

Land off Keresforth Road,
Dodworth, Barnsley

Additional Ecological Surveys (2023)

August 2023

| | |
|-------------------------|-------------------------------------|
| Report reference | 153-01g |
| Revision | 1 |
| Prepared by | Toby Fisher CEnv MCIEEM |
| Approved by | Andrew Westgarth CEnv MCIEEM |
| Issue date | Rev 1. 24 th August 2023 |

This report is valid for a period of 12 months from the issue date.

☎ 01765 600 799

✉ info@quantsenvironmental.com

🌐 quantsenvironmental.com

Quants Environmental Ltd, 65 Kirkby Road, Ripon, North Yorkshire. HG4 2HH

Contents

| | | |
|----------|---|-----------|
| 1 | Introduction and Background..... | 3 |
| 2 | Methodology..... | 5 |
| 2.1 | Personnel | 5 |
| 2.2 | Bat Transect Surveys..... | 5 |
| 2.3 | Dusk Emergence Bat Surveys | 5 |
| 2.4 | Static Bat Recorder Surveys | 6 |
| 2.5 | Reptile Surveys | 7 |
| 2.6 | Breeding Bird Surveys | 8 |
| 2.7 | Botanical Survey of Woodland | 10 |
| 3 | Results | 11 |
| 3.1 | Bat Surveys | 11 |
| 3.1.1 | Bat Transect Surveys..... | 11 |
| 3.1.2 | Dusk Emergence Bat Surveys | 11 |
| 3.1.3 | Static Bat Recorder Surveys | 11 |
| 3.2 | Reptile Surveys | 11 |
| 3.3 | Breeding Bird Surveys | 11 |
| 3.4 | Botanical Survey of Woodland | 14 |
| 3.4.2 | Woodland Area 1 | 14 |
| 3.4.3 | Woodland Area 2 | 14 |
| 3.4.4 | Woodland Area 3 | 15 |
| | Appendix 1. Bat Survey Results | 17 |
| | Appendix 2. Breeding Bird Survey Results | 22 |

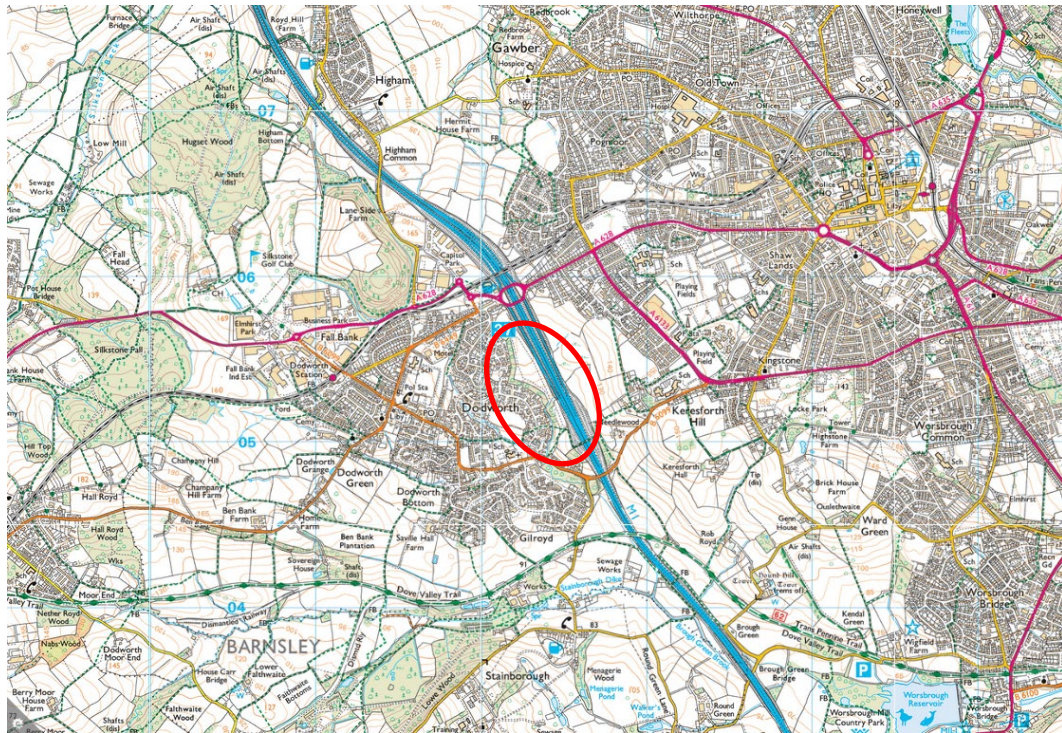
1 Introduction and Background

- 1.1.1.1 This report presents the results of additional surveys for Bats, Reptiles, Breeding Birds and Woodland undertaken on land off Keresforth Road, Dodworth, Barnsley in 2023. The study area (see Figure 1) extends to approximately 7.4 hectares and is centred at approximate grid reference SE324052, approximately 2 km west-south-west of Barnsley town centre.
- 1.1.1.2 The surveys were undertaken to supplement the previous ecological surveys undertaken at the site in 2022 as detailed in the following reports:
- Quants Environmental Ltd. (2022). Land off Keresforth Road, Dodworth, Barnsley – Preliminary Ecological Appraisal. Ref. 153-01a. April 2022.
 - Quants Environmental Ltd. (2023). Land off Keresforth Road, Dodworth, Barnsley – Additional Ecological Surveys. Ref. 153-01d.3. January 2023.
- 1.1.1.3 The aims of the Bat Surveys and Breeding Bird Surveys were to determine the nature of bat activity / breeding bird activity at the site respectively including the bat species / bird species which use the site, the relative abundance of each species and which parts of the site are used by each species. The aims of the Reptile surveys were to determine the presence/absence of Reptiles at the site. The aim of the woodland survey was to determine the botanical value of the woodland and to classify the woodland type.

Figure 1. Site Area (aerial imagery dated 2021)



Figure 2. Site Location



© Crown copyright and database rights (2022) OS licence no. 100022861.

2 Methodology

2.1 Personnel

- 2.1.1.1 The Bat Surveys were undertaken by Morgane Accault ACIEEM and Maxwell Caulton.
- 2.1.1.2 The Reptile Surveys were undertaken by Maxwell Caulton.
- 2.1.1.3 The Breeding Bird Surveys were undertaken by Tony Bird and Toby Fisher CEnv MCIEEM.
- 2.1.1.4 The Botanical Survey of Woodland was undertaken by Toby Fisher CEnv MCIEEM.

2.2 Bat Transect Surveys

- 2.2.1.1 To supplement the transect surveys undertaken in 2022¹, four bat activity transect surveys were undertaken at the site on 5th May 2023, 30th May 2023, 20th June 2023 and 25th July 2023. The surveyors used Echo Meter Touch 2 Pro bat detectors.
- 2.2.1.2 The bat transect surveys were undertaken in accordance with current good practice guidelines² and involved walking a predetermined transect route around the site to determine the number and species of bats which forage/commute at the site. Survey conditions are summarised in Table 1.
- 2.2.1.3 Each transect survey started approximately 10 – 30 minutes after sunset. The transect route is shown in Appendix 1. Each transect survey involved walking the transect route slowly and recording all bat observations on scale maps with notes on species and activity and behaviour. Periodically throughout each transect, the surveyors stopped for a period of approximately 5 minutes to record all bat activity during that period. There were no significant survey limitations.

Table 1. Bat Transect Survey Conditions

| Date | Survey times | Sunset | Weather conditions |
|----------------------------|---------------|--------|---|
| 05 th May 2023 | 21:15 – 22:28 | 20:43 | 12.5°C – 12°C, dry, cloud 40%, wind Bft 0. |
| 30 th May 2023 | 21:35 – 22:48 | 21:22 | 12°C – 11°C, dry, cloud 100%, wind Bft 1-2. |
| 20 th June 2023 | 22:00 – 23:13 | 21:39 | 17°C – 16°C, dry, cloud 45%, wind Bft 0-1. |
| 25 th July 2023 | 21:47 – 23:00 | 21:38 | 14°C – 13°C, dry, cloud 80%, wind Bft 1. |

2.3 Dusk Emergence Bat Surveys

- 2.3.1.1 To supplement the dusk emergence bat surveys undertaken in 2022¹, additional dusk emergence bat surveys were undertaken on 16th May 2023 and 5th June 2023 at those trees with bat roost potential and potentially directly affected by the proposed development. The emergence surveys were undertaken using Pettersson D200 and Echo Meter Touch 2 Pro bat detectors and were undertaken in accordance with current guidelines². In order to provide sufficient coverage of the trees, two surveyors were present on both occasions. There were no significant survey limitations.

¹ Quants Environmental Ltd. (2023). Land off Keresforth Road, Dodworth, Barnsley – Additional Ecological Surveys. Ref. 153-01d.3. January 2023.

² Collins, J. (ed.) (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn.) The Bat Conservation Trust, London. ISBN-13: 978-1-872745-96-1.

Table 2. Dusk Emergence Bat Survey Conditions

| | | |
|---------------------------------|--|--|
| Date | 16 th May 2023 | 05 th June 2023 |
| Trees surveyed | Ash trees and Oak tree (Target Notes 1 and 2, as shown in PEA ³) | Oak, Ash and Horse Chestnut (Target Notes 2 and 4, as per PEA ³) |
| Survey duration (sunset) | 20:47 – 22:32 (21:02) | 21:14 – 22:45 (21:29) |
| Weather conditions | Dry; 12°C – 11°C, cloud cover 10%, wind Bft 0-1. | Dry; 12°C – 11°C, cloud cover 0%, wind Bft 0-1. |
| Surveyors | Max Caulton and Morgane Accault | Max Caulton and Morgane Accault |

2.4 Static Bat Recorder Surveys

2.4.1.1 To supplement the static bat recorder surveys undertaken in 2022¹, four static bat recorder surveys were undertaken at the site during each of April 2023, May 2023, June 2023 and July 2023. The static bat recorder surveys involved the use of a single static bat sound recording device (fixed-point Anabat Express detector) to record bat activity at the site. The remote detector was left in situ for a period of five nights during each month at the locations shown in Appendix 1 during suitable weather conditions.

2.4.1.2 The recorded bat sounds (sonograms) were analysed using the computer programmes Kaleidoscope and Anabat Insight. Where considered necessary, the sonograms were analysed through comparison with published bat sound parameters (maximum frequency, minimum frequency, peak frequency, call duration, inter-pulse interval etc.) and a library of sonograms of confirmed species identity, in order to identify each bat sound to species or genera level wherever possible. The recorded sonograms were separated by species to enable quantitative interpretation of the number of bat passes recorded for each species. The static bat recording periods are summarised in Table 3. The survey conditions were good and there were no significant limitations.

Table 3. Static Bat Recorder Survey Conditions

| Dates | Weather conditions | Detector position (see Appendix 1) |
|--|---|---|
| 27 th April – 01 st May 2023 | Daytime maxima between 6°C and 15°C; night-time minima between 6°C and 10°C, dry. | 1 |
| 24 th – 29 th May 2023 | Daytime maxima between 12°C and 21°C; night-time minima between 8°C and 15°C, dry. | 2 |
| 15 th – 19 th June 2023 | Daytime maxima between 17°C and 25°C; night-time minima between 12°C and 22°C, mostly dry with rain showers on the night of the 18 th of June. | 3 |
| 19 th – 23 rd July 2023 | Daytime maxima between 14°C and 18°C; night-time minima between 11°C and 14°C, mostly dry with rain showers on the 22 nd and 23 rd of July. | 4 |

³ Quants Environmental Ltd. (2022). Land off Keresforth Road, Dodworth, Barnsley –Preliminary Ecological Appraisal. Ref. 153-01a. April 2022.

2.5 Reptile Surveys

- 2.5.1.1 To supplement the reptile surveys undertaken in 2022³, additional reptile surveys were undertaken in May 2023. The 2023 surveys covered the same areas as per the 2022 surveys, i.e. all areas of the site considered to offer potentially suitable habitat for reptiles. Areas in the southern, central and northern parts of the site were considered to offer potentially suitable habitat for reptiles due to the presence of the following features:
- Suitable basking sites.
 - Potentially hunting habitat.
 - Areas of refuge.
- 2.5.1.2 Presence/likely absence surveys for reptiles were undertaken during suitable weather conditions in May 2023 in accordance with standard guidelines^{4 5 6}. There were no significant survey limitations.
- 2.5.1.3 On 10th May 2023, 50 artificial refugia consisting of roofing felt 'tiles' each approximately 1.0m x 1.0m in size were placed within habitats that were assessed as suitable to support reptiles. Refugia tiles were left to settle for a minimum period of 12 days before being checked for the first time. Each tile was subsequently visited 4 times during suitable weather conditions as per the standard guidelines. On each survey occasion, each tile was inspected for reptiles and signs of reptiles such as sloughed skin. In addition refugia already present on site (e.g. logs and discarded tyres) were also inspected for reptiles and signs of reptiles and any incidental observations of reptiles were recorded.
- 2.5.1.4 Each refugia check was conducted during the following conditions:
- time: conducted between 07:00 and 18:00;
 - air temperature: 10°C - 20°C;
 - wind: still to moderate (equivalent to Beaufort 4; 13 - 17mph), and
 - rain: no or light rain only at time of survey; surveys between periods of heavy rain (when all other conditions are suitable) are also acceptable.

Table 4. Reptile Survey Conditions and Results

| Visit | Date, start time and surveyor | Weather conditions | Findings / comments |
|-------|-------------------------------|---|---------------------|
| 1 | 22/05/2023. 10:00. MC | Cloud 0%, 16°C, wind Bft 1, dry and sunny | No reptiles |
| 2 | 24/05/2023. 11:00. MC | Cloud 0%, 17°C, Wind Bft 0-1, dry and sunny | No reptiles |
| 3 | 26/05/2023. 11:00. MC | Wind Bft 1, 17°C, 35% cloud cover, dry | No reptiles |
| 4 | 30/05/2023. 19:40. MC | Wind Bft 1, 15°C, 75% cloud cover, dry | No reptiles |

⁴ Froglife (1999). Reptile survey; an introduction to planning, conducting and interpreting surveys for snake and lizard conservation. Froglife Advice Sheet 10. Froglife, Halesworth.

⁵ Gent T and Gibson S eds (2003). Herpetofauna Workers Manual. JNCC, Peterborough.

⁶ Natural England (2011). Natural England Technical Information Note TIN102: Reptile Mitigation Guidelines. Natural England, Peterborough. (Note this guidance was published and subsequently withdrawn in September 2011).

Figure 3. Reptile Survey Areas



| |
|---|
| <p>Key:</p> <p> Areas of potentially suitable reptile habitat subject to artificial refugia survey</p> |
|---|

2.6 Breeding Bird Surveys

- 2.6.1.1 Six breeding bird surveys were undertaken at the site on 26th April 2023, 9th May 2023, 18th May 2023, 22nd May 2023, 1st June 2023 and 21st June 2023 during suitable conditions by experienced ornithologists Tony Bird and Toby Fisher CEnv MCIEEM.
- 2.6.1.2 The surveys followed the standard Common Birds Census (CBC) method⁷. During each survey visit, all bird observations were recorded on 1:10,000 scale maps using standard British Trust for Ornithology (BTO) notation including information on behaviour and evidence of breeding. The survey transect route involved walking a transect route through the site and along the site boundaries such that all parts of the site were approached within approximately 100 metres and to enable visual and audible coverage of all the landforms within the site and land immediately adjacent to the site.
- 2.6.1.3 The data collected were subject to territory mapping analysis in order to determine the number and distribution of breeding bird species within the area. In addition, birds were classified as Non-breeding, Possible, Probable and Confirmed breeding dependent on the activity recorded. A description for defining each breeding classification is provided in the table below.

⁷ Gilbert, G., Gibbons, D.W. & Evans, J. (1998) Bird Monitoring Methods. RSPB, Sandy.

2.6.1.4 In relation to the development proposals, particular attention was focused on Species of Principal Importance⁸ and BoCC Red List species⁹.

2.6.1.5 All surveys were undertaken in suitable weather conditions. The survey conditions are presented in the table below. The surveys were undertaken during the optimal season for breeding bird surveys and were spaced at least 1 week apart. There were no significant survey limitations.

Table 5. Breeding Bird Survey Conditions

| Date | Survey time and surveyor | Weather conditions |
|------------|--------------------------|--|
| 26.04.2023 | 06:45 – 09:15 TB | Temp: 02 – 05 degrees centigrade; Wind: BS scale: 2 – NE; Rain: 0; Cloud: percentage: 10; Visibility: Excellent |
| 09.05.2023 | 06:40 – 09:15 TF | Temp: 10 – 13 degrees centigrade; Wind: BS scale: 1; Rain: 0; Cloud: percentage: 90; Visibility: Excellent |
| 18.05.2023 | 07:00 – 09:20 TB | Temp: 09 - 11 degrees centigrade; Wind: BS scale: 1 – NW; Rain: 0; Cloud: percentage: 50; Visibility: Excellent |
| 22.05.2023 | 19:40 – 22:15 TF | Temp: 17 – 13 degrees centigrade; Wind: BS scale: 2; Rain: 0; Cloud: percentage: 100; Visibility: Excellent |
| 01.06.2023 | 07:00 – 09:35 TB | Temp: 09 - 10 degrees centigrade; Wind: BS scale: 2 – NE; Rain: 0; Cloud: percentage: 100; Visibility: Excellent |
| 21.06.2023 | 06:45 – 10:00 TB | Temp: 17 - 19 degrees centigrade; Wind: BS scale: 1 – SE; Rain: 0; Cloud: percentage: 40 – 10; Visibility: Excellent |

Table 6. A Description for Defining Each Breeding Classification

| Breeding likelihood | Activity recorded |
|---------------------|--|
| Non-breeding | Passage flight only |
| | Bird on migration |
| | Non breeding males |
| Possible breeding | Observed in suitable nesting habitat |
| | Singing male |
| Probable breeding | Pair in suitable nesting habitat |
| | Permanent territory (defended over at least one week or, a number of males all singing in the same area) |
| | Visiting probable nest site |
| | Agitated behaviour |
| | Brood patch of incubating bird (from bird in hand) |
| | Nest building or excavating nest hole |
| Confirmed breeding | Distraction display or injury feigning |
| | Used nest or eggshells found from this season |

⁸ Species listed on Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006 as Species of Principal Importance for the conservation of biodiversity in England.

⁹ Stanbury, A., Eaton, M., Aebischer, N., Balmer, D., Brown, A., Douse, A., Lindley, P., McCulloch, N., Noble, D., and Win I. 2021. The status of our bird populations: the fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man and second IUCN Red List assessment of extinction risk for Great Britain. British Birds 114: 723-747.

| Breeding likelihood | Activity recorded |
|---------------------|--|
| | Recently fledged young or downy young |
| | Adults entering or leaving nest site in circumstances indicating Occupied nest |
| | Adult carrying faecal sac or food for young |
| | Nest containing eggs |
| | Nest with young seen or heard |

2.7 Botanical Survey of Woodland

2.7.1.1 A botanical survey of the broad-leaved semi-natural woodland at the site was undertaken on 31st May 2023. The survey involved compiling full species lists for the canopy layer, shrub layer and ground vegetation layer within each area of woodland. Within each woodland layer, the relative abundance of each species was recorded using the DAFOR scale¹⁰ along with notes on features indicating current/recent management and previous interventions such as planting, felling, coppicing and earth-works. There were no significant limitations.

Figure 4. Woodland Survey Areas



Key:

W3 Woodland Surveys Areas 1, 2 and 3

¹⁰ D = dominant; A = abundant; F = frequent; O = occasional; R = rare; L = locally; V = very.

3 Results

3.1 *Bat Surveys*

3.1.1 *Bat Transect Surveys*

3.1.1.1 The results of the bat transect surveys are shown in Appendix 1. Overall, the bat transect surveys revealed low to moderate levels of bat activity throughout the site. Four bat species were recorded during the surveys: Common Pipistrelle, Soprano Pipistrelle, Noctule and *Myotis* sp. No groups of bats were recorded; all bat observations were of individual bats foraging or commuting.

3.1.1.2 Foraging/commuting bats were recorded in association with all areas of woodland and grassland at the site. Little bat activity was recorded over the open fields at the site.

3.1.2 *Dusk Emergence Bat Surveys*

3.1.2.1 During the dusk emergence bat surveys, no evidence of bat roosts was identified in the surveyed trees.

3.1.3 *Static Bat Recorder Surveys*

3.1.3.1 The results of the static bat recorder surveys (see Appendix 1) revealed low to moderate levels of bat activity at the site. A total of four bat species were recorded during the surveys at the site: Noctule, Common Pipistrelle, Soprano Pipistrelle and *Myotis* sp. Bat activity levels were the greatest during the June survey (Static Detector Location 3, Appendix 1) whilst activity levels were lower during the July survey.

3.1.3.2 By far the most frequently recorded species at the site was Common Pipistrelle; with approximately 88.1% of all recorded bat registrations being of Common Pipistrelle. Noctule registrations accounted for 2.8%, *Myotis* sp. for 8.1% and Soprano Pipistrelle for the remaining 1.1%.

3.1.3.3 Of the four static bat recorder locations (1, 2, 3, 4 as shown in Appendix 1), the greatest levels of bat activity were recorded at Location 3 on the edge of a woodland area near the middle of the site with an average of 86 bat passes recorded per night at Location 3. Bat activity levels were second-highest at Location 1 (near woodland in southern part of the site) with average registrations per night of 45.4; third-highest at Location 2 (woodland edge in north-western part of the site) with average registrations per night of 22.4; and lowest at Location 4 (near motorway on site's north-eastern edge) with an average of 12.6 registrations per night.

3.2 *Reptile Surveys*

3.2.1.1 No reptiles or evidence of reptiles was observed during the surveys. No incidental observations of note (e.g. amphibians) were made during the reptile surveys. It is considered that sufficient survey effort has been undertaken to conclude that reptiles are likely to be absent from the site.

3.3 *Breeding Bird Surveys*

3.3.1.1 The breeding bird survey results are shown in Table 7 below and in Appendix 2. Overall, 35 bird species were recorded during the surveys including 5 species listed on Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006 as Species of Principal Importance for the conservation of biodiversity in England: Herring Gull, Starling, Song Thrush, Dunnock and House Sparrow. Of these, Song Thrush (2-3 pairs) and Dunnock (3-4 pairs), i.e. 2 species, appears to breed within the site and/or within the woodland adjacent to the site's western boundary. Herring Gull was observed overflying the site and does not appear to breed close to the site; Starling and House Sparrow both appear to breed outside the site boundary.

3.3.1.2 Six species which are Red listed as Birds of Conservation Concern¹¹ (BoCC) were recorded: Herring Gull, Starling, House Sparrow, Greenfinch, Swift and Mistle Thrush. Of the Red List BoCC species, 1 pair of Mistle Thrush possibly bred within the site; Greenfinch, Starling and House Sparrow

appeared to nest in houses/gardens outside the site boundary; Herring Gull and Swift did not breed within the site.

- 3.3.1.3 Eleven Amber list BoCC species were recorded during the surveys: Woodpigeon, Common Whitethroat, Wren, Song Thrush, Dunnock, Stock Dove, Kestrel, Sparrowhawk, Tawny Owl, Rook and Willow Warbler. No species listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) were recorded.
- 3.3.1.4 No open ground nesting species such as Skylark, Meadow Pipit or waders were recorded during the surveys.
- 3.3.1.5 Overall, the site supports a typical assemblage of species of woodland, farmland and urban fringe habitats with 2 Species of Principal Importance for the conservation of biodiversity in England (NERC Act 2006) confirmed/possibly breeding within the site: Song Thrush (2-3 pairs) and Dunnock (3-4 pairs).

Table 7. Breeding Bird Survey Results

| BTO code | Common name | Notes | BoCC ¹¹ / S41 NERC Act ¹² |
|----------|--------------|--|---|
| CG | Canada Goose | Seen flying overhead; did not breed within the site | |
| SD | Stock Dove | Seen flying overhead; did not breed within the site | BoCC Amber List |
| WP | Woodpigeon | 6-7 pairs bred within the site or in woodland adjacent to site's western boundary | BoCC Amber List |
| HG | Herring Gull | Seen flying overhead; did not breed within the site | BoCC Red List / S41 NERC Act |
| H | Grey Heron | Seen flying overhead; did not breed within the site | |
| K | Kestrel | Seen hunting over grassland in northern part of the site and a family group seen in southern part of the site; likely bred in trees/woodland outside site boundary | BoCC Amber List |
| SH | Sparrowhawk | Seen on several occasions within the site and carrying prey over the site; appears likely to have bred in woodland outside site's eastern boundary | BoCC Amber List |
| TO | Tawny Owl | Heard in woodland adjacent to the site | BoCC Amber List |
| SI | Swift | Seen flying overhead; did not breed within the site | BoCC Red List |
| MG | Magpie | 3 pairs bred within the site or in woodland adjacent to site's western boundary | |

¹¹ Amber / Red List as defined in: Stanbury, A., Eaton, M., Aebischer, N., Balmer, D., Brown, A., Douse, A., Lindley, P., McCulloch, N., Noble, D., and Win I. 2021. The status of our bird populations: the fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man and second IUCN Red List assessment of extinction risk for Great Britain. *British Birds* 114: 723-747.

¹² Species listed on Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006 as Species of Principal Importance for the conservation of biodiversity in England.

| BTO code | Common name | Notes | BoCC ¹¹ / S41 NERC Act ¹² |
|----------|--------------------------|---|---|
| C. | Carrion Crow | 1 pair possibly bred in woodland adjacent to site's western boundary | |
| RO | Rook | Seen flying overhead; did not breed within the site | BoCC Amber List |
| LT | Long-Tailed Tit | 1 pair bred in woodland adjacent to site's western boundary | |
| BT | Blue Tit | 3-4 pairs bred within the site / adjacent to site's western boundary | |
| GT | Great Tit | 1-2 pairs bred within the site / adjacent to site's western boundary | |
| G | Green Woodpecker | Heard in woodland outside site's western boundary; did not breed within the site | |
| GS | Great Spotted Woodpecker | Seen flying over the site on one occasion; likely bred in woodland outside site's eastern boundary | |
| WW | Willow Warbler | 1-2 pairs bred within the site / adjacent to site's western boundary | BoCC Amber List |
| GW | Garden Warbler | 1 pair bred within central part of the site | |
| CC | Chiffchaff | 4-5 pairs bred within the site / adjacent to site's western boundary | |
| BC | Blackcap | 1-2 pairs bred within the site / adjacent to site's western boundary | |
| WH | Common Whitethroat | 3-4 pairs bred within the site / adjacent to site's western boundary | BoCC Amber List |
| WR | Wren | 3-4 pairs bred within the site / adjacent to site's western boundary | BoCC Amber List |
| SG | Starling | Did not breed within the site; 1-2 birds seen flying over the site; likely to breed in houses outside site's western boundary | BoCC Red List / S41 NERC Act |
| B. | Blackbird | 7-8 pairs bred within the site or in woodland adjacent to site's western boundary | |
| MT | Mistle Thrush | 1 pair possibly bred within the site | |
| ST | Song Thrush | 2-3 pairs bred within the site or in woodland adjacent to site's western boundary | BoCC Amber List / S41 NERC Act |
| R. | Robin | 4-5 pairs bred within the site or in woodland adjacent to site's western boundary | |
| SL | Barn Swallow | Seen flying overhead; did not breed within the site | |
| D. | Dunnock | 3-4 pairs bred within the site or in woodland adjacent to site's western boundary | BoCC Amber List / S41 NERC Act |
| PW | Pied Wagtail | 1 pair possibly bred within the site | |

| BTO code | Common name | Notes | BoCC ¹¹ / S41 NERC Act ¹² |
|----------|---------------|---|---|
| HS | House Sparrow | Maximum group of 7 seen on site's northern boundary; appears to breed in houses outside site's western boundary | BoCC Red List / S41 NERC Act |
| GR | Greenfinch | 1 pair appeared to breed in gardens just outside site boundary in southern part of the site | BoCC Red List |
| Ch | Chaffinch | 1 pair appeared to breed within the site | |
| GO | Goldfinch | 2 pairs appeared to breed within the site | |

3.4 Botanical Survey of Woodland

3.4.1.1 The woodland survey results are shown in Table 4.1.

3.4.2 Woodland Area 1

3.4.2.1 Woodland Survey Area 1 (labelled W1 on Figure 4) is a semi-natural area of woodland extending to approximately 0.3 hectares in the central part of the site. Woodland Area 1 possibly represents the south-westernmost corner fragment of Horse Wood as shown on 19th century Ordnance Survey mapping (the footprint of the vast majority of Horse Wood is now within the M1 motorway footprint and arable cropland to the east of the M1 motorway). The surveyed area of woodland contains a small number of mature trees; none of which appear to be veteran or ancient. Four mature, but not veteran, coppiced Hazel *Corylus avellana* stools are present within the woodland. A minor watercourse flows broadly westwards through the woodland. No ditches or ancient earthworks were observed during the survey. Several mature trees are present; no veteran trees were identified. A non-surfaced farm track runs broadly north-south through the woodland and crosses the minor watercourse by means of a culverted section of watercourse.

3.4.2.2 The woodland canopy comprises predominantly Crack Willow *Salix fragilis* and Pedunculate Oak *Quercus robur* along with Ash *Fraxinus excelsior* and small numbers of Field Maple *Acer campestre*, Sycamore *Acer pseudoplatanus* and Hawthorn *Crataegus monogyna*. The understorey/shrub layer comprises Hawthorn, Elder *Sambucus nigra*, Crack Willow, Wych Elm *Ulmus glabra*, Field Maple, Hazel *Corylus avellana* and Holly *Ilex aquifolium*. The ground layer is quite heavily shaded and there is abundant bare ground. Ground flora comprises Bramble *Rubus fruticosus* agg., Common Nettle *Urtica dioica*, Wood Avens *Geum urbanum*, Ivy *Hedera helix*, Wood Dock *Rumex sanguinea*, Lords-and-Ladies *Arum maculatum*, Cow Parsley *Anthriscus sylvestris*, Ramsons *Allium ursinum*, Wood Millet *Milium effusum*, Broad Buckler-Fern *Dryopteris dilatata*, Male Fern *Dryopteris filix-mas*, Hart's-Tongue Fern *Asplenium scolopendrium*, Bluebell *Hyacinthoides non-scripta*, Wavy Bitter-Cress *Cardamine flexuosa*, Broad-Leaved Willowherb *Epilobium montanum*, Sycamore *Acer pseudoplatanus*, Herb Robert *Geranium robertianum*, Lesser Celandine *Ficaria verna*, Field Rose *Rosa arvensis*, Remote Sedge *Carex remota*, Meadow Buttercup *Ranunculus acris*, Yellow Archangel *Lamium galeobdolon*, Dandelion *Taraxacum officinale* agg., Cock's-Foot *Dactylis glomerata*, Cleavers *Galium aparine* and Fringe-cups *Tellima grandiflora*.

3.4.2.3 Indicators of long-established woodland found within Woodland Area 1 include Lords-and-Ladies, Ramsons, Wood Millet, Broad Buckler-Fern, Male Fern, Hart's-Tongue Fern, Bluebell and Yellow Archangel.

3.4.3 Woodland Area 2

3.4.3.1 Woodland Survey Area 2 (labelled W2 on Figure 4) is a semi-natural area of woodland extending to approximately 0.1 hectares in the central part of the site. Woodland Area 2 possibly represents woodland associated with part of an old footpath as shown on 19th century Ordnance Survey mapping. The surveyed area of woodland contains two large mature Pedunculate Oak trees along

with a number of smaller mature trees; the two large mature Pedunculate Oak trees could potentially be classified as veteran. A footpath passes through the woodland and the slightly sunken nature of the footpath indicates that this an old footpath feature.

3.4.3.2 The woodland canopy comprises Pedunculate Oak, Ash, Field Maple, Hawthorn and Wych Elm. The understorey/shrub layer comprises Hawthorn, Elder, Wych Elm, *Prunus* sp., Field Maple and Crack Willow. The ground layer is quite heavily shaded and there is abundant bare ground. The ground flora comprises Bramble, Common Nettle, Wood Avens, Wood Dock, Wood Millet, Male Fern, Cleavers, Cock's-Foot, Elder, Wych Elm, Ivy and Dandelion.

3.4.4 Woodland Area 3

3.4.4.1 Woodland Survey Area 3 (labelled W3 on Figure 4) is a semi-natural area of woodland extending to approximately 0.1 hectares. Woodland Area 3 lies alongside a minor unnamed watercourse and the woodland appears likely to have originated as a linear feature alongside the watercourse. The surveyed area of woodland contains one large mature Pedunculate Oak tree along with a number of smaller mature trees; the large mature Pedunculate Oak tree could potentially be classified as veteran. No ditches or ancient earthworks were observed during the survey.

3.4.4.2 The woodland canopy comprises Pedunculate Oak and Ash along with some Cherry *Prunus avium* on the northern edge. The understorey/shrub layer comprises Hawthorn, Ash, Holly, Wych Elm, Cherry and Elder. The ground layer is quite heavily shaded and there is abundant bare ground. The ground flora comprises Bramble, Common Nettle, Ramsons, Wood Avens, Wood Dock, Cow Parsley, Hairy Brome *Bromopsis ramosa*, Lesser Celandine, Remote Sedge, Pendulous Sedge *Carex pendula*, *Ribes* sp., Cleavers, Ivy, Dandelion, Sycamore, Horse Chestnut *Aesculus hippocastanum*, Male Fern, Broad Buckler-Fern, Ash, Cherry, Hazel, *Hypericum* sp., Hawthorn, Garden Daffodil *Narcissus* sp., Garlic Mustard *Alliaria petiolata*, Herb Robert, Cock's-Foot, Elder, Fringecups, Broad-Leaved Willowherb, Creeping Thistle *Cirsium arvense* and Wild Angelica *Angelica sylvestris*.

Table 8. Woodland Botanical Survey Results

| Scientific name | Common name | Abundance (DAFOR) | | |
|--------------------------------|--------------------|-------------------|-------------|-------------|
| | | Woodland W1 | Woodland W2 | Woodland W3 |
| <i>Acer campestre</i> | Field Maple | O | R | - |
| <i>Acer pseudoplatanus</i> | Sycamore | O | - | R |
| <i>Aesculus hippocastanum</i> | Horse Chestnut | - | - | R |
| <i>Alliaria petiolata</i> | Garlic Mustard | - | - | R |
| <i>Allium ursinum</i> | Ramsons | R | - | O |
| <i>Angelica sylvestris</i> | Wild Angelica | - | - | R |
| <i>Anthriscus sylvestris</i> | Cow Parsley | R | - | O |
| <i>Arum maculatum</i> | Lords-and-Ladies | O | - | - |
| <i>Asplenium scolopendrium</i> | Hart's-Tongue Fern | R | - | - |
| <i>Bromopsis ramosa</i> | Hairy Brome | - | - | R |
| <i>Cardamine flexuosa</i> | Wavy Bitter-Cress | R | - | - |
| <i>Carex pendula</i> | Pendulous Sedge | - | - | R |
| <i>Carex remota</i> | Remote Sedge | R | - | R |
| <i>Cirsium arvense</i> | Creeping Thistle | - | - | R |
| <i>Corylus avellana</i> | Hazel | F | - | R |

| Scientific name | Common name | Abundance (DAFOR) | | |
|----------------------------------|-------------------------|-------------------|-------------|-------------|
| | | Woodland W1 | Woodland W2 | Woodland W3 |
| <i>Crataegus monogyna</i> | Hawthorn | A | F | O |
| <i>Dactylis glomerata</i> | Cock's-Foot | R | R | R |
| <i>Dryopteris dilatata</i> | Broad Buckler-Fern | O | - | R |
| <i>Dryopteris filix-mas</i> | Male Fern | O | R | R |
| <i>Epilobium montanum</i> | Broad-Leaved Willowherb | R | - | O |
| <i>Ficaria verna</i> | Lesser Celandine | R | - | O |
| <i>Fraxinus excelsior</i> | Ash | F | F | F |
| <i>Galium aparine</i> | Cleavers | R | R | O |
| <i>Geranium robertianum</i> | Herb Robert | O | - | R |
| <i>Geum urbanum</i> | Wood Avens | O | R | O |
| <i>Hedera helix</i> | Ivy | F | F | O |
| <i>Hyacinthoides non-scripta</i> | Bluebell | R | - | - |
| <i>Hypericum sp.</i> | Hypericum sp. | - | - | R |
| <i>Ilex aquifolium</i> | Holly | F | - | O |
| <i>Lamium galeobdolon</i> | Yellow Archangel | R | - | - |
| <i>Milium effusum</i> | Wood Millet | R | R | - |
| <i>Narcissus sp.</i> | Garden Daffodil | - | - | R |
| <i>Prunus avium</i> | Cherry | - | - | O |
| <i>Prunus sp.</i> | Prunus sp. | - | R | - |
| <i>Quercus robur</i> | Pedunculate Oak | F | F | F |
| <i>Ranunculus acris</i> | Meadow Buttercup | R | - | - |
| <i>Ribes sp.</i> | Ribes sp. | - | - | R |
| <i>Rosa arvensis</i> | Field Rose | R | - | - |
| <i>Rubus fruticosus agg.</i> | Bramble | A | F | A |
| <i>Rumex sanguinea</i> | Wood Dock | O | R | O |
| <i>Salix fragilis</i> | Crack Willow | A | R | - |
| <i>Sambucus nigra</i> | Elder | F | F | O |
| <i>Taraxacum officinale agg.</i> | Dandelion | R | R | R |
| <i>Tellima grandiflora</i> | Fringecups | R | - | R |
| <i>Ulmus glabra</i> | Wych Elm | F | R | R |
| <i>Urtica dioica</i> | Common Nettle | F | F | F |

Appendix 1. Bat Survey Results

Figure A1.1. Bat Transect Routes and Static Detector Positions

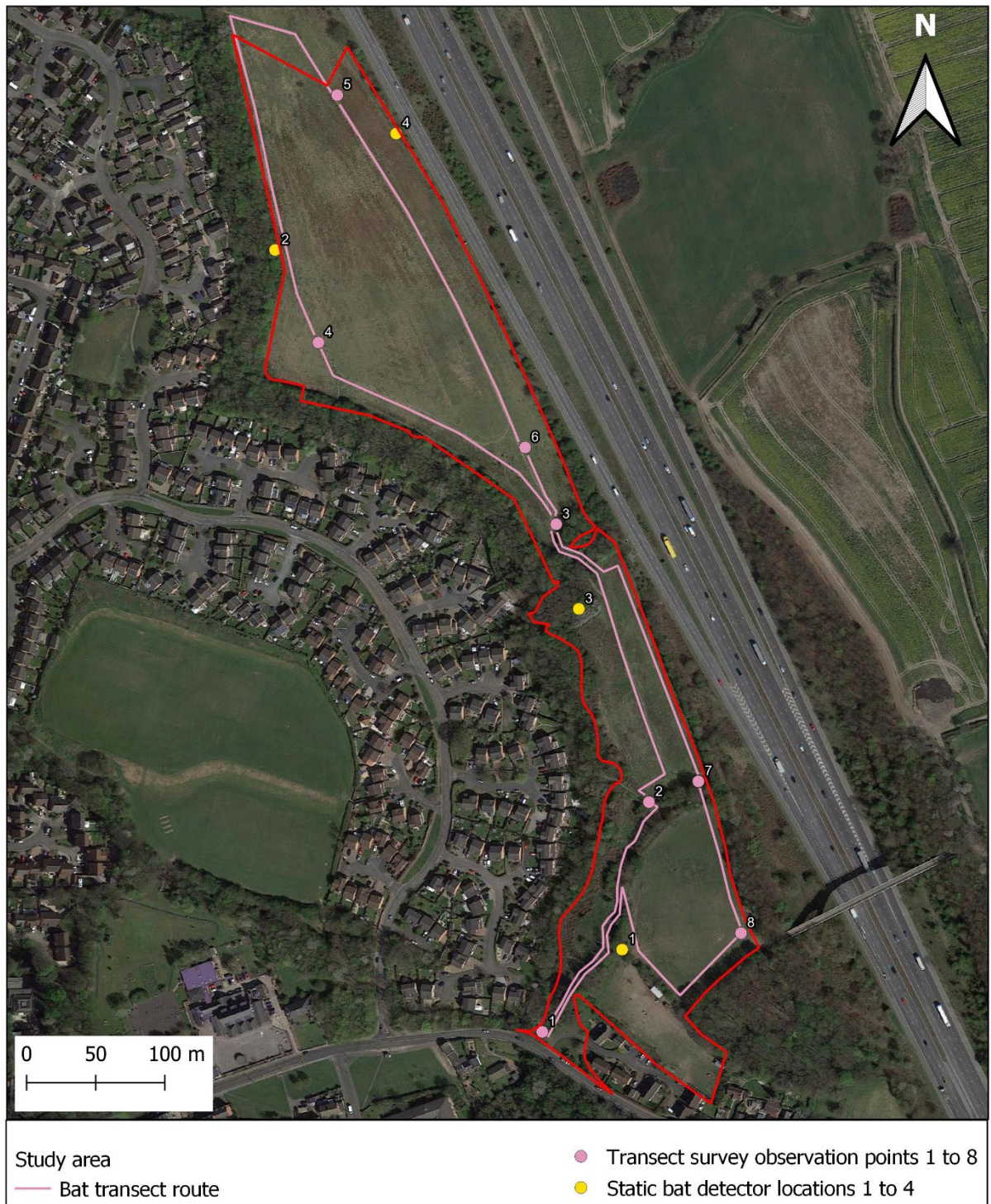


Table A1.1. Bat Transect Survey Results (05th May 2023)

| Time | Location | Notes |
|-------|----------|---|
| 21:15 | 1 | Transect start – 1x Common Pipistrelle unseen |
| 21:23 | 2 | 1x Common Pipistrelle unseen |
| 21:43 | 4 | 1x Common Pipistrelle unseen |
| 22:28 | 1 | Transect end – no activity |

Table A1.2. Bat Transect Survey Results (30th May 2023)

| Time | Location | Notes |
|-------|----------|---|
| 21:35 | 1 | Transect start – 1x Common Pipistrelle unseen |
| 21:42 | 2 | 1x Common Pipistrelle unseen |
| 21:55 | 4 | 1x Common Pipistrelle foraging by tree line north of position 4 |
| 22:12 | 5 | 1x Common Pipistrelle unseen, very faint call |
| 22:18 | 6 | 1x Common Pipistrelle commuting south to north following path |
| 22:20 | 6 | 1x Common Pipistrelle foraging around path |
| 22:36 | 7 | 1x Common Pipistrelle unseen |
| 22:46 | 1 | 1x Common Pipistrelle unseen |
| 22:48 | 1 | Transect end – no activity |

Table A1.3. Bat Transect Survey Results (20th June 2023)

| Time | Location | Notes |
|--------|----------|--|
| 22:00 | 1 | Transect start – 1x Common Pipistrelle unseen |
| 22:17 | 3 | 1x Noctule pass unseen |
| 22:38 | 5 | 1x Noctule pass unseen |
| 22:41 | 5 | 1x Common Pipistrelle foraging around |
| 22:51 | 6 | 1x Common Pipistrelle foraging around |
| 22:53 | 6 | 1x Soprano Pipistrelle pass unseen |
| 22 :56 | 6-7 | 1x Common Pipistrelle foraging along east hedgerow |
| 23:00 | 7 | 1x Common Pipistrelle foraging along east hedgerow |
| 23:13 | 1 | Transect end – no activity |

Table A1.4. Bat Transect Survey Results (25th July 2023)

| Time | Location | Notes |
|-------|----------|---|
| 21:47 | 1 | Transect start – 1x Common Pipistrelle unseen |
| 21:51 | 1-2 | 1x Common Pipistrelle unseen |

| Time | Location | Notes |
|-------|----------|---|
| 21:55 | 2 | 1x Myotis sp. unseen |
| 22:00 | 2-3 | 1x Common Pipistrelle foraging above path |
| 22:02 | 2-3 | 1x Common Pipistrelle flying along woodland on south side |
| 22:05 | 3 | 1x Common Pipistrelle foraging above Observation Point 3 |
| 22:09 | 3-4 | 1x Common Pipistrelle foraging around path |
| 22:10 | 3-4 | 1x Common Pipistrelle foraging near path near tree line on the west |
| 22:22 | 4-5 | 1x Common Pipistrelle unseen |
| 22:25 | 4-5 | 1x Common Pipistrelle seen foraging in the distance along tree line on the west |
| 22:41 | 6 | 1x Common Pipistrelle unseen and 1x Myotis sp. unseen |
| 23:00 | 1 | Transect end – no activity |

Table A1.5. Dusk Emergence Survey Results – Facing South (Morgane Accault) – 16th May 2023

| Time | Species and notes |
|---------------|--|
| 20:47 – 21:06 | No activity |
| 21:06 | 1x Common Pipistrelle pass unseen |
| 21:10 | 1x Common Pipistrelle flying north to east above path |
| 21:19 | 1x Common Pipistrelle flying north to south, foraging |
| 21:23 | 1x Common Pipistrelle foraging, came from the north and went south |
| 21:24 | 1x Common Pipistrelle foraging to the north |
| 21:30 | 1x Common Pipistrelle flying north to south |
| 21:49 | 1x Noctule pass unseen |
| 21:54 | 1x Common Pipistrelle pass unseen |
| 21:55 | 1x Common Pipistrelle pass unseen |
| 21:58 | 1x Common Pipistrelle foraging, unseen |
| 22:03 | 1x Noctule pass unseen |

Table A1.6 Dusk Emergence Survey Results – Facing North-West (Max Caulton) – 16th May 2023

| Time | Species and notes |
|---------------|---|
| 20:47 – 21:15 | No activity |
| 21:15 | 1x Common Pipistrelle faint call, unseen |
| 21:17 | 1x Common Pipistrelle pass unseen |
| 21:20 | 1x Common Pipistrelle unseen, foraging nearby |
| 21:23 | 1x Common Pipistrelle unseen, foraging nearby |

| Time | Species and notes |
|-------|---|
| 21:26 | 1x Common Pipistrelle unseen, foraging nearby |
| 21:30 | 1x Common Pipistrelle unseen, foraging nearby |
| 21:44 | 1x Common Pipistrelle unseen, foraging nearby |
| 21:47 | 1x Common Pipistrelle unseen, foraging nearby |
| 21:48 | 1x Noctule pass unseen |
| 21:59 | 1x Common Pipistrelle very faint call, unseen |
| 22:02 | 1x Noctule pass unseen |

Table A1.7. Dusk Emergence Survey Results – Facing South (Morgane Accault) – 05th June 2023

| Time | Species and notes |
|----------------|--|
| 21:14 – 21:48 | No activity |
| 21:48 to 21:52 | 1x Common Pipistrelle foraging by canopy |
| 21:57 to 22:06 | 1x Common Pipistrelle foraging by the trees and path |
| 22:12 | 1x Myotis sp. pass unseen |
| 22:18 | 1x Myotis sp. flying south to north above path + 1x Common Pipistrelle pass unseen |

Table A1.8. Dusk emergence survey results – Facing north-west (Max Caulton) – 05th June 2023

| Time | Species and notes |
|---------------|--|
| 21:14 – 21:48 | No activity |
| 21:48 | 1x Common Pipistrelle pass unseen |
| 21:50 | 1x Common Pipistrelle unseen, constant foraging heard |
| 22:00 | 1x Common Pipistrelle foraging above path to the north |
| 22:18 | 1x Myotis sp. pass unseen |

Table A1.9. Static Bat Detector Surveys (Location 1: 27th April – 01st May 2023)

| Species | Total no. registrations | Mean registrations per night |
|---------------------|-------------------------|------------------------------|
| Noctule | 5 | 1 |
| Common Pipistrelle | 216 | 43.2 |
| Soprano Pipistrelle | 5 | 1 |
| Myotis sp. | 1 | 0.2 |
| TOTAL | 227 | 45.4 |

Table A1.10. Static Bat Detector Surveys (Location 2: 24th – 29th May 2023)

| Species | Total no. registrations | Mean registrations per night |
|---------------------|-------------------------|------------------------------|
| Noctule | 5 | 1 |
| Common Pipistrelle | 94 | 18.8 |
| Soprano Pipistrelle | 2 | 0.4 |
| Myotis sp. | 11 | 2.2 |
| TOTAL | 112 | 22.4 |

Table A1.11. Static Bat Detector Surveys (Location 3: 15th – 19th June 2023)

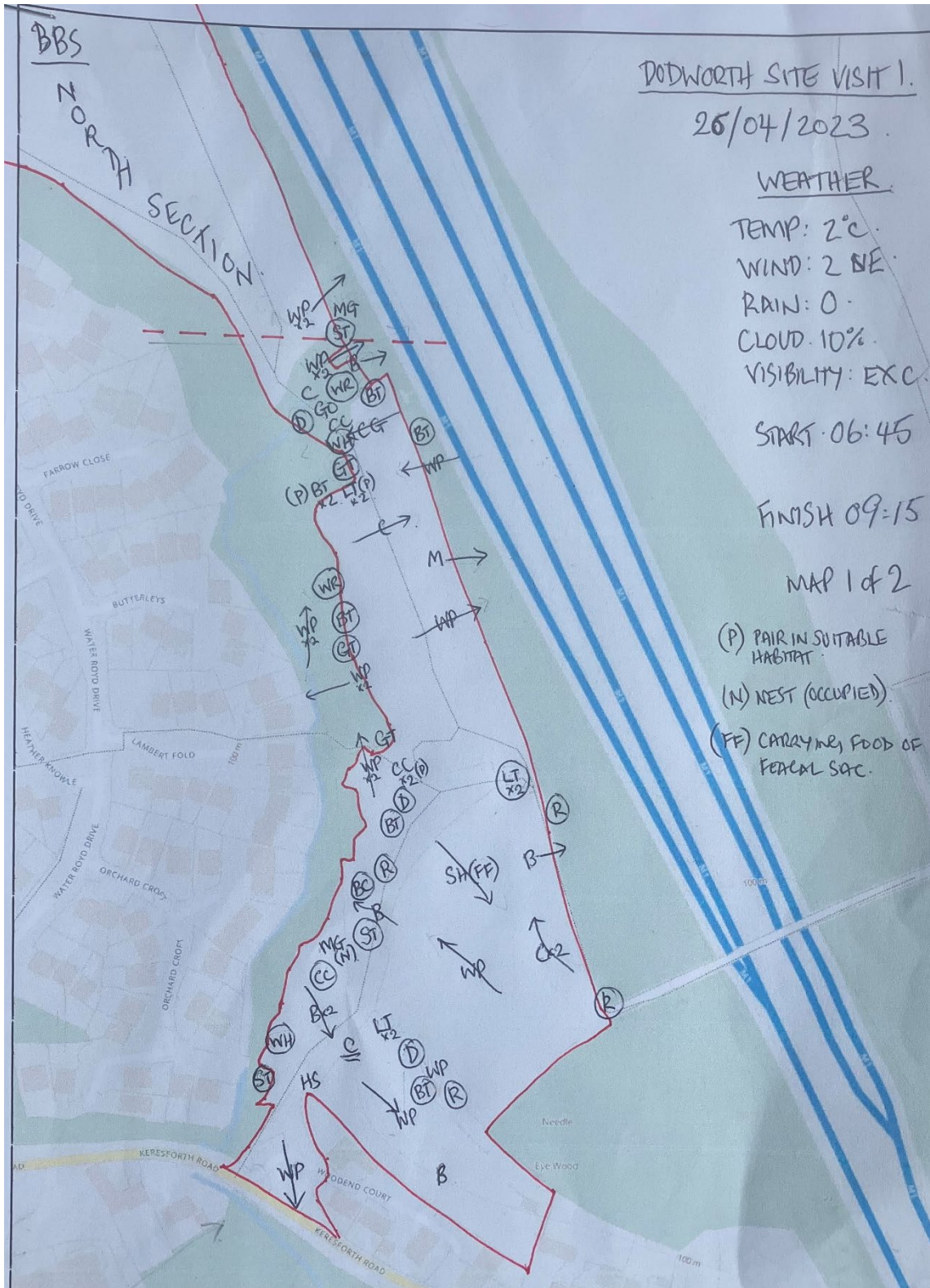
| Species | Total no. registrations | Mean registrations per night |
|---------------------|-------------------------|------------------------------|
| Noctule | 1 | 0.2 |
| Common Pipistrelle | 374 | 74.8 |
| Soprano Pipistrelle | 1 | 0.2 |
| Myotis sp. | 54 | 10.8 |
| TOTAL | 430 | 86 |

Table A1.12. Static Bat Detector Surveys (Location 4: 19th – 23rd July 2023)

| Species | Total no. registrations | Mean registrations per night |
|---------------------|-------------------------|------------------------------|
| Noctule | 12 | 2.4 |
| Common Pipistrelle | 49 | 9.8 |
| Soprano Pipistrelle | 1 | 0.2 |
| Myotis sp. | 1 | 0.2 |
| TOTAL | 63 | 12.6 |

Appendix 2. Breeding Bird Survey Results

Visit 1. 26th April 2023



Visit 2. 9th May 2023



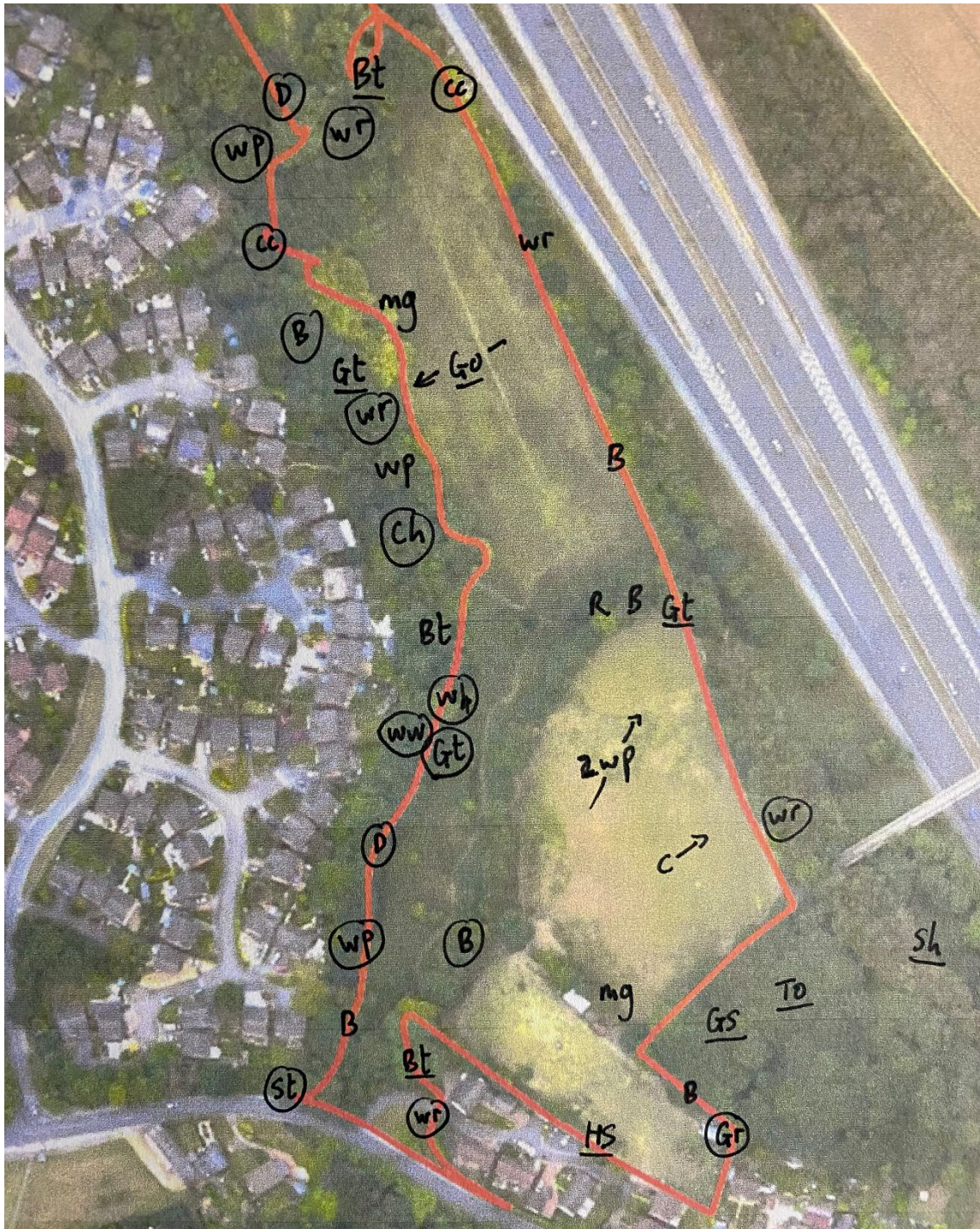
Visit 2. 9th May 2023



Visit 3. 18th May 2023



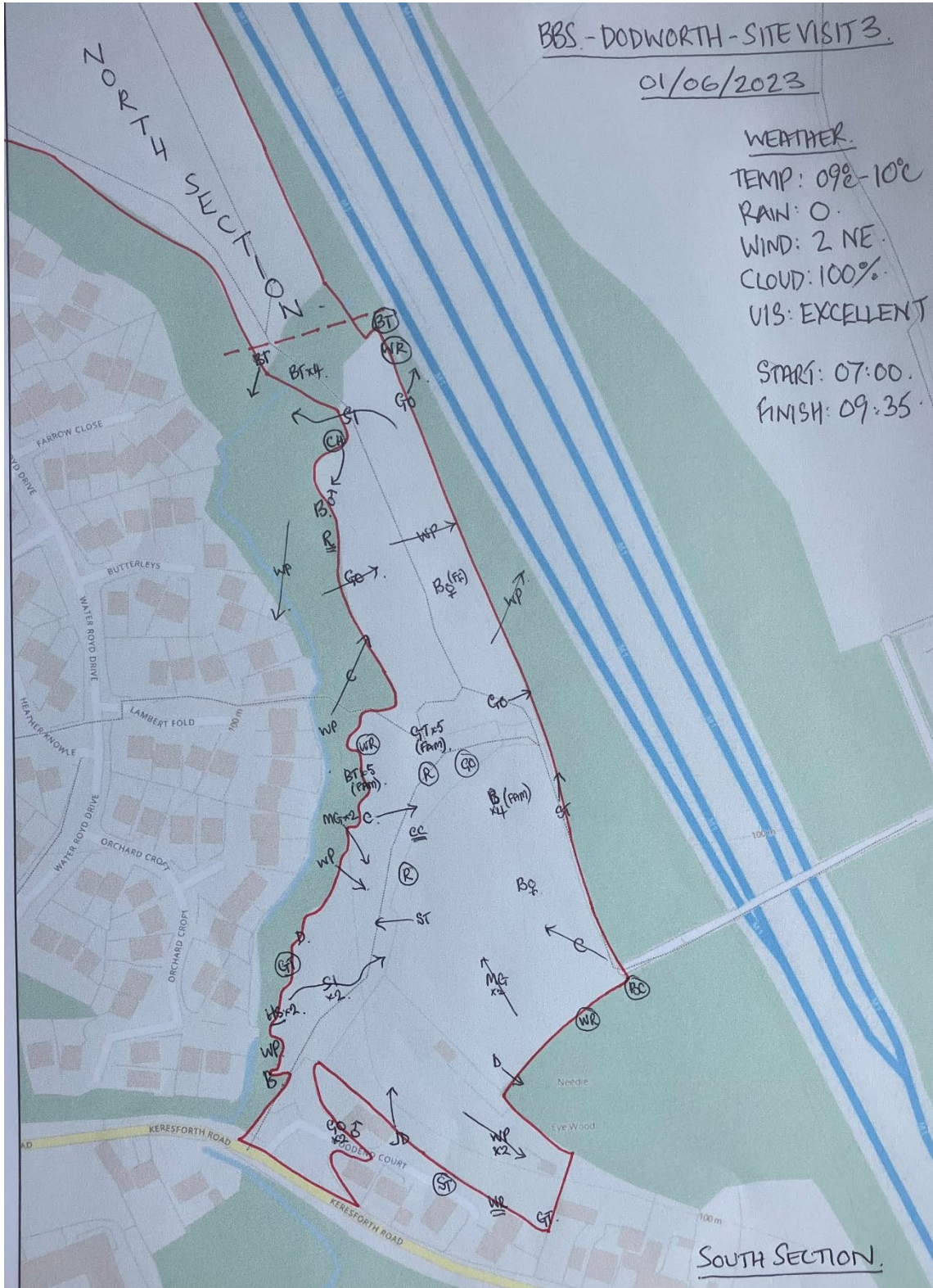
Visit 4. 22nd May 2023



Visit 4. 22nd May 2023



Visit 5. 1st June 2023



Visit 6. 21st June 2023

