



Jelson Ltd.

Land South of Sapcote Road, Burbage

ECOLOGICAL APPRAISAL

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FPCR Environment and Design Ltd

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1.0 INTRODUCTION

- 1.1 This report has been prepared by FPCR Environment and Design Ltd on behalf of Jelson Ltd. It provides details of ecological surveys undertaken on an area of land (hereafter referred to as the 'Site') located to the east of Burbage, Leicestershire (Ordnance Survey Grid Reference SP 4511 9331). Surveys undertaken include an extended Phase 1 habitat survey and protected species surveys for bats, breeding birds and great crested newts *Triturus cristatus* (GCN) carried out in 2020, an update extended Phase 1 habitat survey and breeding bird survey undertaken in 2022, and an ecological walkover survey and updated GCN eDNA surveys completed in June 2023.
- 1.2 A Biodiversity Net Gain assessment using DEFRA 4.0 has also been undertaken based on the baseline ecological characteristics and development proposals.

Site Context

- 1.3 For the purposes of this report the application site (redline boundary) is referred to as 'the Site'. Additional land to the south of the Site was included within some of the faunal species and collectively these two areas have referred as the 'Survey Area'.
- 1.4 The Site is approximately 16ha in extent and comprises fields to the north and south of Aston Flamville Road of grazed pasture bound in by native hedgerows. Other habitats present in association with the boundary features include mature trees and a series of field ditches including a wet ditch flowing west to east through the south of the Site.
- 1.5 The Site is situated on the urban fringe of Burbage, with existing residential development to the west. Sapote Road borders the northern boundary, with Burbage Common and Woods beyond. Commercial and residential properties border part of the east boundary, with open farmland beyond and to the south of the Site.

Development Proposals

- 1.6 The proposals for development comprise up to 343 residential dwellings and associated infrastructure. This includes vehicular access, a Local Equipped Area for Play (LEAP), attenuation basin and areas of Green Infrastructure (GI).

Study Objectives

- 1.7 FPCR were commissioned to undertake an Ecological Appraisal of the Site in order to identify habitats or species that may be affected by the proposals. The objectives of the study were to:
- a) Identify the existing habitats within the Site;
 - b) Check for evidence of, or potential for, protected species;
 - c) Identify potential ecological constraints to the development proposals;
 - d) Identify any potential requirements for further survey; and
 - e) Consider any mitigation and enhancement measures that might be required for development within the Site.

2.0 METHODOLOGY

Desk Study

- 2.1 In order to compile existing baseline information for the study area, relevant ecological information was requested from Leicestershire and Rutland Environmental Record Centre in June 2022 (LRERC).
- 2.2 In addition, the following resources were interrogated for additional information and context:
- Multi Agency Geographic Information for the Countryside (MAGIC) website¹;
 - Colour 1:25,000 OS base maps²;
 - Aerial photographs from Google Earth³.
- 2.3 The geographical extent of the search area for biodiversity information was related to the significance of sites and species and potential zones of influence which might arise from development within the Site. The consultation exercise was completed using the following scales, considered to be appropriate:
- 10km around the Site boundary for sites of International Importance (e.g. Special Area of Conservation (SAC), Special Protection Area (SPA), Ramsar site);
 - 2km around the Site boundary for statutory sites of National or Regional Importance (e.g. Sites of Special Scientific Interest (SSSI));
 - 1km around the Site boundary for statutory sites of County Importance (e.g. Local Nature Reserves (LNR));
 - 1km around the Site boundary for non-statutory designated sites of County Importance. This includes:
 - Local Wildlife Sites (LWS) which are designated on the basis of the habitat(s) they support or the known presence of rare, local and/or declining species;
 - Candidate Local Wildlife Sites (cLWS) which are defined as sites that have not been through the formal notification process as an LWS, but which are known through survey data to meet the LWS criteria; and
 - Potential Local Wildlife Sites (pLWS) which are defined as sites that have not been through the formal notification process as an LWS, but are likely to meet the LWS criteria, although further survey is required to confirm this.
 - 1km around the Site boundary for protected or otherwise notable species records from the previous 20 years (including Species of Principal Importance under Section 41 (S41) of the Natural Environment and Rural Communities Act 2006 (NERC)).

¹ [Online]. <http://www.magic.gov.uk/> [Accessed 18/06/2023].

² [Online]. www.ordnancesurvey.co.uk [Accessed 18/06/2023].

³ [Online]. www.maps.google.co.uk [Accessed 18/06/2023].

Field Survey - Habitats and Flora

Extended Phase 1 Survey

- 2.4 An Extended Phase 1 Habitat survey was initially conducted on 4th August 2020, with an update survey undertaken on 10th August 2022. These were both carried out by a suitably experienced Ecologist with a level 4 Field Identification Skills Certificate (FISC). The surveys involved classification of the broad habitat types present using the system published by the UK Joint Nature Conservation Committee (JNCC)⁴, but where considered appropriate, additional information was collected beyond that required to determine the Phase 1 Habitat type. The abundance of species was quantified using the DAFOR scale (Dominant, Abundant, Frequent, Occasional and Rare). Any Habitats of Principal Importance (HPI) for the conservation of biodiversity as listed on S41 of NERC were identified.
- 2.5 An ecological walkover was completed on the 9th and 16th of June 2023 to review the current condition of the on-site habitats, as to take account of any material changes since the previous habitat assessment was completed. Where any changes in the nature of the on-site habitats had occurred, these were recorded with reference to the above methodology. The walkover survey was completed by suitably experienced Ecologist with a level 4 FISC.

Hedgerows

- 2.6 Hedgerows were initially subject to survey in 2020 and their condition reviewed as part of the updated 2022 extended Phase I survey and 2023 walkover survey as to take account of any material changes which may have occurred.
- 2.7 Hedgerows were surveyed Hedgerow Evaluation and Grading System (HEGS)⁵. This method of assessment includes noting down canopy species composition, associated ground flora and climbers, structure of the hedgerow including height, width and gaps, associated features including number and species of mature trees, banks, ditches and grass verges.
- 2.8 Each hedgerow is given a grade using HEGS with the suffixes '+' and '-', representing the upper and lower limits of each grade respectively. These grades represent a continuum on a scale from 1+ (the highest score and denoting hedges of the greatest nature conservation priority) to 4- (representing the lowest score and hedges of the least nature conservation priority) as follows:
- Grade 1 – High to very high value
 - Grade 2 – Moderately high to high value
 - Grade 3 – Moderate value
 - Grade 4 – Low value
- 2.9 All hedgerows within the Site were also assessed in accordance with the Wildlife and Landscape criteria contained within Statutory Instrument No: 1160 – The Hedgerow Regulations 1997 (REGS)⁶ to determine whether they qualified as 'Important Hedgerows' under the Regulations. This was achieved using a methodology in accordance with both the Regulations and DEFRA

⁴ JNCC. (2010). *Handbook for Phase 1 Habitat Survey - A Technique for Environmental Audit*. JNCC, Peterborough. ISBN 0 86139 636 7

⁵ DEFRA (1997) The Hedgerow Regulations 1997 – A Guide to the Law and Good Practice

⁶ The Hedgerow Regulations 1997. (SI 1160). London:HMSO. [Online]. Available at: <http://www.legislation.gov.uk/ukSI/1997/1160/contents/made> [Accessed 03/11/2020]

guidance⁷. An assessment of archaeological importance as defined under REGS was beyond the scope of this assessment. All hedgerows were also assessed as to whether they qualified as Habitats of Principal Importance (HPI) under S41 of NERC, i.e. they consisted of 80% or more native tree and shrub species.

Field Survey - Fauna

- 2.10 During the 2020 and 2022 phase 1 Habitat surveys and 2023 walkover survey, observations, signs of or suitable habitat for any species protected under Part I of the Wildlife and Countryside Act 1981 (as amended; WCA)⁸, the Conservation of Habitats & Species Regulations 2017 (as amended; CHSR)⁹, and the Protection of Badgers Act 1992 (PBA)¹⁰ were recorded. Consideration was also given to the existence and use of the Site by other notable fauna such as WCA Schedule 1 bird species, Species of Principal Importance (SPI) under S41 of NERC and Local Biodiversity Action Plan (LBAP) or Red Data Book (RDB) species.

Amphibians

Habitat Suitability Index (HSI) Assessment

- 2.11 An assessment of accessible waterbodies up to 250m from the Site boundary for their potential to support a breeding population of great crested newts *Triturus cristatus* (GCN) was completed in June 2020 and 2023 in accordance with the Habitat Suitability Index (HSI) methodology. The HSI scores ten suitability indices (factors thought to affect GCN) for a pond, both in the field and from a desktop study. The indices that are assessed are:
- Location (Area A, B or C within the UK);
 - Pond Area (size in metre²);
 - Permanence (how many times it may dry out in a decade);
 - Water quality (invertebrate diversity);
 - Shade (percentage of a waterbodies perimeter shaded);
 - Fowl (impact of waterfowl if present);
 - Fish (impact of fish if present);
 - Pond Count (density of ponds within 1km)
 - Terrestrial Habitat (quality of surrounding habitat); and
 - Macrophytes (percentage of surface area occupied).

⁷ Clements, D.K., & Tofts, R.J. (1992). Hedgerow Evaluation and Grading System (HEGS): A methodology for the ecological survey, evaluation and grading of hedgerows. Countryside Planning and Management.

⁸ Wildlife and Countryside Act 1981 (as amended). London:HMSO. [Online]. Available at: <http://www.legislation.gov.uk/ukpga/1981/69> [Accessed 03/11/2020].

⁹ Conservation of Habitats & Species Regulations 2017 London:HMSO. [Online]. Available at: <http://www.legislation.gov.uk/uksi/2017/1012/contents/made> [Accessed 03/11/2020].

¹⁰ Protection of Badgers Act 1992 London:HMSO. [Online]. Available at: <http://www.legislation.gov.uk/ukpga/1992/51/contents> [Accessed 03/11/2020].

- 2.12 The calculated HSI score, between 0 and 1, allows ponds to be scaled, based on their suitability for GCN.
- 0.00 – 0.49 – Poor
 - 0.50 – 0.59 – Below Average
 - 0.60 – 0.69 – Average
 - 0.70 – 0.79 – Good
 - 0.80 – 1 – Excellent
- 2.13 A general assessment of the suitability of terrestrial habitats within the Site for GCN was also conducted during the survey.

Environmental DNA (eDNA) Survey

- 2.14 Environmental DNA (eDNA) sampling was undertaken to determine the presence/absence of GCN in accordance with the set methodology¹¹ approved by Natural England.
- 2.15 Sampling was undertaken on 30th June 2020 and updated on 22nd June 2023 by an appropriately experienced ecologist who collected a sample of water from each surveyed pond. Sampling was undertaken using kits obtained from the Food and Environment Research Agency (FERA). This comprised taking samples of agitated water from 20 locations around each pond and mixing thoroughly, 15ml of which was then placed into each of the six sterile sample tubes containing preservative, precipitates and a DNA sequence that was used for degradation control. All samples were stored in accordance with the protocols provided by the laboratory. The samples were then transported under suitable conditions to FERA's laboratory for analysis. Following analysis, results provided by the laboratory could have one of three outcomes:
- Positive - A positive result means that eDNA from GCN was detected and they have been present within the water in the 20 days preceding sampling. An eDNA score would be provided indicating the number of positive replicates from a series of twelve.
 - Negative - DNA from GCN was not detected; in the case of negative samples the DNA extract is further tested for PCR inhibitors and degradation of the sample.
 - Inconclusive - Controls indicate degradation or inhibition of the sample, therefore the lack of detection of GCN DNA is not conclusive evidence for determining the absence of the species in the sample provided. Degradation can occur through poor storage of the samples or kits and inhibition can occur through unexpected chemicals in the sample.

¹¹ Biggs J, Ewald N, Valentini A, Gaboriaud C, Griffiths RA, Foster J, Wilkinson J, Arnett A, Williams P and Dunn F (2014). *Analytical and methodological development for improved surveillance of the Great Crested Newt. Appendix 5. Technical advice note for field and laboratory sampling of great crested newt (Triturus cristatus) environmental DNA*. Freshwater Habitats Trust, Oxford.

Badgers

2.16 During the 2020 and 2022 extended Phase I survey and 2023 walkover survey, all potentially suitable habitats within the Site and within 30m of its boundaries (where accessible) were searched for evidence of badger *Meles meles* activity, using standard methodology as recommended by Harris, Creswell and Jefferies¹². Evidence of badger occupation and activity sought included:

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

Bats

Ground-Based Assessment of Trees

2.17 Trees were assessed for their potential to support roosting bats during the 2020 and 2022 extended Phase I surveys and 2023 walkover survey. Assessments were undertaken from ground level, with the aid of a torch and binoculars (where appropriate). During the survey Potential Roosting Features (PRF) such as the following were sought (Based on p16, BS 8596:2015¹³):

- Natural holes (e.g. knot holes) arising from naturally shed branches or branches previously pruned back to a branch collar;
- Man-made holes (e.g. cavities that have developed from flush cuts or cavities created by branches tearing out from parent stems);
- Woodpecker holes;
- Cracks / splits in stems or branches (horizontal and vertical);
- Partially detached, loose or bark plates;
- Cankers (caused by localised bark death) in which cavities have developed;
- Other hollows or cavities, including butt rots;
- Compression of forks with included bark, forming potential cavities;
- Crossing stems or branches with suitable roosting space between;
- Ivy *Hedera helix* stems with diameters in excess of 50mm with suitable roosting space behind (or where roosting space can be seen where a mat of thinner stems has left a gap between the mat and the trunk); and
- Bat or bird boxes.

¹² Harris, S., Creswell, P. & Jefferies, D. (1989). *Surveying for badgers. Occasional Publication of the Mammal Society No. 9.* Mammal Society: Bristol.

¹³ British Standards Institution, (2015) *BS 8596:2015 Surveying for bats in trees and woodland.* Milton Keynes: BSI

- 2.18 Certain factors, such as orientation of the feature, its height from the ground, the direct surroundings and its location in respect to other features, may enhance or reduce the potential value.
- 2.19 Trees were classified into general bat roost potential groups based upon the presence of these features. Table 1 (below) broadly classifies the potential categories as accurately as possible as well as discussing the relevance of the features. This table is based upon Table 4.1 and Chapter 6 in *Bat Surveys for Professional Ecologists: Good Practice Guidelines*¹⁴.
- 2.20 Although British Standard 8596:2015 groups trees with moderate and high potential, these have been separated below (as per Table 4.1 in The Bat Conservation Trust Guidelines) to allow more specific survey criteria to be applied.

Table 1: Classification and Survey Requirements for Bats in Trees

Classification of Tree	Description of Category and Associated Features (based on Potential Roosting Features listed above)	Likely Further Survey Work/Actions
Confirmed Roost	Evidence of roosting bats in the form of live / dead bats, droppings, urine staining, mammalian fur oil staining, etc.	A Natural England derogation licence application will be required if the tree or roost site is affected by the development or proposed arboricultural works. This will require a combination of aerial assessment by roped access bat workers (where possible, health and safety constraints allowing) and nocturnal survey during appropriate periods (e.g. nocturnal survey - May to August) to inform the licence. Works to tree undertaken under supervision in accordance with the approved good practice method statement provided within the licence. However, where confirmed roost site(s) are not affected by works, work under a precautionary good practice method statement may be possible.

¹⁴ Collins, J. (Ed.) (2016). *Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd Edition.)*. London: Bat Conservation Trust

Classification of Tree	Description of Category and Associated Features (based on Potential Roosting Features listed above)	Likely Further Survey Work/Actions
High Potential	A tree with one or more Potential Roosting Features that are obviously suitable for larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter protection, conditions (height above ground level, light levels, etc) and surrounding habitat. Examples include (but are not limited to); woodpecker holes, larger cavities, hollow trunks, hazard beams, etc.	Aerial assessment by roped access bat workers (if appropriate) and / or nocturnal survey during appropriate period (May to August). Following additional assessments, tree may be upgraded or downgraded based on findings. If roost sites are confirmed and the tree or roost is to be affected by proposals a licence from Natural England will be required. After completion of survey work (and the presence of a bat roost is discounted), a precautionary working method statement may still be appropriate.
Moderate Potential	A tree with Potential Roosting Features which could support one or more potential roost sites due to their size, shelter protection, conditions (height above ground level, light levels, etc) and surrounding habitat but unlikely to support a roost of high conservation status (i.e. larger roost, irrespective of wider conservation status). Examples include (but are not limited to); woodpecker holes, rot cavities, branch socket cavities, etc.	A combination of aerial assessment by roped access bat workers and / or nocturnal survey during appropriate period (May to August). Following additional assessments, tree may be upgraded or downgraded based on findings. After completion of survey work (and the presence of a bat roost is discounted), a precautionary working method statement may still be appropriate. If a roost site/s is confirmed a licence from Natural England will be required.
Low Potential	A tree of sufficient size and age to contain Potential Roosting Features but with none seen from ground or features seen only very limited potential. Examples include (but are not limited to); loose/lifted bark, shallow splits exposed to elements or upward facing holes.	No further survey required but a precautionary working method statement may be appropriate.
Negligible/No potential	Negligible/no habitat features likely to be used by roosting bats	None.
* The Conservation of Habitats & Species Regulations 2017 (as amended) affords protection to "breeding sites" and "resting places" of bats. The EU Commission's Guidance document on the strict protection of animal species of Community interest under the Habitats Directive 92/43/EEC, February 2007 states that these are places "where there is a reasonably high probability that the species concerned will return".		

Activity Surveys*Foraging and Commuting Habitat Suitability Assessment*

- 2.21 As part of the Phase 1 habitat surveys, an initial assessment of suitability for foraging and commuting bats within the Survey Area was undertaken. This included overall hedgerow structure and connectivity, the presence of tree cover and woodland edge habitat, and overall connectivity of these features to suitable linear habitat networks offsite.

Activity Transect Surveys

- 2.22 The primary objectives of the transect surveys completed was to identify foraging areas, commuting routes, species composition and species utilisation of the Survey Area. The methodology and survey effort was based on good practice guidelines (BCT, 2016)¹⁶.
- 2.23 The transect routes were determined prior to survey in order to cover most areas of the Survey Area and was designed to follow a route that would identify activity levels around the features of potential value to bats that are to be most affected by proposals (such as hedgerows, tree lines, watercourses etc).
- 2.24 Transects were commenced at sunset and were a minimum of 2 hours in duration. Each transect was walked at a steady pace and when a bat passed by the species, time and behaviour was recorded on a site plan to help to form a general view of the bat activity present within the Survey Area and highlight any habitat types associated with bat activity.
- 2.25 Surveyors utilised Wildlife Acoustics Inc. Echo Meter Touch® bat detectors in conjunction with Echo Meter Touch® app and Apple Inc. iPad® during the transect surveys to detect bats and aid species identification.
- 2.26 Post-survey, bat calls were analysed using Kaleidoscope Viewer© (Wildlife Acoustics, Inc) software package, by taking measurements of the peak frequency, inter-pulse interval, call duration and end frequency. From this, the level of bat activity across the Survey Area in relation to the abundance of individual species foraging and commuting along habitats was assessed.
- 2.27 Two activity surveys were undertaken in 2020 across the months of August and September. Both transects were undertaken when conditions were suitable (i.e. when the ambient air temperature exceeded 10°C and there was little wind and no rain) as shown in Table 2.

Table 2: Bat Transect Survey Timings and Conditions

Date	Survey Start / End Times	Sunset Time	Weather Conditions
13/08/20	20:35 / 22:42	20:35	Cloud cover: 100%, wind: light breeze, start temp. 20°C, end temp. 18°C. No rain.
03/09/20	19:47 / 21:53	19:47	Cloud cover: 30%, wind: light breeze, start temp. 18°C, end temp. 16°C. No rain.

¹⁶ Bat Conservation Trust, 2016. *Bat Surveys for Professional Ecologists Good Practice Guidelines* 3rd edition.

Automated Static Bat Detector Surveys

- 2.28 Static passive recording broadband detectors were deployed within the Survey Area to supplement the manual transects surveys. In addition, passive recording is recommended in guidance produced by the BCT¹⁶.
- 2.29 Passive monitoring was undertaken using an automated logging system Wildlife Acoustics Inc. Song Meter® SM4Bat FS bat detectors with outputs saved to an internal storage device. The detectors used SMM-U2 microphones. Detectors were placed along linear features considered to be of value to bats, such as hedgerows and wet ditches.
- 2.30 Devices were placed in each location for an extended period of suitable weather conditions (little no rain/wind and temperatures above 10°C). The conditions over each of the survey periods were however representative for the timing of the survey. Detectors were programmed to activate 30 minutes before dusk and recorded continuously until 30 minutes following sunrise.
- 2.31 For the purposes of analysis if the static detector was out over 5 nights the additional nights were only assessed for bat species listed on Annex II¹⁸ of the Habitats Directive. The recorded data were analysed using Kaleidoscope Viewer© (Wildlife Acoustics, Inc) software package to assess the amount of bat activity within the Survey Area by recording the number of bat passes.
- 2.32 In accordance with the size of the Survey Area and the assessment of habitat suitability to support foraging and commuting bats, static units were deployed on site for a minimum of 5 consecutive nights during August, September and October 2020 at various locations across the Survey Area. The dates of survey and static locations are provided in Table 3.
- 2.33 The detector units record sound files of up to 12 seconds in length before a new file is created. The analysis of the SM4BAT FS files recorded can highlight the presence of more than one bat where recorded simultaneously on the same sound file. However, it is not possible to determine whether consecutive sound files have been recorded as the result of several different bats passing the detector as they commute across the landscape or by one bat repeatedly triggering the detector as it forages in close proximity for an extended period. Therefore, each sound file is counted as a single bat registration. The number of sound files recorded does however reflect the relative importance of the location of the detector by calculating the bat registrations per hour.

Table 3: Static Survey Dates

Location	Start date	End date
H9	13.08.20	18.08.20
H15	11.09.20	16.09.20
H1	12.10.20	17.10.20

¹⁸ Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora

Survey Limitations

- 2.34 Where bat calls could not be identified to species level, for example due to the lower quality of those recordings or where there are similarities between species echolocation calls (particularly for *Myotis* and *Nyctalus* species) making a definite identification difficult, a likely species identification is provided. This is based on the features displayed by the calls when analysed using the Kaleidoscope data analysis software package and taking into account the geographical location of the Survey Area and the habitats present.
- 2.35 No spring activity survey occasion was undertaken. However, this is not considered to be a constraint to this assessment as overall bat activity recorded within the Survey Area during the summer and autumn periods did not identify a significant quantity or diversity of bats, with bat species recorded comprising common and widespread species for the area. The two surveys which were conducted included one during the peak period of bat activity (August). Therefore, the absence of a spring survey occasion is not considered to form a constraint to the overall survey findings or conclusions that have been made.

Birds

- 2.36 A scoping Breeding Bird Survey (BBS) comprising a single visit was undertaken by an experienced ornithologist on 3rd July 2020, with an update survey carried out on 24th June 2022. The objectives of the surveys were to:
- Identify the presence, species and distribution of breeding birds within the Survey Area;
 - Assess whether further bird surveys are required
 - Evaluate the conservation importance of habitats within the survey area 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.
- 2.37 The survey methodology employed was broadly based on that of territory mapping as developed by the British Trust for Ornithology (BTO)¹⁹. All birds encountered (seen or heard) were recorded on a field survey plan using standard BTO species codes and symbols for bird activities and to denote activity, sex and age where appropriate. Birds were considered to be holding a territory and therefore likely to be utilizing the Survey Area 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 Survey Area, they were considered non-breeders. Breeding evidence used in this report follows EOAC guidelines 1979, as shown in Appendix G.
- 2.38 The survey visits were undertaken between 05:00 and 11.00 hrs. A route was mapped out prior to the survey being undertaken, with particular attention to linear features, such as hedgerows and watercourses. The surveys were not undertaken in unfavourable conditions such as heavy rain or strong wind, which may negatively affect the results. Table 4 identifies the dates and weather conditions of the surveys.

¹⁹ Bibby, C.J., N.D. Burgess & D.A. Hill, (2000). *Bird Census Techniques*: 2nd Edition. London: Academic Press

Table 4: Survey Dates and Conditions for Breeding Bird Surveys

Date	Cloud Cover (%)	Rain	Wind (Beaufort)	Visibility
03.07.2020	80	None	Light to gentle breeze	Good
24.06.2022	100	None	Light breeze	Very good

Birds Assessment Methodology

- 2.39 The Chartered Institute of Ecology and Environmental Management (CIEEM) guidance on ecological impact assessment assesses nature conservation importance within a geographical context²⁰. 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 5. In some cases, professional judgment, based on local knowledge, may be required to increase or decrease the allocation of importance.

Table 5: Bird Evaluation Criteria

Nature Conservation Value	Selection Criteria
International	A species which is part of the cited interest of a Special Protection Area (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 Site of Special Scientific Interest (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 of Principal Importance under Schedule 41 of NERC Act (2006), which are not covered above, and which regularly occur 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 and which regularly occur in regionally important numbers.
County	Species of Principal Importance under Schedule 41 of NERC Act (2006), which are not covered above, and which regularly occur 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 listed as priority species for nature conservation under S41 of the NERC Act. A site afforded a non-statutory designation for its county important assemblage of birds (e.g. a Local Wildlife Site). Species on the BoCC Red List and 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 listed as Species of Principal Importance under Schedule 41 of the

²⁰ CIEEM, 2018. *Guidelines for Ecological Impact Assessment in the UK and Ireland*. Winchester: Chartered Institute of Ecology and Environmental Management. [Online]. Available at: <https://cieem.net/wp-content/uploads/2019/02/Combined-EcIA-guidelines-2018-compressed.pdf> [Accessed 03/11/2020].

Nature Conservation Value	Selection Criteria
	NERC Act (2006) 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.

2.40 The recent county annual bird report, *The Leicestershire and Rutland Annual Bird Report 2020*²¹ was consulted to inform the assessment. The abundance of species referred to in this report follows the guidelines as used in the county annual bird report:

- Very rare – Fewer than ten records ever
- Rare – More than ten 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

2.41 The Survey Area has also been assessed against the relevant LWS criteria for the identification of avian sites in Leicester, Leicestershire & Rutland²² based on a number of criteria set out for wintering birds. LWSs are recognised by central government as an important tool in promoting sustainable development and protecting biodiversity.

²¹ The Leicestershire and Rutland Ornithological Society (2022). *The Leicestershire and Rutland Annual Bird Report 2020*

²² Leicester, Leicestershire & Rutland Local Wildlife Sites Panel. (2011). *Guidelines for the selection of Local Wildlife Sites (previously known as Sites of Importance for Nature Conservation or SINC)s in Leicester, Leicestershire and Rutland – Revised 2011*. [Online]. Available at: https://www.leicestershire.gov.uk/sites/default/files/field/pdf/2016/8/22/Guidelines_LWS.pdf [Accessed 03/11/2020].

3.0 RESULTS

Desk study

Statutory Designations

- 3.1 Locations of statutory designated sites referred to in the following section are illustrated on Figure 1a: Site Location & Consultation Results Plan – Statutory Designated Sites.
- 3.2 No statutory designated sites of international conservation importance were identified within 10km of the Site.
- 3.3 One statutory designated site of national/regional conservation importance is located within 2km of the Site. Burbage Wood and Aston Firs SSSI is located to the north of the Site beyond Sapcote Road and is approximately 30 metres away at its closest point. The SSSI is notified for its woodland interest which the citation states “*comprises one of the best remaining examples of ash-oak-maple woodland in Leicestershire and is representative of semi-natural woodland developed on the clays of eastern England*”. The ground vegetation is characterised by an abundance of honeysuckle *Lonicera periclymenum*, bramble *Rubus fruticosus* agg., bluebell *Hyacinthoides non-scriptus*, false brome *Brachypodium sylvaticum*, rough meadow-grass *Poa trivialis* and tufted hair-grass *Deschampsia cespitosa*, and includes a large number of plant species typical of semi-natural woodland such as sweet woodruff *Asperula odorata*, moschatel *Adoxa moschatellina*, yellow archangel *Galeobdolon luteum*, water avens *Geum rivale* and several species of woodland orchids.
- 3.4 One statutory designated site of county importance is located within 1km of the Site. Burbage Common and Woods LNR is located north of the Site, partially overlapping the aforementioned SSSI, and is approximately 200 metres away at its closest point. The LNR contains unimproved acid grassland, semi-natural ancient woodland and scrubland habitats. Over 250 species of fungi, 300 flowering plants, 15 damselflies and dragonflies, 20 butterflies and 100 birds have been recorded on the site.

Non-Statutory Designations

- 3.5 Consultation with LRERC identified five non-statutory designated LWS within 1km of the Site and a further nine cLWS, 23 potential pLWS, and three historic potential LWS (pLWS:hist). The details of these sites are provided in Appendix A and their locations are illustrated on Figure 1b: Site Location & Consultation Results Plan – Non-Statutory Designated Sites.
- 3.6 Burbage Common and Woods LWS is approximately 610m north of the Site at its closest point and covers the majority of the area designated as Burbage Common and Woods LNR. The Borrow Pit Grassland LWS lies approximately 620m east at its closest point and contains mesotrophic/mixed grassland on steeply sloping ground around a lake. Elmesthorpe Plantation Hedgerow LWS, Field Rose Hedgerow LWS and Hedgerow, Elmesthorpe LWS are three LWS which are situated between approximately 710m and 830m north of the Site and comprise species-rich hedgerows.
- 3.7 Two of the pLWS are situated within 100m of the Site. Aston Lane Hedgerow pLWS and Sapcote Road Hedgerow pLWS lie approximately 10m east and 40m north-west respectively and both comprise species-rich hedgerows.

Other Sites of Nature Conservation Interest

- 3.8 Three sites of Ancient Semi-Natural Woodland (ASNW) are situated within 1km of the Site as illustrated on Figure 1b and detailed in Appendix A. The closest is Burbage Woods and Aston Firs ASNW which lies approximately 30m north of the Site at its closest point and covers the majority of the area designated as Burbage Wood and Aston Firs SSSI and overlaps with Burbage Common and Woods LNR and Burbage Common and Woods pLWS.

Protected/Notable Species

- 3.9 Desktop data sources also provided records of protected and notable species within 1km of the Site. The locations of these records are shown in Figure 2: Site Location & Consultation Results Plan – Species Records, whilst a summary is provided in Appendix B.
- 3.10 One record was located within the Site boundary. Greater celandine *Chelidonium majus* was recorded in 2017 on the verge of Aston Lane.
- 3.11 A number of records were located in 1km² or 2km² grid references which partially fall within the Site boundary. This included linnet *Linaria cannabina* and the plants: bogbean *Menyanthes trifoliata*, buck's-horn plantain *Plantago coronopus*, hybrid bluebell *Hyacinthoides x massartiana*, Himalayan balsam *Impatiens glandulifera*, Japanese knotweed *Reynoutria japonica*, cherry laurel *Prunus laurocerasus*, chicory *Cichorium intybus*, columbine *Aquilegia vulgaris*, common cornsalad *Valerianella locusta*, greater celandine, rye brome *Bromus secalinus*, small-leaved lime *Tilia cordata*, Spanish bluebell *Hyacinthoides hispanica*, variegated yellow archangel *Lamiasstrum galeobdolon* subsp. *argentatum*, wall cotoneaster *Cotoneaster horizontalis* and white stonecrop *Sedum album*.

Field Survey

Habitats and Flora

- 3.12 The locations of habitats described in the following sections can be found mapped on Figure 3: Phase 1 Habitat Plan. Plant species lists for the habitats are provided in Appendix C and photographs of habitats in Appendix D. The habitats recorded during the 2020 and 2022 extended Phase I surveys and 2023 walkover were very similar, with only minor differences as detailed in the descriptions below.

Improved Grassland

- 3.13 At the time of both the 2020 and 2022 habitat surveys all of the field compartments within the Site (F1 to F4) had been subject to heavy cattle grazing resulting in short swards of 2-10cm in height. The sward was noted to be species-poor and dominated by palatable grasses of which perennial rye-grass *Lolium perenne* formed the most abundant species, constituting up to 70% cover in some of the fields, followed by Yorkshire-fog *Holcus lanatus*. Other grasses present at frequent to occasional coverage included common bent *Agrostis capillaris*, rough meadow-grass *Poa trivialis*, cock's-foot *Dactylis glomerata*, Timothy *Phleum pratense* and crested dog's-tail *Cynosurus cristatus*.

- 3.14 The coverage of broadleaved herbs was noted to comprise less than 25% of the field swards with white clover *Trifolium repens* and creeping buttercup *Ranunculus repens* forming the most abundant species. Other species present at occasional coverage included meadow buttercup *R. acris*, common mouse-ear *Cerastium fontanum*, dandelion *Taraxacum* agg. and creeping thistle *Cirsium arvense*.
- 3.15 At the time of the 2023 survey, all fields were ungrazed and exhibited tall swards 60-70cm in height. The nature of swards was broadly consistent with the previous surveys, being dominated by palatable grasses (>75% cover) with subsequent low cover of broadleaved herbs of which white clover formed one of the predominate species, although a small of additional species were recorded from the fields during the survey. These included a number of additional palatable grasses including meadow fox-tail *Alopecurus pratensis* and red fescue *Festuca rubra* agg. and a small of additional herbs including common knapweed *Centaurea nigra* (recorded within F3), pignut *Conopodium majus* (F2 – F4), red clover *Trifolium pratense* (F2 – F4), meadow vetchling *Lathyrus pratensis* (F1 – F3), common sorrel (F1 – F4) and great burnet *Sanguisorba officinalis* (F3).

Standards and Lines of Trees

- 3.16 Standard trees ranging from immature to mature single and multi-stemmed standards were confined to hedgerows and boundaries. Specimens were predominately pedunculate oak *Quercus robur* and ash *Fraxinus excelsior*, with occasional field maple *Acer campestre* and rarely occurring grey willow *Salix cinerea*, goat willow *Salix caprea*, domestic apple *Malus pumila* and silver birch *Betula pendula*. A line of Lawson's cypress *Chamaecyparis lawsoniana* trees was present along a fence on the Site boundary with residential gardens.

Hedgerows

- 3.17 A total of 19 trees were recorded within the Site (Table 6). The most abundant species within the hedgerows were hawthorn *Crataegus monogyna* and blackthorn *Prunus spinosa*, with a total of 25 woody species recorded within the hedgerows across the Site. In the intervening period between the 2020 and 2022 surveys several of the hedges (H6, H8 & H9) had been heavily trimmed back reducing their height from 2-4m to under 1.5m.
- 3.18 All 19 hedgerows consisted of 80% or more native tree and woody shrub species, therefore qualifying as HPI under NERC. Two hedgerows were evaluated as high to very high conservation value under HEGS (grade 1), nine were of moderately high to high value (grade 2), six of moderate value (grade 3) and two of low value (grade 4). No hedgerows within the Site qualified as 'Important' under the 'Wildlife and Landscape' criteria.

Table 6: Hedgerow Species Composition and HEGS Grades

Ref	Canopy Species	Length (m)	Height / Width (m)	Av. Native Sp. per 30m	Associated Features	HEGS Grade	Important under REGS
H1	<i>Ps, Cm, Fe, Rf, Sn, Ac, Qr, Rc, Sca,</i>	321	>4 / 2-3	3.7	3.4 mature standards per 100m, 10-30% gaps, 1 end connection,	2+	No
H2	<i>Ps, Cm, Fe, Rf, Sn, Ac, Qr, Pl, Rc, Sca, Ia, Mp</i>	290	>4 / >3	4.3	4.1 mature standards per 100m, no gaps, 3 end connections,	1	No
H3	<i>Cm, Ps</i>	23	2-4 / 0-1	2	0 mature standards, No gaps, 3 end connections	3-	No
H4	<i>Sn, Ps, Cm, Fe, Rf,</i>	44	>4 / >3	3	4.5 mature standards per 100m, No gaps, 2 end connections	2+	No
H5	<i>Ps, Cm, Pa</i>	96	1.5-2 / 1-1.5	3	0 mature standards, no gaps, 2 end connections	3+	No
H6	<i>Cm, Up, Mp, Fe, Sn</i>	171	1-1.5 / 1-1.5	2.5	0 mature standards, 0-10% gaps, 1 end connection	3	No
H7	<i>Cm, Up, Qr, Rf, Rc, Ps, Fe, Vo, Sci, Ac, Sn</i>	223	>4 / 2-3	4	1.8 mature standards per 100m, 0-10% gaps, 1 end connection	2+	No
H8	<i>Ps, Cm, Fe, Mp, Rc, Rf, Sn</i>	174	1-1.5 / 1-1.5	4	0 mature standards, 0-10% gaps, 3 end connections, ditch	3+	No
H9	<i>Cm, Ps, Rf, Rc, Mp, Fe, Qr, Ac, Sn</i>	320	1-1.5 / 1-1.5	4.3	0.9 mature standards per 100m, 0-10% gaps, 4 end connections, ditch	2-	No
H10	<i>Cm, Ps, Rf, Fe</i>	39	>4 / 2-3	3	0 mature standards, 0-10% gaps, 2 end connections, ditch	3	No
H11	<i>Cm, Ia, Cl</i>	24	1-1.5 / 1-1.5	2	0 mature standards, 0-10% gaps, 0 end connections, ditch	4-	No
H12	<i>Cm, Ps, Ac, Qr, Rf, Ca, Rc, Sci</i>	81	1-1.5 / 1-1.5	3	2.5 mature standards per 100m, No gaps, 4 end connections, ditch	2-	No
H13	<i>Ps, Cm, Rf, Fe, Ac, Sca, Sci, Mp, Rc</i>	104	1-1.5 / 1-1.5	4	0 mature standards, 0-10% gaps, 4 end connections, ditch	-2	No
H14	<i>Cm, Ps, Rf, Rc, Qr, Fe, Ri, Sn, Ca</i>	174	1-1.5 / 1-1.5	4.5	1.1 mature standards per 100m, 0-10% gaps, 5 end connections, ditch	-2	No
H15	<i>Cm, Ps, Rc, Rf, Ms, Lv, Qr, Fe, Qc</i>	146	>4 / 2-3	3	1.3 mature standards per 100m, 0-10% gaps, 5 end connections, ditch	2+	No
H16	<i>Cm, Rc, Rf, Qr, Ps, Ug, Lv, Sci, Ia, Fe, Sn,</i>	120	>4 / 2-3	4.5	3.3 mature standards per 100m, no gaps, 5 end connections, ditch	1-	No
H17	<i>Cm, Rf, Ps, Ca, Rc, Ac, Fe</i>	121	>4 / 2-3	3.5	0.8 mature standards per 100m, 0-10% gaps, 4 end connections, ditch	2+	No

Ref	Canopy Species	Length (m)	Height / Width (m)	Av. Native Sp. per 30m	Associated Features	HEGS Grade	Important under REGS
H18	Cm, Rf, Ia	22	1-1.5 / 1-1.5	3	0 mature standards, no gaps, 2 end connections	3+	No
H19	Fs	24	0-1 / 0-1	1	0 mature standards, no gaps, 1 end connection	4	No

Species Key – Ac *Acer campestre* - field maple, Ca: *Corylus avellana* - hazel, Cl *Chamaecyparis lawsoniana* - Lawson's cypress, Cm *Crataegus monogyna* - hawthorn, Fe *Fraxinus excelsior* - ash, Fs *Fagus sylvatica* - beech, Ia *Ilex aquifolium* - Holly, Lv *Ligustrum vulgare* - wild privet, Mp *Malus pumila* - apple, Ms *Malus sylvestris* - crab apple, Pa *Prunus avium* - Wild cherry, Pl *Prunus laurocerasus* - cherry laurel, Ps *Prunus spinosa* - Blackthorn, Qc *Quercus cerris* - Turkey oak, Qr *Quercus robur* - Pedunculate oak, Rc *Rosa canina* - Dog-rose, Rf *Rubus fruticosus* agg., - Bramble, Ri *Rubus idaeus* - Raspberry, Sca *Salix caprea* - Goat willow, Sci *Salix cinerea* - Grey willow, Sf: *Salix fragilis* - Crack willow, Sn *Sambucus nigra* - Elder, Ug *Ulmus glabra* - Wych elm, Up *Ulmus procera* - English elm, Vo *Viburnum opulus* - Guelder-rose

Ditches

- 3.19 A network of ditches was present along field boundaries adjacent to hedgerows within the southern extent of the Site. The ditches ranged from 45-100cm deep and were steep sided ranging from 20-100cm wide at the bottom and 75-150cm wide at the top. Substrate comprised silt and mud. They were generally heavily shaded by adjacent hedgerows.
- 3.20 The nature of the ditches during the 2023 walkover survey was found to be consistent with the previous survey findings, with the majority dry at the time of the survey or supporting intermittent sections of shallow pooled standing water (D2 & D4). These ditches were generally overgrown with predominately ruderal vegetation such as common nettle *Urtica dioica*, cleavers *Galium aparine*, great willowherb *Epilobium hirsutum*, bramble, creeping thistle, greater burdock *Arctium lappa*, field horsetail *Equisetum arvense* and with burnet-saxifrage *Pimpinella saxifraga* present locally, and species characteristic of wetter conditions including reed canary-grass *Phalaris arundinacea*, soft-rush *Juncus effusus*, meadowsweet *Filipendula ulmaria* and rarely, common reed *Phragmites australis*.
- 3.21 Ditch D1 was wet along its entire length, flowing from west to east. Along the western end of the ditch adjacent to hedgerows H17 and H16, the water depth was 5-20cm and the ditch was choked with hawthorn, bramble and dog-rose *Rosa canina* scrub. However, along its eastern end adjacent to hedgerows H14 and H12 the water depth increased to 10-25cm, up to 40cm in one location, and the vegetation included emergent species such as greater pond-sedge *Carex riparia*, yellow iris *Iris pseudacorus* and brooklime *Veronica beccabunga*, together with species which prefer damp conditions including water figwort *Scrophularia auriculata*, soft-rush, meadowsweet and reed canary-grass. Other species included great willowherb and common nettle. No submerged or floating species were present.

Scattered scrub

- 3.22 Scattered scrub dominated by bramble was present at some field boundaries where hedgerows were absent.

Fauna

Amphibians

- 3.23 No waterbodies were present within the Site to offer suitable breeding habitat for amphibians, including GCN. In terms of terrestrial habitats, the improved grassland was of low suitability for GCN due to its uniform structure and intense management being subject to cattle grazing. The hedgerow bases provided potential suitable hibernation habitat for amphibians, whilst the ditch banks provided limited suitable foraging habitat.
- 3.24 Four ponds (see Figure 3 for locations) were located within 250m of the Site. Pond P4 was situated approximately 175m north-west of the Site boundary, the other side of the B4669 which was considered a significant barrier to dispersal. It is therefore considered extremely unlikely that any GCN or other amphibians potentially present within pond P4 would be using the habitats within the survey area. As such, pond P4 is scoped-out from any further assessment within this report.
- 3.25 Pond P1 was situated approximately 150m east of the Site and was dry at the time of survey in June 2020 and June 2023.
- 3.26 Ponds P2 and P3 were located 215 and 170m east of the Site boundary, respectively, and both subject to an HSI assessment. P2 was found to be of 'below average' suitability with HSI scores of 0.50 and 0.59 respectively for 2020 and 2023 assessments. P3 was found to be of 'average' suitability in 2020 with a HSI score of 0.68 and of 'below average' suitably in 2023 with an HSI score of 0.51. The decline in its suitability resulting from increased shading of the pond and a deterioration in water quality. The results of the 2023 HSI assessment are provided in Appendix E.
- 3.27 Ponds P2 and P3 were subject to eDNA sampling in 2020 and 2023. The 2020 results were negative for pond P3 suggesting that GCN and inconclusive for pond P2. The 2023 results were negative for both ponds P2 and P3. The full results of 2023 surveys are provided in Appendix E.

Badger

- 3.28 No evidence of badger activity was recorded within the Site or within 30m of the Site boundary (where accessible) during the 2020, 2022 or 2023 surveys.

Bats

Preliminary Ground Level Roost Assessment of Trees

- 3.29 No evidence of bats was recorded in association with any of the trees within the Site during the 2020 or 2022 ground assessments. The assessment completed in August 2022 identified a total of seven trees as exhibiting features suitable for roosting bats, these included four trees categorised as having low roost potential and the remaining four trees as having moderate roost potential. The updated assessment completed in June 2023 confirmed that the roost potential categorisations of these trees remained unchanged, however one additional tree (Ref. T8) was identified as having moderate tree potential due to the presence of a recent branch split.
- 3.30 Details of the trees with bat roost potential are provided in Table 7 and their locations shown in Figure 3.

Table 7: Results of Preliminary Ground-Based Tree Assessment

Tree Ref.	Species	Aspect and height of feature	Bat roost potential from ground inspection
T1	Pedunculate Oak	Heavy ivy cover from 2 to 12m high on all aspects. Approximately 10cm diameter ivy stem at base	Low
T2	Ash	SE/E - Upward facing small cavity on northern main fork of trunk at approximately 9m high due to pruning. SE/E – Small natural knot hole at approximately 5m high on small branch extending south. Hole facing approximately 45° downwards S- 1 upward facing small knot hole on small branch approximately 4m high	Low
T3	Ash	Heavy ivy cover 4m and higher especially on north aspect. Ivy stem about 10cm diameter at base	Low
T4	Ash	SE- small cavity 6m high extending approximately 20cm back with two large, slightly upward facing openings, not very sheltered from elements. Dry with cobwebs and dry rot. N – Two natural knot holes 4m high. Both extend approximately 15cm back and extend upwards beyond extent of endoscope (1m). Both filled with nesting material. N – at 7m high top of main stem has upward facing rot hole which extends 45cm down and is dry with cobwebs.	Moderate
T5	Ash	W – At approximately 1.5m high a large knothole with an opening approximately 5cm wide and 30m tall was present. The cavity extended approximately 75cm upwards inside the tree trunk, 50cm back and 50cm downwards. W -A approximately 4m high a further knothole with a similar sized opening was present. The cavity inside the tree was of unknown dimensions. All aspects - Dense ivy from 1m upwards with a stem diameter at the base over 5 cm in diameter.	Moderate
T6	Ash	SW – a small slightly upward facing knothole on a branch approximately 10m high On all aspects there was heavy ivy cover with stem diameter 5cm thick at base	Low
T7	Ash	E – a large knot hole present which penetrates all the way through the trunk. A cavity inside the trunk extends upwards and downwards of the knothole, the extent of which is unknown. NW – a branch tear out approximately 8m high. From the ground it appears no deep cavity is present.	Moderate

Tree Ref.	Species	Aspect and height of feature	Bat roost potential from ground inspection
T8	Pedunculate Oak	S – branch split approximately 1.5m x 0.1m, 3.5m from ground.	Moderate

Foraging and Commuting Habitat Suitability

- 3.31 The network of native hedgerows with associated standard trees and ditches provided foraging opportunities for bats and commuting, providing links around the survey area and into the wider area. The improved grassland fields were of limited value due to their homogenous nature and limited botanical diversity. There was no material change in the Site habitats and their suitability to foraging bats between the 2020, 2022 and 2023 assessments.

Activity Transect Surveys

13th August 2020

- 3.32 The survey started at 20:35 and a total of 17 contacts were recorded, all from noctule and common pipistrelle apart from one contact with a *Myotis* species. (Figure 4: Bat Transect Results Plan – August 2020).
- 3.33 The first contact was at 20:44, a noctule commuting northwards over the improved grassland of field F1. Activity included foraging and commuting noctule and common pipistrelle in association with hedgerows and field boundaries across the survey area, except the extreme western areas. One *Myotis* species was recorded commuting along hedgerow H1. Seven bouts of continuous foraging were recorded from noctule and common pipistrelle in association with hedgerows H15, H19 and the hedgerow at the southern end of field F7. The final contact was a passing common pipistrelle at 22:26 along hedgerow H15 and the survey ended at 22:42.

3rd September 2020

- 3.34 The survey started at 19.47 and a total of 36 contacts were recorded, all from noctule and common pipistrelle apart from one contact with a brown long-eared bat *Plecotus auritus* (Figure 5: bat Transect Results – September 2020).
- 3.35 The first contact was a passing noctule at 19.56 at point count 1. Foraging noctule and common pipistrelle were recorded in association with hedgerows and field boundaries across the survey area, with a concentration in southern and central areas of the survey area. A brown long-eared bat was recorded once passing along hedgerow H16. Five bouts of continuous foraging were recorded, all from common pipistrelle in association with hedgerows H15 and H9. Social calling of common pipistrelles was recorded on two occasions along hedgerows, with the final contact of the survey a common pipistrelle social calling at 22.53 along hedgerow H7 as the survey ended.

Automated Static Bat Detector Surveys

- 3.36 A summary of data from the SM4BAT FS static bat detector locations is provided in Table 8, with the full data provided in Appendix F. The static bat locations are provided in Figure 6.

Table 8: Summary SM4BAT FS Static Survey Results

Date	Unit no. and Location	Avg. registrations per hour	Total registrations	Most recorded species (no. registrations)	Other species recorded (no. registrations)
13.08.20 – 18.08.20	13 H9	113.66	5909	Common pipistrelle (5591)	<i>Myotis</i> sp. (122), Brown long-eared (117), Noctule (72), Soprano pipistrelle (6), <i>Nyctalus</i> sp. (1).
11.09.20 – 16.09.20	13 H15	136.57	8400	Common pipistrelle (6440)	Noctule (1390), Brown long-eared (477), <i>Myotis</i> sp. (67), Soprano pipistrelle (21), <i>Nyctalus</i> sp. (5).
12.10.20 – 17.10.20	13 H1	6.35	457	Common pipistrelle (405)	<i>Myotis</i> sp. (23), Brown long-eared (17), Noctule (12).

- 3.37 Overall, during the static detector surveys, a total of six species / species groups were recorded, with common pipistrelle being the dominant species, accounting for the majority of bat activity (over 84% of the total registrations). The second and third most abundant species were noctule with 10% and brown long-eared bat with 4%. Species sensitive to artificial light (*Myotis* species and brown long-eared bat) comprised under 6% of recorded activity. Table 9 presents the overall percentage breakdown of all the species recorded during the static surveys.

Table 9: Species Recorded During Static Detectors Surveys

Species	Total registrations	Percentage
Common pipistrelle	12436	84.22 %
Noctule	1474	9.98 %
Brown long-eared	611	4.14 %
<i>Myotis</i> species	212	1.44 %
Soprano pipistrelle	27	0.18 %
<i>Nyctalus</i> species	6	0.04 %

- 3.38 The highest number of registrations overall and for each individual species / species groups except *Myotis* species occurred during the August unit deployment, located within hedgerow H9 in the centre of the Site. The September unit deployment within hedgerow H15 has the second highest overall number of registrations, and the highest for *Myotis* species, and was only marginally lower for common pipistrelle compared to August. The October unit deployment in hedgerow H1 along the northern boundary of the Site had by far the lowest overall registrations and for each species / species groups recorded.

Birds

- 3.39 A total of 33 bird species were recorded within the survey area during the 2020 and 2022 breeding bird surveys. Of these, 16 were considered notable species as they appear on one or more of the following:
- Schedule 1 of WCA
 - Species listed as SPI in NERC S.41;
 - Birds of Conservation Concern (BoCC5) Red or Amber lists;
 - LBAP for Leicestershire & Rutland
- 3.40 Breeding evidence accumulated across the 2020 and 2022 surveys was used in assigning the breeding level status of species in the following results and subsequent evaluations.
- 3.41 Of the 33 species recorded, five were confirmed as breeding within the survey area including the amber listed woodpigeon *Columba palumbus*. Five species were considered probable breeders, including the notable species dunnock *Prunella modularis*, greenfinch *Chloris chloris*, wren *Troglodytes troglodytes* and stock dove *Columba oenas*. The remaining 23 species recorded were considered possible breeders (19) or non-breeders (4). Table 10 provides a summary of the notable bird species and their breeding status within the survey area and Figure 7: Breeding Bird Survey Results -Locations of Notable Species shows their general recorded locations. A full list of results is provided in Appendices G and H.

Table 10: Notable Bird Species Recorded at Land South of Sapcote Road, Burbage during Breeding Bird Survey and their recent status in Leicestershire and Rutland

Species	Legal/ Conservation Status	Peak Count / Number of Survey Occasions Recorded	Breeding status	Recent Status in Leicestershire and Rutland
Lesser black-backed gull <i>Larus fuscus</i>	Amber list	60 flyovers / 2	Non-breeder	Common passage and winter visitor, recent colonist
Stock dove <i>Columba oenas</i>	Amber list	2 / 2	Probable	Fairly common to common resident breeder
Woodpigeon <i>Columba palumbus</i>	Amber list	15 + 2 juveniles + 4 flyovers / 2	Confirmed	Abundant resident breeder and winter visitor
Swift <i>Apus apus</i>	Red list LBAP	2 flyovers / 1	Non-breeder	Common migrant breeder
Rook <i>Corvus frugilegus</i>	Amber list	1 + 2 flyovers / 2	Possible	Abundant resident breeder
Swallow <i>Hirundo rustica</i>	Green list LBAP	3 / 2	Non-breeder	Common migrant breeder
Whitethroat <i>Sylvia communis</i>	Amber list	2 / 1	Possible	Fairly Common migrant breeder
Wren <i>Troglodytes troglodytes</i>	Amber list	7 / 2	Probable	Abundant resident breeder
Starling <i>Sturnus vulgaris</i>	Red list NERC S.41	20 / 2	Possible	Abundant resident breeder, passage migrant and winter visitor
Song thrush <i>Turdus philomelos</i>	Amber list NERC S.41	1 / 2	Possible	Common resident breeder, recent decline; winter visitor

Species	Legal/ Conservation Status	Peak Count / Number of Survey Occasions Recorded	Breeding status	Recent Status in Leicestershire and Rutland
Dunnock <i>Prunella modularis</i>	Amber list NERC S.41	7 / 2	Probable	Abundant resident breeder, passage migrant
House sparrow <i>Passer domesticus</i>	Red list NERC S.41	2 / 1	Non-breeder	Common resident breeder, recent decline
Bullfinch <i>Pyrrhula pyrrhula</i>	Amber list NERC S.41	1 / 1	Possible	Common resident breeder
Greenfinch <i>Chloris chloris</i>	Red list	9 + 5 flyovers / 2	Probable	Common resident breeder, passage migrant and winter visitor
Linnet <i>Linaria cannabina</i>	Red list NERC S.41	3 / 2	Possible	Common resident breeder
Yellowhammer <i>Emberiza citrinella</i>	Red list NERC S.41	1	Possible	Common resident breeder, recent decline

- 3.42 The field boundary features, comprising hedgerows with associated trees and ditches, supported a range of widespread and common species. Notable species included the generalists song thrush *Turdus philomelos*, dunnock, woodpigeon, greenfinch, wren, bullfinch *Pyrrhula pyrrhula*, whitethroat *Sylvia communis*, and starling *Sturnus vulgaris*. Very low numbers of the notable farmland specialists, yellowhammer *Emberiza citrinella*, rook *Corvus frugilegus*, linnet *Linaria cannabina* and stock dove were also recorded within the hedgerows and trees. Species of low conservation concern utilising these habitats included buzzard *Buteo buteo* (confirmed breeder), robin *Erithacus rubecula*, blackbird *Turdus merula* and the range of woodpecker, warbler, finch, corvid, and tit species recorded.
- 3.43 The improved grassland field interiors supported a very restricted range of common species, none of which utilised the habitat for breeding. Notable species which were recorded foraging in this habitat included starling and swallow *Hirundo rustica*, with the small numbers of farmland specialists recorded also likely utilising the grassland and field margins for foraging. Species of low conservation concern utilising the improved grassland habitat for foraging included pheasant *Phasianus colchicus* and the range of corvid species recorded.
- 3.44 Several species were recorded flying over the survey area only. This included the notable swift *Apus apus* and lesser black backed gull *Larus fuscus*.
- 3.45 Results from the 2020 and 2022 surveys recorded a very similar assemblage of birds and confirmed that the breeding bird population on site had not undergone a significant change in the intervening period.

Reptiles

- 3.46 The majority of the Site comprised improved grassland of uniform structure and subject to intense management and therefore unsuitable for reptiles. The banks of the ditches and the hedgerow bases provided a limited area of habitat of some potential for reptiles.

Water vole, Otter & White-Clawed Crayfish

- 3.47 No evidence for any of these aquatic species was recorded within the survey area. Ditches 2-9 were unsuitable for any of these species since they were either dry or only intermittently wet with pools of water up to 5cm deep.
- 3.48 Ditch 1 contained flowing water but was completely choked by scrub along the western half of its length through the survey area and unsuitable for any of these species. Along the eastern half it was more open, yet still shaded by the adjacent hedgerow. Water depth was 5-25cm, with a depth of 40cm in one short 2m section. The shallow water depth rendered the ditch unsuitable for otter *Lutra lutra* and due to this characteristic coupled with the shading along the entire length from the adjacent hedgerow the ditch is considered sub-optimal habitat for water vole *Arvicola amphibius*. The limited suitable refuge sites and the muddy substrate of the watercourse bed meant the ditch was suboptimal for white-clawed crayfish *Austropotamobius pallipes*.
- 3.49 The suboptimal nature of Ditch 1 for these 3 aquatic species, coupled with the absence of records of any of these species within 1km of the site means it is considered very unlikely they are present on site.

4.0 DISCUSSION AND RECOMMENDATIONS

Designated Sites

Statutory Designations

Burbage Wood and Aston Firs SSSI

- 4.1 Burbage Wood and Aston Firs SSSI, the majority of which is also ASNW, is located approximately 30m north of the Site boundary at its closest point, separated by Sapcote Road (B4669). The application Site therefore falls within the SSSI Impact Risk Zone (IRZ) where potential adverse impacts of all planning applications (excluding householder applications) need to be determined by Natural England following consultation from the Local Planning Authority (LPA).
- 4.2 The proposals will not have any impact on supporting habitats since no semi-natural woodland is found within the Site, coupled with the fact the SSSI and Site are separated by the B4669.
- 4.3 Current proposals do not include any footpaths directly linking the Site to the SSSI; it is therefore considered the development will not result in any significant increase in pedestrian footfall within the SSSI. In addition, Burbage Wood (the western section of the SSSI), has an extensive network of public footpaths and already experiences high levels of footfall, thus any slight increase is furthermore very unlikely to be significant. Aston Firs (the eastern section of the SSSI), on the other hand, currently appears to experience low levels of pedestrian disturbance and the development is unlikely to alter this since there is a very restricted network of public footpaths within this area. Therefore, it is considered overall the development will not significantly impact the levels of pedestrian footfall within the SSSI, with any increase in footfall within areas already with high levels. Thus the sensitive ground flora of the SSSI including bluebell *Hyacinthoides non-scripta* and a number of woodland orchid species will unlikely to be significantly impacted. This view is supported by the IRZ summary which does not list residential development as likely to require Natural England to be consulted by the LPA
- 4.4 Despite the Site being only 30m away from the SSSI, current proposals intend to create green infrastructure at the northernmost areas of the Site, so that proposed residential dwellings and associated infrastructure will be over 100m away to the SSSI at its closest point. Therefore, any impacts on the SSSI from increased light and noise during the operational phase of the development are expected to be insignificant.
- 4.5 The creation of a SUDS across the Site will ensure drainage is controlled and the rate and quality of run-off from the application site into the SSSI is maintained at existing green field rates.
- 4.6 To limit disturbance to the SSSI habitats during construction, it is recommended that best practice working methods are implemented. This will include the control of dust, accidental pollution events and the appropriate storage of materials.

Burbage Common and Woods LNR

- 4.7 Burbage Common and Woods LNR is situated over 200m north of the Site at its closest point. This distance means no adverse impact of pollution from increases in noise, dust or lighting are predicted. There will also be no loss of supporting habitat since the Site contains no acid grassland, semi-natural woodland or scrub habitat which form the LNR.
- 4.8 There will be no footpaths directly connecting the site to the LNR and therefore any increase in visitor numbers is predicted to be insignificant. Furthermore, the current level of footfall within the LNR is high, so any slight increase in numbers from the proposed residential development will likely not cause significant impacts.

Non-Statutory Designations

- 4.9 Non-statutory designated sites do not receive statutory protection. They do however receive policy protection (as “Local Sites”), as reflected in the National Planning Policy Framework (NPPF). NPPF suggests that Local Sites can have a fundamental role to play in meeting overall national biodiversity targets and that appropriate weight should be attached to designated sites when making planning decisions.
- 4.10 Aston Lane Hedgerow pLWS is approximately 10m east of the Site at its closest point and therefore at risk of direct damage from works within the Site. Therefore, the section of hedgerow closest to the Site should be protected from damage and soil compaction during works by maintaining Root Protection Areas (RPAs). Protection measures should include consideration of BS5837 *Trees in Relation to Construction – Recommendations: 2012 for trees and hedges*.
- 4.11 Aston Lane Hedgerow pLWS is at risk of indirect impacts from the development proposals, together with Sapcote Road Hedgerow pLWS which lies 40m away at its closest point. It is therefore recommended that best practice working methods are implemented throughout construction. This will include the control of dust, accidental pollution events and the appropriate storage of materials. The creation of a SUDS across the application Site will ensure drainage is controlled and the rate and quality of run-off from the application Site towards the pLWSs is maintained at existing green field rates.
- 4.12 All remaining non-statutory LWSs are considered to be at a sufficient distance from the Site to there be no anticipated direct or indirect effects from the proposed development.

Habitats

- 4.13 The degree to which habitats receive consideration within the planning system relies on a number of mechanisms, including:
- Inclusion within a specific policy, for example veteran trees, ancient woodland and linear habitats within the National Planning Policy Framework (NPPF), or local planning policies;
 - A non-statutory site designation (e.g. LWS);
 - Habitats considered as HPI for the conservation of biodiversity and species considered as SPI as listed within S41 of the NERC Act; and
 - Habitats identified as being a Priority Habitat within the LBAP.

- 4.14 The Environment Act 2021 came into force on 9th November 2021. This requires all developments subject to the Town and Country Planning Act to provide an at least 10% biodiversity net gain (BNG), as calculated using a Biodiversity Metric, with habitat used for net gain to be secured for a minimum of 30 years.
- 4.15 However, section 147 (3) states a 10% BNG delivery will only come into force once the secondary legislation is in place to support this requirement. Therefore, there is a transition period (the length of which is not defined but anticipated as being approximately 2 years) until the mandated 10% is required under law.
- 4.16 The emerging Hinckley and Bosworth Local Plan 2020 – 2039 states under policy 'NAT08 Enhancing Biodiversity and Habitat Connectivity' that *'all development should provide a net gain in biodiversity where possible. As a minimum, there should be no net loss of biodiversity. All proposals should be supported by evidence to demonstrate a biodiversity net gain using the recognised biodiversity accounting metric.'*

Grassland

- 4.17 Grassland habitats present within the Site comprised improved grassland dominated by a limited number of grasses and common herb species of limited interest. Its loss would not be expected to adversely affect the nature conservation value of the local area and should not be considered a constraint to development.
- 4.18 The grassland areas within the proposed green infrastructure should be created as native species-rich grassland, which would be of greater nature conservation value and adequately compensate for the loss of improved grassland. This habitat should be managed to promote its biodiversity value.

Hedgerows and Trees

- 4.19 The hedgerows currently provide a network of connective habitat across the Site, which link with other hedgerows and habitats in the wider area. The trees within the hedgerows provide structural diversity and additional biodiversity value. All hedgerows were dominated by native species and are therefore classified (together with associated trees and ditches) as HPI under Section 41 of the NERC Act and LBAP habitat.
- 4.20 The majority of the hedgerow network and associated mature trees will be retained within the proposals with the exception of some minor losses of relatively short sections of hedgerow totalling c. 130 and small number of associated trees including mature ash (T2) and two semi-mature pedunculate oaks from hedgerow (H7) resulting from the creation of vehicular access into and access the Site.
- 4.21 All hedgerows and trees that form standards should be protected from damage and soil compaction during works by maintaining Root RPAs. Protection measures should include consideration of BS5837 *Trees in Relation to Construction – Recommendations: 2012 for trees and hedges*.
- 4.22 The proposed additional hedgerows and the structural planting of scattered trees and scrub within the green infrastructure of the Site will more than mitigate for the loss of small sections of hedgerow and tree loss. This planting should comprise of native species in order to maximise biodiversity benefits.

Ditches

- 4.23 All ditches throughout the proposals are to be retained in full apart from small sections for vehicular access and footpaths. Any proposed roads or paths crossing ditch D1, which contains flowing water, will need to install a culvert to prevent blocking or diverting the flowing ditch.
- 4.24 Drainage proposals including the creation of SUDS across the Site will ensure that no excess run-off will enter the ditches when compared to the pre-development condition. Furthermore, the change of land-use from agricultural to residential will reduce the amount of agricultural run-off entering the ditches which will likely be of benefit to the system.

Biodiversity Net Gain

- 4.25 The BNG assessment has been carried out and submitted with this application using the appropriate metric. Whilst this shows that the proposed development would result in a net loss of biodiversity on site within the planning application boundary itself, there are a number of options available that would ensure that the scheme delivers a measurable net gain for biodiversity overall. These include:
- enhancement of land in the immediate vicinity of the site which is also controlled by Jelson; or
 - enhancement of land within Jelson's wider land holding; or
 - by entering a 'BioBank' scheme and purchasing the required units from an appropriate supplier.
- 4.26 A measurable net gain can, therefore, be secured by way of an appropriately worded Condition with the preferred mechanism to be confirmed through the discharge of conditions process.
- 4.27 This will ensure that the scheme complies with relevant policy with regards to Biodiversity Net Gain.

Fauna

Amphibians

- 4.28 The Site contains habitats of some foraging and hibernation potential to amphibians. Records of breeding GCN from 2016 were returned from a waterbody over 600m east of the Site (Figure 2), close to Woodgate Path Grassland cLWS. This recorded location was separated from the application Site by the B4669, considered a significant barrier to newt dispersal, in addition to being over 250m away, the maximum routine migratory range estimated for GCN^{23,24,25}. Furthermore, due to the presence of suitable terrestrial habitat surrounding the waterbody it is considered extremely unlikely that any potential GCN using these ponds would disperse further than this in the direction of the Site.

²³ *The migratory ecology and terrestrial habitat preferences of the crested newt Triturus cristatus, at Little Wittenham Nature Reserve.* Franklin, P. M. Phil Thesis, De Montford University, Dept of Applied Biology & Biotechnology. 1993.

²⁴ *Status of the warty newt Triturus cristatus.* Nature Conservancy Council, CSD Report no. 703. Oldman, R.S. and Nicholson, M., 1986.

²⁵ *The terrestrial summer habitat of radio-tracked great crested newts (Triturus cristatus) and marbled newts (Triturus marmoratus).* Herpetological Journal: 10(4): 137-142. Jehle, R., 2000.

- 4.29 Of the four ponds located within 250m of the Site, P4 was separated by the B4669 and P1 was dry found to be dry on both the 2020 and 2023 eDNA survey occasions and unsuitable for use as breeding habitat by GCN. The 2023 eDNA results for P2 and P3 were returned as negative demonstrating the absence of the species from these waterbodies. As such no constraints to development exist in relation to GCN.
- 4.30 Two records of common toad *Bufo bufo* were returned (Figure 2). One was from 2013 from approximately 820m east of the site within Land at the Coppice / Woodgate, Burbage cLWS, and the other was from 2015 from approximately 520m east of the Site boundary, close to Woodgate Path Grassland cLWS. Both these locations were isolated from the Site by the B4669 and therefore it was considered very unlikely this species will be utilising the habitats on Site.

Bats

Roosts

- 4.31 Four trees - T4, T5 & T7 - supported features considered to provide moderate bat roost potential. Two of these trees - T5 and T7 - lie outside the Site boundary and over 25m and over 45m (respectively) from the proposed built development, buffered by ditch 1, hedgerows and green infrastructure and therefore will not be impacted under current proposals.
- 4.32 Trees T4 and T8 fall within the Site but under current proposals the trees will remain unaffected by the proposals being retained within areas of green infrastructure and with connecting habitats maintained. In addition, as outlined in Paragraph 4.40, a sensitive lighting scheme is recommended throughout the Site. Therefore, the trees potential for roosting bats will not be impacted by the proposals.
- 4.33 For the trees with low potential for roosting bats (T1-T3 & T6), although the presence of a roost can be reasonably discounted at this stage it is recommended that if any of these trees are required to be removed this is done under good practice:
- Given the potential and features present a bat worker is not required to supervise removal of the low potential trees but the contractor/person undertaking works should do so as sensitively as possible.
 - Sectional felling of all above listed trees in lengths of 1-1.5m with material being lowered to the ground as carefully as possible.
 - Should any significant cavities of internal features be identified, these should be checked.
 - In the unlikely event bats or evidence of bats is recorded during the above, works should cease immediately, and a Natural England EPS licence will be necessary to facilitate removal.
- 4.34 Due to the transitory nature of bat roosts, the results of the emergence surveys are valid for twelve months from their completion. In the event that the trees are not removed within this period, updated assessment would be required to be confirm the continued absence of bats prior to their loss.

Activity

- 4.35 Over the activity surveys undertaken in 2020 six species / species groups were recorded. These were common pipistrelle, noctule, brown long-eared bat, *Myotis* species, soprano pipistrelle *Pipistrellus pygmaeus* and *Nyctalus* species. This assemblage of species is considered typical for a Site of this size and nature.
- 4.36 No material change in the Site habitats was recorded between the 2020 and 2023 habitat assessments, and therefore the value of the Site to foraging bats is highly unlikely to have changed in this period. Further survey in 2022/23 was therefore not considered unnecessary and the 2020 activity survey results are still considered valid.
- 4.37 Activity levels recorded during the transect surveys was low overall and across species. Activity was dominated by common pipistrelle and noctule, with very limited activity from brown-long eared bat and *Myotis* species (one contact recorded for each). The October static survey also recorded low overall activity, being dominated by common pipistrelle, with very limited activity from *Myotis* species, brown long-eared bat and noctule. The August and September static surveys however, recorded moderately high activity overall. Common pipistrelle dominated with moderately high activity levels, whilst noctule ranged from low to moderate activity and low activity was recorded from the other species, with particularly limited activity from soprano pipistrelle and *Nyctalus* species (less than 1% of registrations each).
- 4.38 Although increased levels of activity were recorded during the static detector survey occasions, recorded activity during the transect surveys generally noted individual bats foraging and commuting along the hedgerows (which the statics were placed within) for extended periods of time. As such, it is likely that many of the registrations recorded during the static detector surveys were individual or small numbers of bats foraging for a prolonged time and therefore producing many registrations on the static bat detectors.
- 4.39 The relative abundance of the bat species within Leicestershire is provided within the Leicester, Leicestershire and Rutland BAP, which states that common pipistrelle, soprano pipistrelle, brown long-eared are all common and widespread within the county. Noctule and *Myotis* species are considered to be uncommon. The levels of activity recorded from these species are therefore consistent with their known abundance at a regional and national scale and is not considered to be significant.
- 4.40 Given the very similar echolocation calls of *Myotis* species, it is very difficult to identify these to species level based on recordings. However, given the geographic location of the Site, the results of the desktop study and the habitats present within the Site, it is considered likely that the *Myotis* species recorded during the surveys were either whiskered *Myotis mystacinus* (uncommon but widespread), Brandt's *Myotis brandtii* (rare), natterer's *Myotis nattereri* (uncommon) or Daubenton's *Myotis daubentonii* (widespread).
- 4.41 Bat activity during the transect surveys was generally distributed throughout the site and associated with the hedgerows, with only brief passes or commuting over the improved grassland. During both the static and transect survey periods, the highest levels of commuting and sustained foraging activity was recorded in association with hedgerows in the central and southern areas of the site, particularly hedgerows H9, H15 and H19. Two instances of social calling were also recorded within the second transect survey, along hedgerow H15 and H7.

- 4.42 The development proposals are considered unlikely to significantly affect the local population of bat species since habitats to be lost comprises improved grassland which is of low value to bats, whilst the vast majority of hedgerows which are of highest value to bats are to be retained, together with their associated standard trees and ditches. In addition, the sensitive lighting scheme and provision of habitats within the green infrastructure (GI) as discussed below, will further minimise impacts and provide enhancements.

Lighting

- 4.43 Bat activity recorded on site was dominated by common pipistrelle and noctule which are adaptable species and tolerant of artificial light, feeding on insect congregations around artificial lights. However, some species of bats are known to be deterred by artificial lighting such as brown long-eared and *Myotis* species which were recorded within the Site in low numbers. In order to minimise impacts associated with light spill on bat flight-lines or foraging habitat, mitigation measures should be implemented in accordance with best practice²⁶ including:
- The avoidance of direct lighting of existing hedgerows and trees or proposed areas of habitat creation;
 - Unnecessary light spill will be controlled through a combination of LED directional lighting, low lighting columns, hooded/shielded luminaires and/or strategic planting;
 - Light free of UV emissions to prevent potential adverse effects on flying insects and bat populations; and
 - Lighting designed to switch off or be dimmable where possible.
- 4.44 As a result of implementing the above strategy residual effects of new lighting are expected to be below that considered to have a significant impact on foraging and commuting bats.

Enhancements

- 4.45 Green infrastructure proposals provide extensive opportunities to compensate any effects on the local bat population. These proposals include the creation of attenuation features, structural planting and grassland areas. The structural planting will increase connectivity along the eastern and southern peripheries of the Site and should comprise native scrub and woodland planting to provide the greatest diversity of invertebrate food for bats. The grassland areas should comprise rough native species-rich grassland to maximise their value to foraging bats and be managed appropriately. Attenuation bodies should hold permanent water if feasible and be planted with a native marginal mix in order to attract invertebrate prey. Attenuation basins without permanent water should be seeded with a native wet grassland mix. This mosaic of habitats along the eastern and southern peripheries of the site would provide greater foraging habitats than the current improved grassland.
- 4.46 Where the use of native species is not practical/desirable within the built areas of the development preference should be given to species which are night scenting or fruit bearing trees which will attract insects and in turn bats which feed on them.

²⁶ Gazaryan, S. & Meyer-Cords, T. (Eds). (2018): *Guidelines for consideration of bats in lighting projects*. EUROBATs Publication Series No. 8. Bonn: UNEP/EUROBATs Secretariat.

- 4.47 Potential enhancements that could be incorporated in the current proposals include artificial bat roost features. A mix of box types (or similar) recommended below, placed on suitable retained trees across site, will provide suitability for difference species, roosting both singularly and in groups at different times of year.
- Schwegler 2FN/1FD
 - Schwegler 2F
 - Schwegler 1FF
- 4.48 Boxes can be installed following advice from an ecologist in groups of 2 or 3 at least 4m from the ground. Ideally bat boxes will be on south-eastern or south-western aspects.

Birds

Evaluation

Local Wildlife Site Selection Criteria

- 4.49 The survey area was assessed against published criteria for LWS selection in the *Selection for Local Wildlife sites in Leicester, Leicestershire and Rutland* to assess the survey area against the thresholds for county value.
- 4.50 The criteria relevant to breeding birds are:
- Sites that support at least 10% of the county breeding pairs of Leicestershire and Rutland RDB. These are species categorised as uncommon, scarce, rare or very rare in the county **or** as red or amber listed BoCC **or** as UKBAP (superseded by NERC S.41) or LBAP priority species; and
 - Sites that support important breeding assemblages as calculated using the *threshold site index values* for the relevant habitat. Species need evidence of breeding within the survey area to be included.
- 4.51 Although a number of bird species which are categorised as L&R RDB species were recorded as confirmed, probable or possible breeders within the survey area, none of these were recorded in numbers which constituted at least 10% of the County population. Therefore, the survey area does not meet the criteria for an LWS based on the populations of RDB species it supports.
- 4.52 No relevant habitats listed within the LWS selection criteria were present within the survey area.
- 4.53 Therefore, it is considered that the survey area would not meet the criteria for an LWS based on its breeding bird assemblage alone.

Assemblage Value

- 4.54 The habitats within the survey area supported a range of common and widespread species in numbers typical of the habitats present. This included providing breeding and foraging opportunities for generalist species, such as the notable dunnock, greenfinch and starling, in addition to very small numbers of farmland specialists, such as the notable stock dove, linnet and yellowhammer. Due to the widespread nature of all the species recorded locally and nationally the survey area was considered to be of no more than **Local** level importance for its breeding bird assemblage.

Individual Species

- 4.55 Table 11 summarises the five bird species recorded within the site that are of at least **Local** importance.
- 4.56 The other bird species recorded utilising the habitats within the Site were either recorded in low numbers, infrequently and/or are considered common and widespread breeding species nationally and/or locally. These species are recognised as being of only **Site** importance.

Table 11: Birds of at least Local Importance

Name		Status			Nature Conservation Value
		WCA Sch.1	NERC S.41	LBAP	
BoCC Red List					
Starling	<i>Sturnus vulgaris</i>		+		Local
Greenfinch	<i>Chloris chloris</i>				Local
BoCC Amber List					
Woodpigeon	<i>Columba palumbus</i>				Local
Wren	<i>Troglodytes troglodytes</i>				Local
Dunnock	<i>Prunella modularis</i>		+		Local

Further Survey

- 4.57 The breeding bird survey effort undertaken was considered sufficient and proportional to the habitats present since the site is dominated by heavily grazed improved grassland of limited value to birds. The bird assemblage within the Site was evaluated as no more than local conservation value and only contained common widespread bird species.

Impact Assessment

- 4.58 The potential impact of the loss or change of habitat upon breeding bird species arising from the effects of development is based upon the following: an understanding of each species' ecological requirements; the type of development; number of birds recorded within the survey area; their nature conservation criteria based on legislation and current guidance; their county status and professional judgement.
- 4.59 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 Impacts

- 4.60 The individual species recorded within the survey area that are arguably the most vulnerable to impacts from habitat loss/change are the five species that are considered to be of at least Local importance.

- 4.61 The vast majority of hedgerows and associated trees and ditches are to be retained under current proposals, thus resulting in a **Negligible** short-term impact for the generalist species which inhabit them. Many of the species recorded within these habitats readily inhabit residential areas, particularly once the vegetation is established, including the locally important dunnoek, woodpigeon, wren, greenfinch and starling. The proposed green infrastructure planting will therefore result in a **Minor Beneficial** long-term impact on a local level for many of these species as the vegetation matures.
- 4.62 The loss of the majority of improved grassland within the Site should be compensated by the creation of higher value species-rich rough grassland within the green infrastructure of the development. This will continue to provide foraging resources for the small numbers of farmland specialists recorded on site. Therefore, together with the retention of the hedgerows and trees, overall the development will have a **Negligible** impact on the farmland specialist species recorded.

Disturbance Impacts

- 4.63 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 periods²⁷. During the breeding season disturbance may lead to nest desertion or the avoidance of the area and reduce the suitability of retained nesting areas, such as retained hedgerows/trees. Whilst there is some potential for breeding success to be reduced, this is not expected to affect the local conservation status on the majority of the bird species using the Site for breeding.
- 4.64 The increase in domestic animals during the operational phase, particularly cat, may lead to an effect on small bird populations. Recent research is inconclusive as to the actual effect that domestic cats can have on wild populations. However, although some species may be more susceptible to predation than others, it is considered unlikely that the increased abundance of cats would alter the conservation status of any of the breeding bird assemblages in this instance, with the magnitude of any such impact reduced by the retention of some hedgerows which will continue to provide cover and screening from potential predators. It is therefore considered that the impact of cats will be of negligible significance.

Disturbance Mitigation

- 4.65 To avoid disturbance to breeding birds, ground and vegetation clearance works will be undertaken outside of 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 WCA. A suitably qualified ecologist would supervise this.
- 4.66 These measures will ensure the impact of disturbance during construction to any nesting birds is reduced to negligible.

²⁷ 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

Enhancements

- 4.67 Additional planting to be incorporated into the Site's green infrastructure will provide additional foraging and breeding habitat for a range of bird species. The provision of native fruit and nut-bearing species will provide an optimal foraging resource for a range of bird species.
- 4.68 The areas of grassland within the green infrastructure should comprise species-rich rough grassland to be of the greatest value to birds. The grassland should include seed mixes specifically designed to provide foraging resources for birds and be cut after mid-July to allow plants to set seed. The use of fertilisers and pesticides should be avoided.
- 4.69 Proposed attenuation features and ditches should hold an area of permanent water, if feasible, to provide an enhancement by providing habitat for a range of wetland birds not yet recorded within the Site. Planting the attenuation features with an appropriate native marginal vegetation mix that includes common reed *Phragmites australis* will provide good nesting opportunities for species including reed bunting *Emberiza schoeniclus* and warbler species. Non-native plants should be avoided as many are invasive. The creation of wetland grassland within the temporarily wet/inundated parts of the features, along with sensitive management, will provide valuable foraging habitat.
- 4.70 Additional enhancements that could be integrated with the on-going management of the Site include the erection of a mixture of nest box types. The following provides details of suitable nest box types to be erected at suitable locations:
- A mixture of small hole (25 to 32mm diameter) boxes placed on suitable trees will provide nesting opportunities for species such as blue tit *Cyanistes caeruleus* and great tit *Parus major*. These boxes generally have a high uptake rate;
 - Small open fronted nest boxes placed on suitable trees especially those which support a climber such as ivy which provides a degree of concealment. These boxes typically attract species such as robin and blackbird;
 - Larger wood nest boxes with large holes (45-50 mm diameter) placed within the built environment and on suitable trees will provide nesting for starling. These boxes will also provide suitable nesting for great spotted woodpecker *Dendrocopos major* when placed on large mature trees;
 - The inclusion within the built environment of species-specific nest boxes for house sparrow and swift will encourage these urban species to breed on Site, which have both undergone significant local and national declines.
 - The provision of very large nest boxes for kestrel *Falco tinnunculus* and stock dove at least 5m high on trees away from potential disturbance will provide breeding opportunities for these species.

Reptiles

- 4.71 The majority of the survey area was unsuitable for reptiles, although the banks of the ditches and the hedgerow bases did provide a limited area of habitat of some potential for reptiles.
- 4.72 Seven records of grass snake *Natrix helvetica* were returned ranging from 2012 to 2017 (Figure 2). All were located within, or under 150m from, Woodgate Path Grassland cLWS and Land at the Coppice/Woodgate, Burbage cLWS. These locations are isolated from the site by the B4669, which presents a significant barrier to dispersal for reptiles.
- 4.73 Given the very limited suitability of habitats within the Site, together with the isolation of the Site from areas with known reptile populations, the presence of reptiles on Site can be reasonably discounted and they are not considered to be a constraint to development proposals.

Additional Biodiversity Enhancements

- 4.74 The development of the Site provides an opportunity for biodiversity enhancement in line with national planning policy. Aside from measures listed above, the following measures are recommended.
- Where at all possible attenuation features should be designed to hold a degree of standing water and incorporate features of conservation interest such as native planting, species-rich grassland, scalloped edges and varying depths. Such features would encourage use by groups such as amphibians and reptiles.
 - Hedgehog shelters should also be placed at the base of boundary hedgerows to provide summer nesting and over-winter hibernation locations.
 - Small gaps should be created at the bottom or in the corner of garden fences when installed to aid wildlife dispersal across the site, including hedgehog.
 - All retained and new habitats should be managed sensitively to maintain their long-term viability and maximise their biodiversity value.

APPENDIX A: NON-STATUTORY DESIGNATED SITES WITHIN 1KM OF THE SITE BOUNDARY

Site Name/Ref	Designation Feature / Description	Approximate Distance at Closest Point and Orientation from Site Boundary
Local Wildlife Sites		
Burbage Common and Woods LWS 25865	Transitional mesotrophic/acid grassland, ancient semi-natural woodland, significant bird & amphibian assemblages and Red Data Book species, with scrub and ponds. Community value.	610m north
The Borrow Pit Grassland LWS 56422	Mesotrophic/mixed grassland on steeply sloping ground around lake. Meets primary criteria for mesotrophic grassland due to size and meets mixed grassland criteria due to species present.	620m east
Elmesthorpe Plantation Hedgerow LWS 47306	Species-rich hedgerow believed to be ancient with an average of over 6 woody species per 30m. Features include a ditch, standards / pollards and dead wood / old layers.	710m north
Field Rose Hedgerow LWS 47596	Species-rich hedgerow believed to be ancient. A total of 12 native woody species present and an average of 7 per 30m. 2m - 5m high, continuous, with a length attaining 243m. Other features include a ditch, standards and dead wood / old layers.	830m north
Hedgerow, Elmesthorpe LWS 23261	Species-rich hedgerow with a total of 12 woody species, with an average of 9 per 30m. 2-3m tall with regular standards present. Other features include a ditch and dead wood / old layers.	830m north
Candidate Local Wildlife Sites		
Aston Lane Ash Trees cLWS 90002	Three mature ash trees with girth 3-5m and evidence of heart rot.	390m south
Woodgate Path Grassland cLWS 90787	Semi-improved neutral grassland bisected by pipeline groundworks.	600m northwest
Trees at the Coppice, Burbage cLWS 90721	Mature trees– no further information provided.	660m northwest
Lash Hill Path Willow Tree cLWS 90812	Mature <i>Salix</i> sp. standard in boundary hedgerow at bottom of garden/alongside PROW. Girth over 4m.	690m west

Site Name/Ref	Designation Feature / Description	Approximate Distance at Closest Point and Orientation from Site Boundary
Freeholt Wood cLWS 90992	Broad-leaved woodland with canopy of ash, birch and English oak. Ground flora includes English bluebell and frequent bryophytes and dead wood. Currently designated at District-level and included in Ancient Woodland Inventory.	730m northeast
Land at the Coppice/ Woodgate, Burbage cLWS 90722	Fairly species-rich semi-improved mesotrophic grassland, grazed by rabbits but probably formerly horse-grazed. Patches of tall herbs and ruderal vegetation, adjacent to small area of Alder wet woodland containing several mature specimens and with associated heavily shaded pond and scrub. One mature Ash tree with deadwood of LWS standard beside pond in addition to two mature English oaks. There are also habitat mosaics of ruderal vegetation, rough grassland and scrub. Current condition is neglected and possibly declining.	740m northwest
Hinckley Road Verges cLWS 92010	Road verges with 10 LWS indicator species recorded.	780m northeast
Lash Hill Path Ash Tree cLWS 90805	Mature ash standard in hedgerow alongside footpath. Girth estimated >3m. Deadwood and bracket fungi. Noted as fallen in 2017, now stump only.	830m west
Burbage, Land East of Lutterworth Road cLWS 92006	Complex of 8 fields with good species diversity, many meeting LWS criteria. Also mature Ash	850m south
Potential Local Wildlife Sites		
Aston Lane Hedgerow pLWS 90764	Species-rich hedgerow with trees. Features include partial ditch and occasional old layers.	7m east
Sapcote Road Hedgerow pLWS 90809	Overgrown species-rich hedgerow with numerous standards.	40m northwest
Smithy Lane Grassland and Hedgerow pLWS 90808	Overgrown species-rich hedgerow with numerous standards and old layers. Adjacent to mesotrophic grassland, northern end ungrazed whilst southern end grazed by horses.	120m north
Burbage Common & Woods pLWS 12545	Adjacent habitats to LWS (part of LNR)	200m north

Site Name/Ref	Designation Feature / Description	Approximate Distance at Closest Point and Orientation from Site Boundary
Burbage, Hedgerow pLWS 90664	Hedgerow– no further information provided.	230m east
Burbage, Aston Lane Green Lane Hedge (North) pLWS 90663	Hedgerow – no further information provided.	380m southwest
Burbage Wood Hedgerow pLWS 90785	Quite varied species-rich hedgerow with trees, untopped and overgrown.	400m northwest
Green Lane Hedgerow pLWS 90766	Quite varied species-rich hedgerow.	430m east
Aston Lane Verge pLWS 90765	Road verge with herb-rich semi-improved neutral grassland	460m east
Cemetery Hedgerow pLWS 90790	Overgrown species-rich hedgerow with layers and ditch.	470m south
Woodland Adjacent Aston Firs pLWS 90783	Broad-leaved woodland with canopy of ash and English oak and stands of poplar. No apparent management. Adjacent to Aston Firs SSSI, not accessible.	570m northeast
Boundary Beech Tree pLWS 90793	Mature beech standard on boundary. Multi-stemmed above 2m and girth c. 3.8m. Small dead wood and cavities Site now destroyed.	590m southeast
Castlewood Grassland pLWS 90769	Mesotrophic grassland grazed by horses with a fairly even sward and frequent herbs.	590m northeast
Burbage Wood Hedgerows 2 pLWS 90789	Untopped and overgrown species-rich hedgerows with trees. A stream runs along one of the hedgerows.	610m northwest
Lychgate Lane Hedgerow pLWS 90791	Reasonably varied species-rich hedgerow with ditch and old layers. Overgrown, grading into belt of dense scrub at western end.	650m south
Burbage, Lychgate Lane (South) Hedge pLWS 90660	Hedgerow– no further information provided.	690m south
Outwoods Grassland pLWS 90786	Horse-grazed mesotrophic grassland Horse grazed. Old ridge and furrow with variable sward, mostly fine, with frequent herbs.	720m northwest

Site Name/Ref	Designation Feature / Description	Approximate Distance at Closest Point and Orientation from Site Boundary
Woodgate Hedge, Burbage pLWS 90719	Hedgerow– no further information provided.	780m northwest
Hinckley Road Grassland pLWS 90767	Cattle-grazed mesotrophic grassland with a fine sward. Ground sloping and undulating. Locally frequent nettle indicating some local improvement.	800m east
Elmesthorpe Boundary Hedgerows pLWS 90999	Overgrown species-rich hedgerows with trees. Features include old layers and ditch. Currently designated at Parish-level.	890m northeast
Freeholt Meadow pLWS 90984	Herb-rich mesotrophic grassland with a fine sward, appearing fairly uniform.	930m northeast
Junction 2 Grassland pLWS 90993	Rough, unmanaged mesotrophic grassland and scattered scrub within M69/B4669 junction. Also small pond with no associated aquatic vegetation.	970m northeast
Lychgate Path Ash Tree 2 pLWS 90762	Mature ash standard on boundary, girth estimated at >3m.	980m southeast
Historic Potential Local Wildlife Sites		
Aston Flamville, Stream N of Village pLWS:hist 10001	No recent survey data – not known if the site still has value	420m east
Aston Flamville Borrow Pit pLWS:hist 10002	No recent survey data – not known if the site still has value	650m east
Elmesthorpe, Hedgerow N of Freeholt Wood pLWS:hist 10022	No recent survey data – not known if the site still has value	900m northeast
Ancient Semi-Natural Woodland		
Burbage Woods and Aston Firs ASNW	Ancient semi-natural woodland	30m north
Freeholt Wood ASNW	Ancient semi-natural woodland	730m northeast
Sheepy Wood ASNW	Ancient semi-natural woodland	1,070m northwest

APPENDIX B: PROTECTED AND NOTABLE SPECIES RECORDS WITHIN SEARCH RADIUS

Common Name	Scientific Name	Conservation Status	Number of records	Date of most recent record	Approximate distance (m) of closest record from site boundary
Mammals					
Badger	<i>Meles meles</i>	PBA	5	2019	160
Bat	<i>Chiroptera</i>	CHSR, WCA Sch5	3	2013	25
Brown Long-eared Bat	<i>Plecotus auritus</i>	CHSR, WCA Sch5	2	2015	623
Chinese Muntjac	<i>Muntiacus reevesi</i>	INNS	12	2021	121
Common Pipistrelle	<i>Pipistrellus pipistrellus</i>	CHSR, WCA Sch5	79	2021	414
Lesser noctule	<i>Nyctalus leisleri</i>	CHSR, WCA Sch5	2	2021	888
Long eared bat species	<i>Plecotus</i>	CHSR, WCA Sch5	1	2021	888
Myotis species	<i>Myotis</i>	CHSR, WCA Sch5	13	2021	811
Nathusius's pipistrelle	<i>Pipistrellus nathusii</i>	CHSR, WCA Sch5	1	2021	811
Noctule Bat	<i>Nyctalus noctula</i>	CHSR, WCA Sch5	19	2021	709
Nyctalus Bat species	<i>Nyctalus</i>	CHSR, WCA Sch5	3	2017	396
Pipistrelle Bat species	<i>Pipistrellus</i>	CHSR, WCA Sch5	1	2001	19
Serotine	<i>Eptesicus serotinus</i>	CHSR, WCA Sch5	8	2021	462
Soprano Pipistrelle	<i>Pipistrellus pygmaeus</i>	CHSR, WCA Sch5	3	2021	709
Birds					
Barn Owl	<i>Tyto alba</i>	WCA Sch1, LBAP	4	2010	601

Common Name	Scientific Name	Conservation Status	Number of records	Date of most recent record	Approximate distance (m) of closest record from site boundary
Brambling	<i>Fringilla montifringilla</i>	WCA Sch1	7	2015	709
Bullfinch	<i>Pyrrhula pyrrhula</i>	NERC S41, Amber list	16	2019	247
Cetti's Warbler	<i>Cettia cetti</i>	WCA Sch1	1	2017	709
Cuckoo	<i>Cuculus canorus</i>	NERC S41, Red list	5	2013	492
Dunnock	<i>Prunella modularis</i>	NERC S41, Amber list	21	2021	451
Fieldfare	<i>Turdus pilaris</i>	WCA Sch1, Red list	7	2017	601
Greylag Goose	<i>Anser anser</i>	WCA Sch.1 (Pt. 2), Amber list	1	2016	506
Hawfinch	<i>Coccothraustes coccothraustes</i>	NERC S41, Red list	1	2017	709
Hobby	<i>Falco subbuteo</i>	WCA Sch1	5	2010	709
House Martin	<i>Delichon urbicum</i>	Amber list, LBAP	5	2011	626
House Sparrow	<i>Passer domesticus</i>	NERC S41, Red list	4	2018	104
Kingfisher	<i>Alcedo atthis</i>	WCA Sch1	1	2014	553
Lapwing	<i>Vanellus vanellus</i>	NERC S41, Red list	5	2017	472
Lesser Redpoll	<i>Acanthis cabaret</i>	NERC S41, Red list	15	2015	492
Lesser Spotted Woodpecker	<i>Dendrocopos minor</i>	NERC S41, Red list	4	2010	407
Linnet	<i>Linaria cannabina</i>	NERC S41, Red list	2	2019	318
Marsh Tit	<i>Poecile palustris</i>	NERC S41, Red list	35	2016	492
Peregrine	<i>Falco peregrinus</i>	WCA Sch1	1	2017	709
Red Kite	<i>Milvus milvus</i>	WCA Sch1	6	2015	407
Redstart	<i>Phoenicurus phoenicurus</i>	Amber list, LBAP	2	2016	769

Common Name	Scientific Name	Conservation Status	Number of records	Date of most recent record	Approximate distance (m) of closest record from site boundary
Red-throated Diver	<i>Gavia stellata</i>	WCA Sch1	2	2013	492
Redwing	<i>Turdus iliacus</i>	WCA Sch1, Red list	13	2017	104
Reed Bunting	<i>Emberiza schoeniclus</i>	NERC S41, Amber list	6	2019	605
Ring Ouzel	<i>Turdus torquatus</i>	NERC S41, Red list	22	2016	709
Skylark	<i>Alauda arvensis</i>	NERC S41, Red list	3	2017	522
Song Thrush	<i>Turdus philomelos</i>	NERC S41, Red list	21	2019	451
Spotted Flycatcher	<i>Muscicapa striata</i>	NERC S41, Red list	3	2014	492
Starling	<i>Sturnus vulgaris</i>	NERC S41, Red list	10	2021	5
Swallow	<i>Hirundo rustica</i>	LBAP	8	2017	106
Swift	<i>Apus apus</i>	Amber list, LBAP	8	2019	390
Tree Sparrow	<i>Passer montanus</i>	NERC S41, Red list	3	2013	595
Turtle Dove	<i>Streptopelia turtur</i>	NERC S41, Red list	2	2008	709
Willow Tit	<i>Poecile montanus</i>	NERC S41, Red list	11	2014	492
Wood Warbler	<i>Phylloscopus sibilatrix</i>	NERC S41, Red list	1	2009	492
Yellow Wagtail	<i>Motacilla flava</i>	NERC S41, Red list	2	2013	769
Yellowhammer	<i>Emberiza citrinella</i>	NERC S41, Red list	3	2014	764
Herpetofauna					
Common Toad	<i>Bufo bufo</i>	NERC S41	2	2015	520
Grass Snake	<i>Natrix helvetica</i>	WCA Sch5, NERC S41	10	2017	478

Common Name	Scientific Name	Conservation Status	Number of records	Date of most recent record	Approximate distance (m) of closest record from site boundary
Great Crested Newt	<i>Triturus cristatus</i>	CHSR, WCA Sch5, NERC S41	2	2016	605
Invertebrates					
Harlequin Ladybird	<i>Harmonia axyridis</i>	INNS	9	2018	431
Cinnabar	<i>Tyria jacobaeae</i>	NERC S41	6	2014	962
Latticed Heath	<i>Chiasmia clathrata</i>	NERC S41	2	2009	991
Shaded Broad-bar	<i>Scotopteryx chenopodiata</i>	NERC S41	2	2009	991
Jenkins' Spire Snail	<i>Potamopyrgus antipodarum</i>	INNS	1	2022	482
Plants					
Bee Orchid	<i>Ophrys apifera</i>	LRPR	8	2017	715
Bogbean	<i>Menyanthes trifoliata</i>	LRPR	1	2013	318
Buck's-horn Plantain	<i>Plantago coronopus</i>	LRPR	3	2020	38
Chamomile	<i>Chamaemelum nobile</i>	NERC S41, LRPR	1	2016	623
Cherry Laurel	<i>Prunus laurocerasus</i>	INNS	4	2018	38
Chicory	<i>Cichorium intybus</i>	LRPR	2	2017	38
Columbine	<i>Aquilegia vulgaris</i>	LRPR	4	2018	38
Common Bistort	<i>Persicaria bistorta</i>	LRPR	1	2017	815
Common Cornsalad	<i>Valerianella locusta</i>	LRPR	6	2017	38
Common mouse-ear	<i>Cerastium fontanum</i>	NERC S41	1	2021	996
Cornflower	<i>Centaurea cyanus</i>	LRPR, NERC S41	1	2021	16
Corn Marigold	<i>Glebionis segetum</i>	LRPR	2	2021	16

Common Name	Scientific Name	Conservation Status	Number of records	Date of most recent record	Approximate distance (m) of closest record from site boundary
Curly Waterweed	<i>Lagarosiphon major</i>	WCA Sch9, INNS	2	2016	639
English Bluebell	<i>Hyacinthoides non-scripta</i>	WCA Sch8, LRPR	26	2021	38
Field Pepperwort	<i>Lepidium campestre</i>	LRPR	1	2011	746
Greater Butterfly-orchid	<i>Platanthera chlorantha</i>	LRPR	7	2018	384
Greater Celandine	<i>Chelidonium majus</i>	LRPR	6	2017	0
Himalayan Balsam	<i>Impatiens glandulifera</i>	WCA Sch9, INNS	6	2017	38
Hybrid Bluebell	<i>Hyacinthoides x massartiana</i>	INNS	6	2021	38
Japanese Knotweed	<i>Reynoutria japonica</i>	WCA Sch9, INNS	3	2018	318
Rye Brome	<i>Bromus secalinus</i>	LRPR	1	2017	38
Small-leaved Lime	<i>Tilia cordata</i>	LRPR	1	2017	38
Solomon's-seal	<i>Polygonatum multiflorum</i>	LRPR	1	2017	493
Spanish Bluebell	<i>Hyacinthoides hispanica</i>	INNS	3	2018	38
Spear Mint	<i>Mentha spicata</i>	LRPR	3	2018	643
Variegated Yellow Archangel	<i>Lamium galeobdolon</i> subsp. <i>Argentatum</i>	WCA Sch9, INNS	2	2018	38
Wall Cotoneaster	<i>Cotoneaster horizontalis</i>	INNS	3	2017	38
White Stonecrop	<i>Sedum album</i>	INNS	3	2019	38
Wild candytuft	<i>Iberis amara</i>	NERC S41	1	2021	16

Common Name	Scientific Name	Conservation Status	Number of records	Date of most recent record	Approximate distance (m) of closest record from site boundary
Amber list and Red list - Birds of Conservation Concern (BoCC) in the UK ²⁸ ; CHSR - the Conservation of Habitats and Species Regulations 2017 (as amended), NERC S41 – The Natural Environment and Rural Communities Act (2006), PBA – Protection of Badgers Act 1992, WCA Sch5 - Schedule 5 of the Wildlife and Countryside Act 1981 (as amended), WCA Sch 1 - Schedule 1 of the Wildlife and Countryside Act 1981 (as amended), WCA Sch 9 - Schedule 9 of the Wildlife and Countryside Act 1981 (as amended), INNS – Invasive Non-Native Species, LRPR – Local Rare Plant Register					

²⁸ 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

APPENDIX C– BOTANICAL SPECIES LIST

The DAFOR values used in the report correspond to the following ranges of percentage cover:

Dominate (D)	75-100% cover
Abundant (A)	25-75% cover
Frequent (F)	10-24% cover
Occasional (O)	5-9% cover
Rare (R)	<5% cover or <5 individuals / clumps within the survey unit
Present (P)	Coverage not estimated

Scientific Name	Vernacular Name	Cover %					
		F1	F2	F3	F4	D1	Other Ditches
<i>Agrostis capillaris</i>	Common bent	A	F	F-A	A	-	-
<i>Agrostis stolonifera</i>	Creeping bent	R-O	R-O	R-O	R-O	-	-
<i>Alopecurus geniculatus</i>	Marsh foxtail	-	-	-	R	-	-
<i>Alopecurus pratensis</i>	Meadow Fox-tail	A	A	A	A	-	-
<i>Anthoxanthum odoratum</i>	Sweet vernal-grass	-	F	O	R	-	-
<i>Arctium lappa</i>	Greater burdock	-	-	-	-	-	P
<i>Arrhenatherum elatius</i>	False oat-grass	-	-	R	-	-	-
<i>Bellis perennis</i>	Daisy	-	R	R	R	-	-
<i>Bromus hordeaceus</i>	Soft-brome	-	-	R	-	-	-
<i>Centaurea nigra</i>	Common knapweed	-	-	R/LF	-	-	-
<i>Cerastium fontanum</i>	Common mouse-ear	O	F	O	O	-	-
<i>Cirsium arvense</i>	Creeping thistle	R	R	R	R	-	-
<i>Conopodium majus</i>	Pignut	-	R	R/LF	O	-	-
<i>Cynosurus cristatus</i>	Crested Dog's-tail	F	F	A	F	-	-
<i>Dactylis glomerata</i>	Cock's-foot	O	R	O	O	-	-
<i>Deschampsia cespitosa</i>	Tufted hair-grass	-	-	-	-	-	P
<i>Equisetum arvense</i>	Field horsetail	-	-	-	-	-	P
<i>Epilobium hirsutum</i>	Great willowherb	-	-	-	-	P	P
<i>Festuca rubra</i> agg.	Red fescue	O	A	F-A	A	-	-
<i>Filipendula ulmaria</i>	Meadowsweet	-	-	-	-	P	P
<i>Galium aparine</i>	Cleavers	-	-	-	-	-	P
<i>Heracleum sphondylium</i>	Hogweed	R	-	R	-	-	-
<i>Holcus lanatus</i>	Yorkshire-fog	A	A	A	A	-	-
<i>Hordeum secalinum</i>	Meadow barley	-	-	R	-	-	-
<i>Hypochaeris radicata</i>	Cat's-ear	-	R	-	-	-	-
<i>Iris pseudacorus</i>	Yellow-iris	-	-	-	-	P	-
<i>Jacobaea vulgaris</i>	Common ragwort	-	R	-	-	-	-
<i>Juncus effusus</i>	Soft-rush	-	-	-	-	P	P
<i>Lathyrus pratensis</i>	Meadow vetchling	R	R	R	-	-	-
<i>Lolium perenne</i>	Perennial Rye-grass	F-A	A	A	A	-	-
<i>Luzula campestris</i>	Field wood-rush	-	-	R	-	-	-
<i>Phalaris arundinacea</i>	Reed canary-grass	-	-	-	-	P	P
<i>Phragmites australis</i>	Common reed	-	-	-	-	-	P
<i>Pimpinella saxifraga</i>	Burnet-saxifrage	-	-	-	-	-	P
<i>Plantago lanceolata</i>	Ribwort plantain	-	R	R	-	-	-
<i>Plantago major</i>	Greater plantain	-	-	R	-	-	-
<i>Poa annua</i>	Annual meadow-grass	R	R	-	R	-	-
<i>Poa trivialis</i>	Rough Meadow-grass	A	A	A	A	-	-
<i>Prunella vulgaris</i>	Selfheal	-	-	-	R	-	-
<i>Ranunculus acris</i>	Meadow buttercup	F	F	O	F	-	-
<i>Ranunculus bulbosus</i>	Bulbous buttercup	P	P	-	P	-	-
<i>Ranunculus repens</i>	Creeping buttercup	O	F	O	O	-	-

Scientific Name	Vernacular Name	Cover %					
		F1	F2	F3	F4	D1	Other Ditches
<i>Rubus fruticosus</i> agg.	Bramble	-	-	-	-	-	P
<i>Rumex acetosa</i>	Common sorrel	R	R	R-O	R	-	-
<i>Rumex crispus</i>	Curled dock	-	R	-	R	-	-
<i>Rumex obtusifolius</i>	Broad-leaved dock	R	R	R	R	-	-
<i>Sanguisorba officinalis</i>	Great burnet	-	-	R-O	-	-	-
<i>Schedonorus pratensis</i>	Meadow fescue	-	-	-	R	-	-
<i>Scrophularia auriculata</i>	Water figwort	-	-	-	-	P	-
<i>Sonchus asper</i>	Prickly sow-thistle	-	-	-	R	-	-
<i>Stellaria graminea</i>	Lesser stitchwort	-	R	-	-	-	-
<i>Taraxacum</i>	Dandelion	R	R	R	R	-	-
<i>Trifolium dubium</i>	Lesser trefoil	R	-	R	R	-	-
<i>Trifolium pratense</i>	Red clover	-	O	O	R	-	-
<i>Trifolium repens</i>	White clover	F-A	O	F-A	O	-	-
<i>Trisetum flavescens</i>	Yellow oat-grass	R	R	-	O/LF	-	-
<i>Urtica dioica</i>	Common nettle	-	R	-	-	P	P
<i>Veronica beccabunga</i>	Brooklime	-	-	-	-	P	-
<i>Veronica chamaedrys</i>	Germander speedwell	-	R	-	R	-	-
<i>Vicia sativa</i>	Common vetch	-	R	-	R	-	-

APPENDIX D – SITE PHOTOGRAPHS



**Photo 1: Field F4 Improved Grassland
(August 2022)**



**Photo 2: Field F2 Improved Grassland
(August 2022)**



**Photo 3: Field F1 Improved Grassland
(June 2023)**



**Photo 4: Field F3 Improved Grassland
(June 2022)**



**Photo 5: Field F4 Improved Grassland
(August 2023)**



**Photo 6: Wet Flowing Ditch (D1)
(August 2022)**



Photo 7: Intermittent Wet Ditch



Photo 8: Hedgerow with Trees



Photo 9: T1 Pedunculate Oak



Photo 10: T2 Ash



Photo 11: T3 Ash



Photo 12: T4 Ash



Photo 13: T5 Ash



Photo 14: T6 Ash

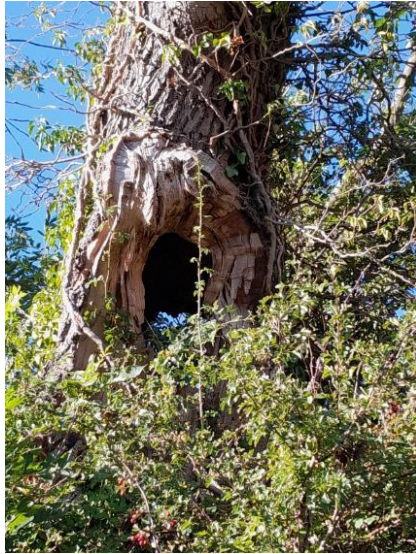


Photo 15: T7 Ash



Photo 16: T8 Pedunculate Oak

APPENDIX E – 2023 HABITAT SUITABILITY INDEX (HSI) RESULTS

	Pond Name	Pond 2		Pond 3	
SI No.	SI Description	Field Result	SI Value	Field Result	SI Value
1	Geographic Location	Optimal	1	Optimal	1
2	Pond Area	<50m²	0.05	<50m²	0.05
3	Permanence	Sometimes	1	Sometimes	1
4	Water Quality	Moderate	0.67	Poor	0.33
5	Shade	80	0.6	95%	0.3
6	Water Fowl Effect	Absent	1	Absent	1
7	Fish Presence	Absent	1	Absent	1
8	Pond Density	2	0.8	2	0.8
9	Terrestrial Habitat	Poor	0.33	Poor	0.33
10	Macrophyte Cover	80%	1	80%	1
HSI Score			0.51		0.59
Pond Suitability			Below Average		Below Average

APPENDIX F – 2023 eDNA RESULTS

Client: Nick Grant,
FPCR Environment and Design



ADAS
Spring Lodge
172 Chester Road
Helsby
WA6 0AR

Tel: 01159 229249
Email: Helen.Rees@adas.co.uk

www.adas.uk

Sample ID: ADAS-679 Condition on Receipt: Low Sediment Volume: Passed
Client Identifier: P2, 7162 Description: pond water samples in preservative
Date of Receipt: 27/06/2023 Material Tested: eDNA from pond water samples

Determinant	Result	Method	Date of Analysis
Inhibition Control [†]	2 of 2	Real Time PCR	29/06/2023
Degradation Control [§]	Within Limits	Real Time PCR	29/06/2023
Great Crested Newt*	0 of 12 (GCN negative)	Real Time PCR	29/06/2023
Negative PCR Control (Nuclease Free Water)	0 of 4	Real Time PCR	As above for GCN
Positive PCR Control (GCN DNA 10 ⁻⁴ ng/μL) [#]	4 of 4	Real Time PCR	As above for GCN

Report Prepared by: Dr Helen Rees Report Issued by: Dr Ben Maddison

Signed:

Signed:

Position: Director: Biotechnology Position: MD: Biotechnology

Date of preparation: 30/06/2023 Date of issue: 30/06/2023

eDNA analysis was carried out in accordance with the stipulated methodology found in the Technical Advice Note (WC1067 Appendix 5 Technical Advice Note) published by DEFRA and adopted by Natural England.

** If all PCR controls and extraction blanks give the expected results a sample is considered: negative for great crested newt if all of the replicates are negative; positive for great crested newt if one or more of the replicates are positive.*

[†] Recorded as the number of positive replicate reactions at expected C_t value. If the expected C_t value is not achieved, the sample is considered inhibited and is diluted as per the technical advice note prior to amplification with great crested newt primer and probes.

[§] No degradation is expected within time frame of kit preparation, sample collection and analysis.

[#] Additional positive controls (10⁻¹, 10⁻², 10⁻³ ng/μL) are also routinely run, results not shown here.

Client: Nick Grant,
FPCR Environment and Design



ADAS
Spring Lodge
172 Chester Road
Helsby
WA6 0AR

Tel: 01159 229249
Email: Helen.Rees@adas.co.uk

www.adas.uk

Sample ID: ADAS-1766 Condition on Receipt: High Sediment Volume: Passed
Client Identifier: P3, 7162 Description: pond water samples in preservative
Date of Receipt: 27/06/2023 Material Tested: eDNA from pond water samples

Determinant	Result	Method	Date of Analysis
Inhibition Control [†]	0 of 2	Real Time PCR	29/06/2023
Degradation Control [§]	Within Limits	Real Time PCR	29/06/2023
Great Crested Newt*	0 of 12 (GCN negative)	Real Time PCR	29/06/2023
Negative PCR Control (Nuclease Free Water)	0 of 4	Real Time PCR	As above for GCN
Positive PCR Control (GCN DNA 10 ⁻⁴ ng/μL) [#]	4 of 4	Real Time PCR	As above for GCN

Report Prepared by: Dr Helen Rees Report Issued by: Dr Ben Maddison

Signed:

Signed:

Position: Director: Biotechnology Position: MD: Biotechnology

Date of preparation: 30/06/2023 Date of issue: 30/06/2023

eDNA analysis was carried out in accordance with the stipulated methodology found in the Technical Advice Note (WC1067 Appendix 5 Technical Advice Note) published by DEFRA and adopted by Natural England.

** If all PCR controls and extraction blanks give the expected results a sample is considered: negative for great crested newt if all of the replicates are negative; positive for great crested newt if one or more of the replicates are positive.*

[†] Recorded as the number of positive replicate reactions at expected C_t value. If the expected C_t value is not achieved, the sample is considered inhibited and is diluted as per the technical advice note prior to amplification with great crested newt primer and probes.

[§] No degradation is expected within time frame of kit preparation, sample collection and analysis.

[#] Additional positive controls (10⁻¹, 10⁻², 10⁻³ ng/μL) are also routinely run, results not shown here.

Appendix 1: Interpretation of results

Sample Condition

Upon sample receipt we score your samples according to quality: good, low sediment, medium sediment, high sediment, white precipitate, and presence of algae.

There are three reasons as to why sediment should be avoided:

1. It is possible for DNA to persist within the sediment for longer than it would if it was floating in the water which could lead to a false positive result i.e. in this case GCN not recently present but present a long time ago
2. In some cases sediment can cause inhibition of the PCR analysis used to detect GCN eDNA within samples which could lead to an indeterminate result.
3. In some cases sediment can interfere with the DNA extraction procedure resulting in poor recovery of the eDNA which in turn can lead to an indeterminate result.

Algae can make the DNA extraction more difficult to perform so if it can be avoided then this is helpful.

Sometimes samples contain a white precipitate which we have found makes the recovery of eDNA very difficult. This precipitate can be present in such high amounts that it interferes with the eDNA extraction process meaning that we cannot recover the degradation control (nor most likely the eDNA itself) at sufficient levels for the control to be within the acceptable limits for the assay, therefore we have to classify these type of samples as indeterminate.

What do my results mean?

A positive result means that great crested newts are present in the water or have been present in the water in the recent past (eDNA degrades over around 7-21 days).

A negative result means that DNA from the great crested newt has not been detected in your sample.

On occasion an inconclusive result will be issued. This occurs where the DNA from the great crested newt has not been detected but the controls have indicated that either: the sample has been degraded and/or the eDNA was not fully extracted (poor recovery); or the PCR inhibited in some way. This may be due to the water chemistry or may be due to the presence of high levels of sediment in samples which can interfere with the DNA extraction process. A re-test could be performed but a fresh sample would need to be obtained. We have successfully performed re-tests on samples which have had high sediment content on the first collection and low sediment content (through improved sample collection) on the re-test. If water chemistry was the cause of the indeterminate then a re-test would most likely also return an inconclusive result.

The results will be recorded as indeterminate if the GCN result is negative and the degradation result is recorded as:

1. evidence of decay - meaning that the degradation control was outside of accepted limits
2. evidence of degradation or residual inhibition - meaning that the degradation control was outside of accepted limits but that this could have been due to inhibitors not being removed sufficiently by the dilution of inhibited samples (according to the technical advice note)

APPENDIX G: BAT STATIC DETECTOR RESULTS TABLE

Start Date	End Date	Survey Hours	Total Av. per hour	Total Registrations	Common Pipistrelle			Noctule			Brown Long-eared			Myotis Species			Soprano Pipistrelle			Nyctalus Species		
					Period Total	Peak Count	Av. Per Hour	Period Total	Peak Count	Av. Per Hour	Period Total	Peak Count	Av. Per Hour	Period Total	Peak Count	Av. Per Hour	Period Total	Peak Count	Av. Per Hour	Period Total	Peak Count	Av. Per Hour
13/08/20	18/08/20	51:59:31	113.65	5909	5591	1278	107.54	72	32	1.39	117	56	2.25	122	59	2.35	6	3	0.12	1	1	0.02
11/09/20	16/09/20	61:30:51	136.55	8400	6440	2682	104.69	1390	761	22.60	477	415	7.75	67	36	1.09	21	11	0.34	5	5	0.08
12/10/20	17/10/20	71:58:11	6.35	457	405	156	5.63	12	6	0.17	17	7	0.24	23	12	0.32	0	0	0.00	0	0	0.00
Totals:		185:28:34	79.61	14766	12436	2682	67.05	1474	761	7.95	611	415	3.29	212	59	1.14	27	11	0.15	6	5	0.03

APPENDIX H: 2020 SCOPING BREEDING BIRD SURVEY RESULTS & EOAC CRITERIA

Species: British Common Name	Species: Scientific name	Survey 1	Conservation Status & Protection	Breeding Status ²⁹
Pheasant	<i>Phasianus colchicus</i>	1	Not listed	Possible H
Buzzard	<i>Buteo buteo</i>	2	Green list	Confirmed ON, P
Lesser black-backed gull	<i>Larus fuscus</i>	60 flyovers	Amber list	Non-breeder F, UH
Stock dove	<i>Columba oenas</i>	3 flyovers	Amber list	Non-breeder F
Woodpigeon	<i>Columba palumbus</i>	15 + 2 juveniles + 4 flyovers	Amber list	Confirmed FF, S, H
Collared dove	<i>Streptopelia decaocto</i>	2	Green list	Possible H
Green woodpecker	<i>Picus viridis</i>	1	Green list	Possible H
Great spotted woodpecker	<i>Dendrocopos major</i>	1	Green list	Possible H
Magpie	<i>Pica pica</i>	8	Green list	Probable A, H
Jay	<i>Garrulus glandarius</i>	1	Green list	Possible H
Jackdaw	<i>Corvus monedula</i>	6	Green list	Possible H
Rook	<i>Corvus frugilegus</i>	2 flyovers	Amber list	Non-breeder F
Carrion crow	<i>Corvus corone</i>	4 + 2 flyovers	Green list	Possible S, H
Blue tit	<i>Cyanistes caeruleus</i>	2 juveniles	Green list	Confirmed FF, H
Great tit	<i>Parus major</i>	2 + family	Green list	Confirmed FF, S, H
Coal tit	<i>Periparus ater</i>	2	Green list	Possible S, H
Swallow	<i>Hirundo rustica</i>	2 + 9 flyovers	Green list LBAP	Non-breeder UH
Chiffchaff	<i>Phylloscopus collybita</i>	1	Green list	Possible S, H
Whitethroat	<i>Sylvia communis</i>	2	Amber list	Possible S, H
Wren	<i>Troglodytes troglodytes</i>	7	Amber list	Probable T, S, H

²⁹European Ornithological Atlas Committee, 1979. *Categories of Breeding Bird Evidence*. European Ornithological Atlas Committee.

Species: British Common Name	Species: Scientific name	Survey 1	Conservation Status & Protection	Breeding Status ²⁹
Starling	<i>Sturnus vulgaris</i>	20	Red list NERC S.41	Possible H
Blackbird	<i>Turdus merula</i>	10	Green list	Possible H
Song thrush	<i>Turdus philomelos</i>	1	Amber list NERC S.41	Possible S, H
Robin	<i>Erithacus rubecula</i>	4 + 1 juvenile	Green list	Confirmed FF, S, H
Dunnock	<i>Prunella modularis</i>	7	Amber list NERC S.41	Probable T, S, H
Chaffinch	<i>Fringilla coelebs</i>	2	Green list	Possible S, H
Greenfinch	<i>Chloris chloris</i>	9 + 5 flyovers	Green list	Probable T, S, H
Linnet	<i>Linaria cannabina</i>	4 flyovers	Red list NERC S.41	Non-breeder F
Goldfinch	<i>Carduelis carduelis</i>	11 + 10 flyovers	Green list	Possible H
Total No. Species: 29				

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

DD – distraction display or injury feigning

UN – used nest or eggshells found from this season

FL – recently fledged young or downy young

ON – adults entering or leaving nest-site in circumstances indicating occupied nest

FF – adult carrying faecal sac or food for young

NE – nest containing eggs

NY – nest with young seen or heard

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

P – pair in suitable nesting habitat

T – permanent territory (defended over at least 2 survey occasions)

D – courtship and display

N – visiting probable nest site

A – agitated behaviour

I – brood patch of incubating bird (from bird in hand)

B – nest building or excavating nest-hole

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.

H – observed in suitable nesting habitat

S – singing male

Non-breeder

F – flying over

M – migrant

U – summering non-breeder

UH – observed in unsuitable nesting habitat

APPENDIX I: 2022 UPDATE BREEDING BIRD SURVEY RESULTS

Species: British Common Name	Species: Scientific Name	Survey 1	Conservation Status & Protection	Breeding Status ³⁰
Buzzard	<i>Buteo buteo</i>	2	Green list	Confirmed ON, P
Lesser black-backed gull	<i>Larus fuscus</i>	2 flyovers	Amber list	Non-breeder F, UH
Stock dove	<i>Columba oenas</i>	2	Amber list	Probable N, P, H
Woodpigeon	<i>Columba palumbus</i>	7 + 2 flyovers	Amber list	Possible S, H
Swift	<i>Apus apus</i>	2 flyovers	Red List LBAP	Non-breeder F, UH
Green woodpecker	<i>Picus viridis</i>	1	Green list	Possible H
Great spotted woodpecker	<i>Dendrocopos major</i>	2	Green list	Possible H
Magpie	<i>Pica pica</i>	5	Green list	Possible H
Jackdaw	<i>Corvus monedula</i>	3	Green list	Possible H
Rook	<i>Corvus frugilegus</i>	1 + 2 flyovers	Amber list	Possible H
Carrion crow	<i>Corvus corone</i>	4	Green list	Possible H
Blue tit	<i>Cyanistes caeruleus</i>	3 + family	Green list	Confirmed FF, H
Great tit	<i>Parus major</i>	2	Green list	Possible S, H
Swallow	<i>Hirundo rustica</i>	3	Green list LBAP	Non-breeder UH
Chiffchaff	<i>Phylloscopus collybita</i>	1	Green list	Possible S, H
Wren	<i>Troglodytes troglodytes</i>	7	Amber list	Probable T, S, H
Starling	<i>Sturnus vulgaris</i>	3 flyovers	Red list NERC S.41	Non-breeder F
Blackbird	<i>Turdus merula</i>	3	Green list	Possible H
Song thrush	<i>Turdus philomelos</i>	1	Amber list NERC S.41	Possible H
Robin	<i>Erithacus rubecula</i>	1 + 1 juvenile	Green list	Confirmed FF, S, H
Dunnock	<i>Prunella modularis</i>	4	Amber list NERC S.41	Probable T, S, H

³⁰European Ornithological Atlas Committee, 1979. *Categories of Breeding Bird Evidence*. European Ornithological Atlas Committee.

Species: British Common Name	Species: Scientific Name	Survey 1	Conservation Status & Protection	Breeding Status ³⁰
House Sparrow	<i>Passer domesticus</i>	2	Red List NERC S.41	Non-breeder UH
Chaffinch	<i>Fringilla coelebs</i>	1	Green list	Possible S, H
Bullfinch	<i>Pyrrhula pyrrhula</i>	1	Amber List NERC S.41	Possible H
Greenfinch	<i>Chloris chloris</i>	7	Red list	Possible S, H
Linnet	<i>Linaria cannabina</i>	3	Red list NERC S.41	Possible H
Goldfinch	<i>Carduelis carduelis</i>	2	Green list	Possible H
Yellowhammer	<i>Emberiza citrinella</i>	1	Red List NERC S.41	Possible H
Total No. Species: 28				