NERC ACT (S41)	9 / 3	Probable	Abundant resident and passage migrant
Meadow pipit	Amber List	14 / 2	Possible	Common resident and passage migrant
Bulfinch	Amber List, NERC ACT (S41)	4 / 3	Probable	Uncommon breeder and scarce passage migrant
Linnet	Red List, NERC ACT (S41)	7 / 3	Possible	Common resident and passage migrant

¹¹ Yorkshire Naturalists' Union. The Yorkshire Bird Report 2013

Bird Survey Results Description

- 3.8 Many habitats are of recent origin, having been created as part of a restoration scheme of the former colliery site. Habitats on site include areas of improved pasture, recent plantation woodland/scrub and open water with associated reeds/ephemeral habitats. The following provides a summary of the breeding bird assemblages recorded during the breeding bird surveys within these different habitat types present on site.
- 3.9 Field compartments on site (comprising **grassland** and **improved pasture**) provided limited breeding opportunities for birds, however a small number of skylark were recorded and are considered probable breeders on site, intensive cattle grazing and field compartments being of a less open panoramic are likely causes for reduced suitability compared with other farmland landscapes.
- 3.10 The grassland provided suitable foraging habitat for kestrel *Falco tinnunculus*, meadow pipit *Anthus pratensis* (expected to have been migrating toward upland / moorland areas to breed) and black-headed gull *Chroicocephalus ridibundus*. Various common and widespread non-listed – green listed corvid, gamebird and columbid species were also recorded throughout.
- 3.11 A single lapwing *Vanellus vanellus*, exhibiting no signs of breeding was recorded on two of the survey occasions in the most easterly field compartment (cattle grazed pasture).
- 3.12 **Woodland**, the vast majority of which is young mixed plantation offered suitable foraging and nesting habitat to a range of common and widespread generalist and woodland specialist species including long-tailed tit *Aegithalos caudatus*, robin, blackbird *Turdus merula* magpie *Pica pica*, chaffinch *Fringilla coelebs*, great tit, blue tit *Parus caeruleus* and coal tit *Periparus ater*. Notable species regularly recorded in association with woodland included song thrush and bullfinch for which breeding evidence (including singing males, pairing, and territory establishment was recorded).
- 3.13 A male cuckoo *Cuculus canorus* was also heard calling from a woodland compartment; cuckoo inhabit a wide range of habitats in order to make maximum use of potential brood hosts. Of its four main hosts in England, none were confirmed as breeding on site.
- 3.14 Due to its age, the woodland was lacking in features suitable for cavity nesting species such as great spotted woodpecker *Dendrocopos major*, nuthatch *Sitta europaea* etc, but its thicket like nature and damp undergrowth provided excellent breeding opportunities for inconspicuous species such as blackcap *Sylvia atricapilla* (carrying food), willow warbler (carrying food) and wren (visiting probable nest site), all confirmed breeders on site.
- 3.15 **Hedgerows** and **scrub** habitats across the site provided nesting and foraging opportunities for many of the generalist species mentioned above although were favoured by linnet *Linaria cannabina* and dunnoek in particular, which were regularly recorded across site (more often along site boundaries) in small numbers.
- 3.16 Grey heron *Ardea cinerea* and a moorhen with young were the only wetland species recorded in association with the **waterbody** (P1) on site. The waterbody was densely fringed with common reed *Phragmites australis*, and evidently provides suitable nesting habitat for species such as reed bunting *Emberiza schoeniclus* and mallard *Anas platyrhynchos* (previously recorded here during surveys carried out by FPCR in 2016).

- 3.17 Other notable species recorded using onsite habitats during breeding bird surveys included a single flock of 26 starling *Sturnus vulgaris* (including juveniles) in May. This species is seemingly breeding in residential properties to the south of site, and whilst the site provides suitable foraging resources it does not provide sufficient breeding habitat (tree cavities).

Evaluation

Breeding Assemblages

- 3.18 Grassland habitats (including improved pasture) and their associated field margins provide suitable foraging and/or breeding habitat for small numbers of notable farmland species, comprising lapwing, skylark and linnet. As a result, the site is considered to be of **Site** level importance (i.e. Immediate zone of Influence) for the breeding farmland bird assemblage it supports.
- 3.19 Field compartments such as that on site are heavily influenced by agricultural management which effects the suitability of in-field nesting habitat for a number of farmland bird species, including skylark, which were also incidentally recorded in surrounding fields.
- 3.20 Hedgerows, scrub and woodland on site are of the greatest value on site for breeding birds, providing an abundance of suitable breeding and/or foraging habitat for a range of generalist and specialist woodland bird species, all of which are fairly common to abundant in Yorkshire (with the exception of cuckoo and bullfinch which are both uncommon). The site is considered to support a woodland bird assemblage of **Local** Nature Conservation Value.
- 3.21 No rare or scarce species were recorded, and numbers of breeding individuals (applicable to all species) were not considered to be significant.
- 3.22 Habitats were otherwise of negligible value for breeding birds, with species recorded in small numbers, recorded flying over the site only (e.g. buzzard *Buteo Buteo*), were noted in unsuitable breeding habitats and/or are considered common and widespread breeding species. These individual species that make use of the available habitats are recognised as being important at **Site** level.

4.0 DISCUSSION AND RECOMMENDATIONS

- 4.1 The following section provides an assessment the potential impacts of the proposals upon breeding birds. Where appropriate, recommendations are provided for mitigation and enhancement that take account of the likely ecological effects. Throughout the evaluation, any recommendations for mitigation have been informed by the most up-to-date Development Framework Plan.
- 4.2 All grassland habitat is to be lost, along with large amounts of plantation woodland. Woodland habitat will be retained wherever possible, extraneous to the facilitation and accommodation of offices, access roads and car parking.
- 4.3 The proposed business park development will include woodland and scrub planting, along with attenuation facilities with appropriate marginal vegetation.
- 4.4 The recommendations below have been given with the aim of informing development proposals on how to best maintain the conservation status of bird species present.

Impact Assessment of the Breeding & Overwintering Birds

- 4.5 The potential impact of the loss or change of habitat upon breeding bird species arising from the effects of development is based upon an understanding of each species' ecological requirements, the type of development, number of birds recorded on site, their nature conservation criteria based on legislation and current guidance, their county status according to *The Yorkshire Bird Report 2013* and professional judgement.
- 4.6 The following potential impacts to the recorded bird populations and assemblage may result from the proposals:
- Direct loss / change of breeding habitat
 - Disturbance during construction and/or operation

Habitat Loss

- 4.7 The individual species recorded on site that are arguably the most vulnerable to impacts from habitat loss/change are the 13 notable species that are either specially protected, appear on the BoCC Red list and/or are listed as a NERC Priority Species.
- 4.8 The loss of grassland habitat will inevitably lead to the loss of skylark as a probable breeding species on site and will no longer offer suitable habitat for lapwing (recorded singularly). A reduction in suitability of the site is also anticipated for linnet. Given that the farmland bird assemblage was recorded fairly sporadically, and in relatively small numbers, any losses of suitable habitat are considered minor adverse impacts.
- 4.9 The loss of these habitats will also nullify the availability of foraging resources for meadow pipit, kestrel and black-headed gull. Due to the limited breeding opportunities available on site for these species, related impacts would be considered negligible. Alternatively, starling will readily make use of the new man-made environs.
- 4.10 Retained woodland and the introduction of green infrastructure will continue to provide suitable foraging and nesting habitats for the generalist and specialist woodland species recorded

including song thrush, mistle thrush *Turdus viscivorus*, dunnock, and bullfinch which will habituate to human disturbance to some degree.

- 4.11 Habitat creation is to include wetland features that will provide compensatory foraging opportunities for the range of generalist species recorded while also providing potential habitat for additional species such as reed bunting *Emberiza schoeniclus* (recorded only in 2006). Indeed, a number of notable species are likely to benefit from the proposals, including house sparrow (incidentally recorded in the wider area).
- 4.12 It is considered that overall loss of usable habitat as a result of development will result in negligible impacts for the vast majority of bird species recorded, and no significant effects on breeding farmland bird or woodland bird populations / assemblages are expected in context of the wider area (outside that of the immediate zone of influence).

Disturbance Impacts

- 4.13 Construction operations have the potential to disturb birds using the site for roosting, foraging, and breeding. Operations likely to disturb breeding birds include noise from vegetation clearance, initial ground works and some construction activities, such as piling, which are of low frequency but of high amplitude. Active, high level, infrequent disturbance causes most birds to be displaced for short periods¹². During the breeding season disturbance may lead to nest desertion or the avoidance of the area and reduce the suitability of remaining nesting areas.
- 4.14 Whilst there is some potential for breeding success to be reduced in the short to mid-term, this is not expected to affect the local conservation status of any of the bird species using the site for breeding.

Mitigation

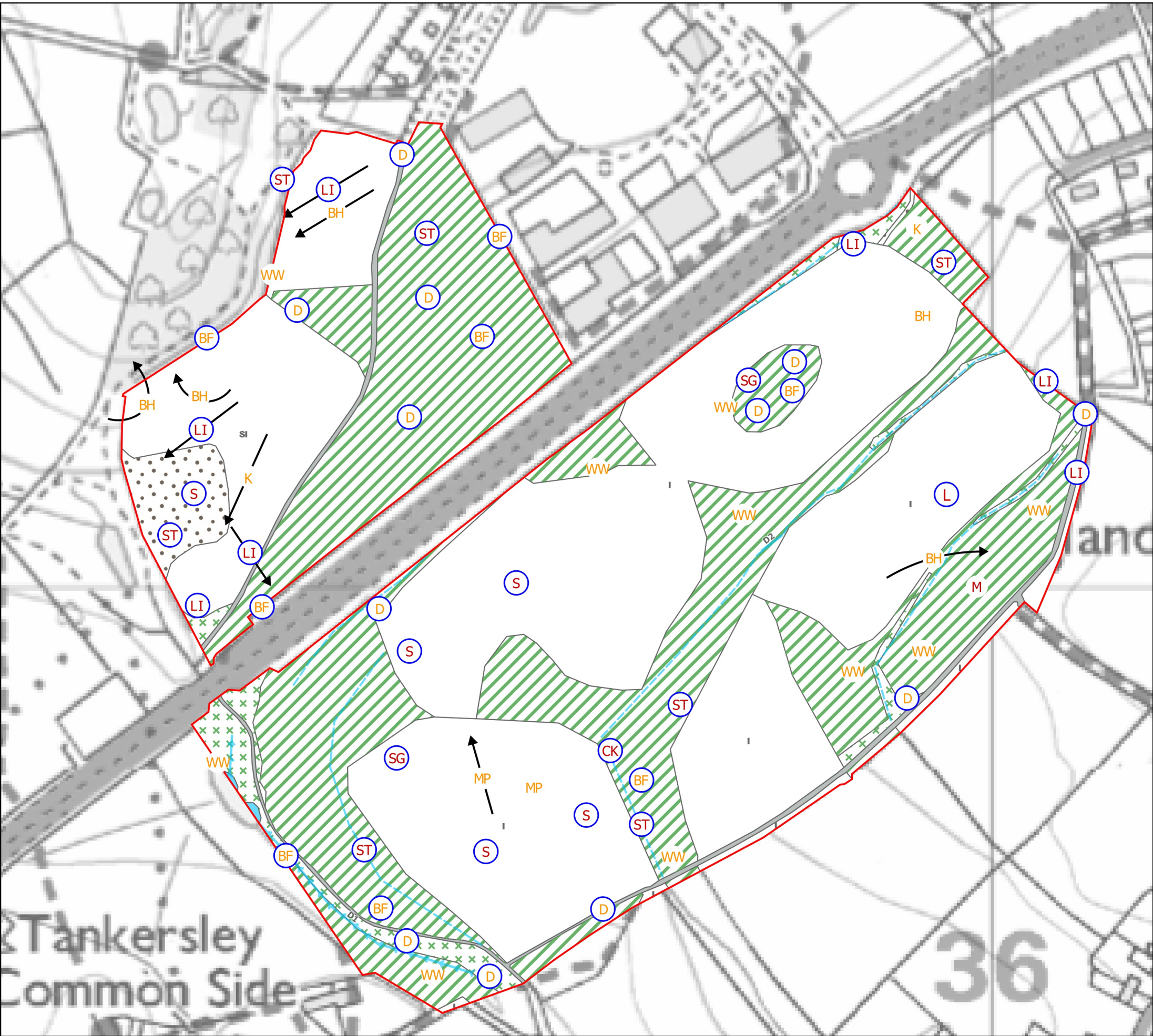
- 4.15 To avoid disturbance to breeding birds, ground clearance works and vegetation will be undertaken prior to the bird-breeding season (March to August, inclusive). If this is not possible, the area will be checked prior to removal of vegetation or ground works by an experienced ecologist. If active nests are found, vegetation will be left untouched and suitably buffered from works until all birds have fledged. Specific advice will be provided prior to undertaking the clearance. This would be a statutory requirement due to the protection of all nesting birds and their nests under the Wildlife and Countryside Act, 1981. A suitably qualified ecologist would supervise this.

Enhancements

- 4.16 Tree and scrub planting which forms a large part of the sites green infrastructure proposals will provide foraging and breeding habitat for a range of bird species. Where possible it is recommended that native, fruit bearing species of local origin are incorporated, in order to provide an optimal foraging resource for a range of bird species recorded, particularly bullfinch, and the thrush species.

¹² Hockin, D., Ounsted, M., Gorman, M., Hill, D., Keller, V., and Barker, M. 1992 Examination of the effects of disturbance on birds with reference to the role of environmental impact assessments. *Journal of Environmental Management*, 36, 253–286

- 4.17 Attenuation features should be planted with an appropriate marginal vegetation mix that includes common reed *Phragmites australis*. This will provide good nesting opportunities for reed bunting and encourage onsite breeding by this species.
- 4.18 Additional enhancements that should be integrated into on-going site management include the erection of a mixture of nest box types to support bird species recorded during field surveys, and / or records received as part of the desk top study.
- 4.19 The following provides details of suitable nest box types to be erected at suitable locations. If suitable locations are not readily available on site for whatever reason, a donor site might be sought following permission from a third-party, with Hay Green LWS a potential candidate for the instalment of nest boxes. Although not recorded on site, a specialised willow tit nest box might make a worthy contribution here (for willow tit *Poecile montanus* as an uncommon, red listed, highly sedentary notable species)
- A mixture of small hole (26mm and 32mm) boxes placed along the retained habitat around the proposed development area will provide nesting opportunities for blue tit and great tit. These boxes generally have a high uptake rate;
 - Small open fronted nest boxes again should be placed throughout the site especially on trees which support a climber such as ivy which provides a degree of concealment. These boxes typically attract robin and blackbird;
 - A Stock dove *Columba oenas* nest box should be placed within the more established boundary habitats including mature tree standards and a kestrel nest-box should be considered adjacent preferred (grassland) foraging habitat to encourage breeding.
 - Given the urbanised nature of the proposed development, opportunities exist to encourage species including house sparrow *Passer domesticus*, starling, house martin *Delichon urbicum*, swallow *Hirundo rustica* and swift *Apus apus* to breed, for which artificial nests / boxes could be provided.



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Key

Site Boundary

Species Recorded in Flight Only

BoCC Red-Listed Species

CK Cuckoo

L Lapwing

LI Linnet

M Mistle Thrush

S Skylark

ST Song Thrush

SG Starling

BoCC Amber-Listed Species

BH Black-headed Gull

BF Bullfinch

D Dunnock

K Kestrel

MP Meadow Pipit

WW Willow Warbler

Additional Protections

 NERC Species of Principal Importance

 Schedule 1 Species

**Appendix A: Breeding Bird Survey Results (2020) & EOAC Criteria for
Categorisation of Breeding Status**

Vernacular (British) Name	Scientific Name	Number Recorded			Conservation Status	Breeding status ¹
		Survey 1	Survey 2	Survey 3		
Red-legged partridge	<i>Alectoris rufa</i>	2	-	-	Not listed	Possible (H)
Pheasant	<i>Phasianus colchicus</i>	3	2	1	Not listed	Possible (H)
Grey heron	<i>Ardea cinerea</i>	1	-	1	Green list	Non-breeder (UH)
Sparrowhawk	<i>Accipiter nisus</i>	-	-	1	Green list	Possible (H)
Buzzard	<i>Buteo buteo</i>	2	-	2	Green list	Possible (H)
Moorhen	<i>Gallinula chloropus</i>	1	-	4	Green list	Confirmed (FL)
Lapwing	<i>Vanellus vanellus</i>	1	-	1	Red list NERC S.41	Possible (H)
Black-headed gull	<i>Chroicocephalus ridibundus</i>	33	1	3	Amber list	Non-breeder (UH)
Rock dove/Feral pigeon	<i>Columba livia</i>	-	-	22	Green list	Non-breeder (UH)
Woodpigeon	<i>Columba palumbus</i>	39	34	14	Green list	Probable (P)
Cuckoo	<i>Cuculus canorus</i>	-	1	-	Red list NERC S.41	Possible (S)
Great spotted woodpecker	<i>Dendrocopos major</i>	1	1	-	Green list	Non-breeder (UH)
Kestrel	<i>Falco tinnunculus</i>	1	-	1	Amber list	Non-breeder (UH)
Magpie	<i>Pica pica</i>	5	12	12	Green list	Probable (P)
Jay	<i>Garrulus glandarius</i>	1	-	2	Green list	Possible (H)
Jackdaw	<i>Corvus monedula</i>	2	2	7	Green list	Possible (H)
Rook	<i>Corvus frugilegus</i>	-	13	-	Green list	Non-breeder
Carrion crow	<i>Corvus corone</i>	13	5	10	Green list	Possible (H)
Goldcrest	<i>Regulus regulus</i>	-	2	-	Green list	Possible (S)
Blue tit	<i>Cyanistes caeruleus</i>	13	10	5	Green list	Probable (P)
Great tit	<i>Parus major</i>	10	6	11	Green list	Confirmed (FL)

¹ European Ornithological Atlas Committee, 1979. Categories of Breeding Bird Evidence. European Ornithological Atlas Committee.

Coal tit	<i>Periparus ater</i>	-	6	2	Green list	Possible (H)
Skylark	<i>Alauda arvensis</i>	3	5	2	Red list NERC S.41	Probable (P)
Swallow	<i>Hirundo rustica</i>	-	-	3	Green list	Non-breeder (UH)
Long-tailed tit	<i>Aegithalos caudatus</i>	3	12	13	Green list	Probable (P)
Chiffchaff	<i>Phylloscopus collybita</i>	9	7	5	Green list	Probable (T)
Willow warbler	<i>Phylloscopus trochilus</i>	4	3	7	Amber list	Confirmed (FF)
Blackcap	<i>Sylvia atricapilla</i>	2	6	8	Green list	Confirmed (FF)
Whitethroat	<i>Sylvia communis</i>	-	5	-	Green list	Possible (S)
Nuthatch	<i>Sitta europaea</i>	-	2	-	Green list	Possible (S)
Wren	<i>Troglodytes troglodytes</i>	22	3	12	Green list	Confirmed (ON)
Starling	<i>Sturnus vulgaris</i>	-	26	-	Red list NERC S.41	Non-breeder (UH)
Blackbird	<i>Turdus merula</i>	14	6	8	Green list	Probable (P)
Song thrush	<i>Turdus philomelos</i>	1	5	3	Red list NERC S.41	Probable (T)
Mistle thrush	<i>Turdus viscivorus</i>	-	1	-	Red list	Possible (S)
Robin	<i>Erithacus rubecula</i>	22	12	12	Green list	Confirmed (FL)
Dunnock	<i>Prunella modularis</i>	9	6	4	Amber list NERC S.41	Probable (P)
Pied wagtail	<i>Motacilla alba</i>	-	2	-	Green list	Possible (H)
Meadow pipit	<i>Anthus pratensis</i>	14	3	-	Amber list	Possible (H)
Chaffinch	<i>Fringilla coelebs</i>	2	9	5	Green list	Probable (T)
Bullfinch	<i>Pyrrhula pyrrhula</i>	4	3	3	Amber list NERC S.41	Probable (P)
Greenfinch	<i>Chloris chloris</i>	7	1	1	Green list	Probable (P)
Linnet	<i>Linaria cannabina</i>	3	2	7	Red list NERC S.41	Possible (H)
Goldfinch	<i>Carduelis carduelis</i>	9	3	6	Green list	Probable (P)
Total No. of Species (44)		32	34	33		

Breeding Status evidence can be broken down into four sections, each with their own codes, as defined by the European Ornithological Atlas Committee:

Confirmed breeder -

- Distraction display or injury feigning (DD)
- Used nest or eggshells found from this season (UN)
- Recently fledged young or downy young (FL)
- Adults entering or leaving nest-site in circumstances indicating occupied nest (ON)
- Adult carrying faecal sac or food for young (FF)
- Nest containing eggs (NE)
- Nest with young seen or heard (NY)

Probable breeder - (Evidence accumulated during the survey indicates that the bird species is breeding on site)

- Pair in suitable nesting habitat (P)
- Permanent territory, defended over at least 2 survey occasions (T)
- Courtship and display (D)
- Visiting probable nest site (N)
- Agitated behaviour (A)
- Brood patch of incubating bird, from bird in hand (I)
- Nest building or excavating nest-hole (B)

Possible breeder - (Evidence accumulated during the survey indicates that the bird species could be breeding on site, but the evidence is less conclusive than that obtained for probable breeders)

- Observed in suitable nesting habitat (H)
- Singing male (S)

Non-breeder -

- Flying over (F)
- Migrant (M)
- Summering non-breeder (U)
- Observed in unsuitable nesting habitat (UH)

Appendix B - Desktop Study, Notable Bird Species Records

Species	WCA ¹	NERC ²	Record Location / Site Name ¹
BoCC Red List			
Yellowhammer <i>Emberiza citrinella</i>		+	River Dove Valley Worsbrough (Worsbrough CP), Barrow Colliery LWS, Short Wood fields LWS , Barrow Farm, Worsbrough Village, Worsbrough Country Park LNR , Blacker Hill, Worsbrough, Tankersley
Lesser Spotted Woodpecker <i>Dendrocopos minor</i>		+	River Dove Valley Worsbrough (Worsbrough CP), Bell Bank Wood, Worsbrough Park (not Country Pk), Dove Valley Worsbrough
Cuckoo <i>Cuculus canorus</i>		+	Short Wood LWS near Birdwell , Worsbrough, Worsbrough Country Park LNR, Barrow Colliery LWS
Whinchat <i>Saxicola rubetra</i>			Barrow Colliery LWS
Linnet <i>Carduelis cabaret</i>		+	Barrow Colliery LWS , River Dove Valley, Worsbrough (Worsbrough CP), Worsbrough Village, Short Wood fields LWS , Barrow Farm
Yellow Wagtail <i>Motacilla flava</i>		+	River Dove Valley Worsbrough (Worsbrough CP)
Spotted Flycatcher <i>Muscicapa striata</i>		+	Rockley Old Hall, Dove Valley, Barrow Colliery LWS
Redwing <i>Turdus iliacus</i>	+		Barnsley
Starling <i>Sturnus vulgaris</i>		+	Barnsley, Birdwell, Short Wood fields LWS , Tankersley
Song Thrush <i>Turdus philomelos</i>		+	River Dove Valley Worsbrough (Worsbrough CP), Tankersley, Barrow Colliery LWS , Rockley Woods LWS, Potter Holes Plantation LNR , Worsbrough, Birdwell, Skiers Spring Wood LWS, Bell Bank Wood, Worsbrough Country Park LNR , Worsbrough Village, Worsbrough Reservoir LWS, Broom Royd Wood, Rockley Valley, Fields at Worsbrough, Woolley Bank Wood
Mistle thrush <i>Turdus viscivorus</i>	+		Barrow Colliery LWS , Worsbrough Park (not Country Pk) Dove Valley Worsbrough, Tankersley, Broom Royd Wood, Rockley Valley, Rockley, Birdwell, Rockley Woods LWS, Worsbrough Village, Worsbrough Reservoir LWS, Short Wood fields LWS , Bell Bank Wood, Worsbrough Village Cemetery
Herring Gull <i>Larus argentatus</i>		+	Worsbrough Reservoir, Dove Valley
House Sparrow <i>Passer domesticus</i>		+	River Dove Valley Worsbrough (Worsbrough CP), Worsbrough Reservoir, Dove Valley, Barrow Colliery LWS, Hay Green Ponds LWS
Tree Sparrow <i>Passer montanus</i>	+		Tankersley
Ring Ouzel <i>Turdus torquatus</i>		+	Barrow Colliery LWS
Grey Partridge <i>Perdix perdix</i>		+	River Dove Valley Worsbrough (Worsbrough CP), Barrow Colliery LWS, Short Wood fields LWS , Worsbrough Village, Barrow Farm
Marsh Tit <i>Poecile palustris</i>		+	Barnsley

¹ Species occurring at Potter Holes Plantation (LNR), Worsborough Country Park (LNR), Short wood and Hey Green (LWS), Barrow Colliery (LWS) as mentioned in the main body of the breeding bird report are highlighted in bold, along with the relevant record location.

Species	WCA ¹	NERC ²	Record Location / Site Name ¹
Willow Tit <i>Poecile montanus</i>		+	Plantation south of Blacker Lane (track), Disused railway, Short Wood LWS
Lapwing <i>Vanellus vanellus</i>		+	Short Wood fields LWS (Barrow Farm), Barrow Colliery LWS
Lesser Redpoll <i>Carduelis cabaret</i>		+	Plantation south of Blacker Lane (track), Short Wood LWS
Skylark <i>Alauda arvensis</i>		+	Barnsley, Short Wood fields LWS , Area south-east of A6195, Rockingham 1a site
BoCC Amber List			
Kingfisher <i>Alcedo atthis</i>	+		River Dove Valley Worsbrough (Worsbrough CP), Canal, Worsbrough, Rockley, Worsbrough Reservoir LWS, Rockley Old Hall, Dove Valley
Quail <i>Coturnix coturnix</i>	+		Back Lane, Worsbrough Village
Stock dove <i>Columba oenas</i>	+		River Dove Valley Worsbrough (Worsbrough CP), Tankersley, Short Wood fields LWS , Worsbrough Village, Worsbrough Country Park LNR , Barrow Colliery LWS
Tawny Owl <i>Strix aluco</i>	+		Barrow Colliery LWS , Worsbrough Park (not Country Pk) Dove Valley, Worsbrough, Rockley Woods LWS, Bell Bank Wood, Birdwell, Worsbrough, Rockley Valley, Worsbrough Village, Worsbrough Reservoir LWS, Potter Holes Plantation LNR
Teal <i>Anas crecca</i>	+		Worsbrough Reservoir, Dove Valley, River Dove Valley Worsbrough (Worsbrough CP), Rockley Old Hall marsh, Barrow Colliery LWS , Rockley Woods LWS
Short-Eared Owl <i>Asio flammeus</i>	+		Barrow Colliery LWS
Wigeon <i>Anas penelope</i>	+		Worsbrough Reservoir LWS
Willow Warbler <i>Phylloscopus trochilus</i>	+		Tankersley, Barrow Colliery LWS , Potter Holes Plantation LNR , Birdwell, Barrow Farm, Worsbrough Village, Woolley Bank Wood
Bullfinch <i>Pyrrhula pyrrhula</i>		+	Barnsley, Eastern edge of LWS, Short Wood Area LWS
Sand Martin <i>Emberiza schoeniclus</i>	+		Barrow Colliery LWS
Kestrel <i>Falco tinnunculus</i>	+		Tankersley, Birdwell Wood, Worsbrough Village Cemetery, Barrow Colliery LWS , Worsbrough Village, Short Wood fields LWS , Worsbrough Country Park LNR , Barrow Farm, Potter Holes Plantation LNR , Rockley Old Hall marsh
House Martin <i>Delichon urbicum</i>	+		Tankersley, Short Wood fields LWS , Worsbrough Country Park LNR , Barnsley, River Dove Valley Worsbrough (Worsbrough CP)
Dunnock <i>Prunella modularis</i>		+	Barnsley
Snipe <i>Gallinago gallinago</i>			Barrow Colliery LWS
Red Kite <i>Milvus milvus</i>	+		Barrow Colliery LWS
Garganey <i>Anas querquedula</i>	+		Rockingham Colliery Site
Curlew <i>Numenius arquata</i>		+	Barrow Colliery LWS
Barn Owl <i>Tyto alba</i>	+		Platts Common, Barnsley

Species	WCA ¹	NERC ²	Record Location / Site Name ¹
Reed Bunting <i>Emberiza schoeniclus</i>		+	River Dove Valley Worsbrough, Pond south of Blacker Lane, Barrow Pond, SE sector South Pond, Area south-east of A6195, Rockingham 1b site, Barnsley
BoCC Green List			
Peregrine <i>Falco peregrinus</i>	+		Birdwell Wood
Brambling <i>Fringilla montifringilla</i>	+		Short Wood LWS , Worsbrough
Little Ringed Plover <i>Charadrius dubius</i>	+		Short wood Way, South Pond, Barnsley

¹ Birds listed on Schedule 1 of the Wildlife and Countryside Act (1981) as amended.

² Birds listed as Priority Species on Section 41 of the NERC Act 2006.