



Maximus

Land North of Beaconside, Stafford

Protected Species Survey Summary

November 2012

CONFIDENTIAL

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CONTENTS

1.0	INTRODUCTION	3
2.0	METHODOLOGY	4
3.0	RESULTS	13
4.0	DISCUSSION & RECOMMENDATIONS	21

FIGURES

Figure 1: Dusk & Dawn Bat Survey Results 19th & 20th July 2011

Figure 2: Dusk & Dawn Bat Survey Results 1st & 2nd September 2011

Figure 3: Dusk & Dawn Bat Survey Results 20th & 21st September 2011

Figure 4: Bat Transect Dusk 21st June 2011

Figure 5: Bat Transect Dusk 15th September 2011

Figure 6: Phase 1 Habitat Plan, Tree Locations & Badger Survey Results 2012

Figure 7: Great Crested Newt Surveys 2009 & 2011

Figure 8: Wintering Bird Survey Results 2011- 2012

Figure 9: Breeding Bird Survey Results 2011- 2012

APPENDICES

Appendix 1: Dusk Emergence and Dawn Return to Roost Bat Surveys 2011

Appendix 2: Bat Activity Transects June and September 2011

Appendix 3: Bat Tree Survey Results 2011

Appendix 4: Great Crested Newt Survey Results 2011

Appendix 5: Wintering Bird Survey Results 2011-2012

Appendix 6: Breeding Bird Survey Results 2011

1.0 INTRODUCTION

1.1 The following report has been prepared by FPCR Environment and Design Ltd. on behalf of Maximus to summarise the findings of ecological surveys undertaken on land north of Beaconside, Stafford. Protected species and habitat surveys were undertaken for:

- Hedgerows;
- Bats;
- Great Crested Newts;
- Badgers;
- Wintering Birds; and
- Breeding Birds.

Site Context

1.2 The site covers approximately 175ha and lies to the north of Stafford, centred on OS grid reference SJ 929 266. The site consists primarily of large improved-grassland fields enclosed by hedgerows and wire fencing. Further habitats recorded on site were limited to small infrequent areas of broadleaved plantation, two small brooks, some limited scattered scrub and a single pond. Marston Brook runs south along the easternmost site boundary and through the south-eastern corner of the site.

1.3 Surrounding land is largely devoted to agriculture including pasture and arable farmland. Land to the south of the site extending towards Stafford comprises established urban development including industrial units and MOD facilities.

Development Proposals

1.4 The proposals for the site have not yet been confirmed. It is anticipated that the majority of existing hedgerows and field perimeter trees will be retained within the scheme, except where gaps will be required to permit the creation of access roads.

1.5 It is recommended that retained trees and hedgerows be appropriately protected throughout works and that the proposed scheme incorporates new tree and shrub planting throughout the site. Where possible the landscaping design should be designed to provide connectivity with the wider landscape, including retained woodland areas and hedgerows. A more detailed assessment and input into the landscaping design will be provided once a site masterplan becomes available.

2.0 METHODOLOGY

Bats

External Building Surveys . Whitehouse Farm and Flat Meadow Farm

- 2.1 The exterior of the buildings on site were visually assessed on the 1st and 2nd of February 2010 by licensed bat workers. The survey findings are provided in the separate Ecological Appraisal (FPCR February 2010).

Nocturnal Survey of Buildings

- 2.2 Dusk (emergence) and dawn (return to roost) surveys were undertaken by four ecologists. The surveyor locations were distributed around the buildings so that all the aspects of buildings B1, B2, B3b, B7a, B8 and B9 could be observed over the course of the surveys, and all potential access and egress points (see Figures 1 to 3). The dusk surveys were completed from 30 minutes prior to sunset until at least 90 minutes following sunset. The dawn surveys were completed from at least 90 minutes prior to sunrise until 30 minutes following sunrise. Surveyors recorded the species and location of any bat activity detected. Surveyors used ultrasonic bat detectors (Bat Box Duets).
- 2.3 Surveys were conducted in appropriate conditions, i.e. ambient temperature above 10_C and little wind or rain, see Table 1 below.

Table 1: Bat Survey Date and Conditions

Date	Start-Finish	Sunset/sunrise	Temperature °C	Cloud %	Rain	Wind
19.07.11	21:25 - 21:45	21:21	12	100	0	3
20.07.11	03:45 - 05:05	05:09	11	100	Intermittent drizzle	1
01.09.11	19:30 - 21:30	19:56	16	5	0	0
02.09.11	04:30 - 06:30	06:21	10	20	0	1
20.09.11	18:50 - 20:50	19:12	13	20	0	1
21.09.11	05:25 - 07:00	06:52	10	0	0	1

- 2.4 The building surveys were undertaken by a licensed bat worker (Natural England Licence Number: 20122253) and experienced bat workers from FPCR.

Foraging / Commuting Habitat

- 2.5 Transects were walked on two separate occasions on the 21st June 2011 and 15th September 2011 in order to assess bat activity and usage of the site. All surveys were carried out during appropriate weather conditions, i.e. temperature over 10°C, with little/no rain or wind. Transect surveys commenced at dusk and were of at least two hours duration (Table 2).

Table 2: Bat Survey Date and Conditions

Date	Start-Finish	Sunset	Temperature °C	Cloud	Rain	Wind
21.06.12	21:53-00:42	21:37	18	80	Light Rain for the last 10 minutes of survey	1
15.09.12	19:10-22:05	19:23	13	30	0	1

- 2.6 Transect routes encompassed as many bat-suitable features as possible including trees, hedgerows and waterbodies. The transects commenced at around sunset and lasted a minimum of 2.5 hours. Ultra sonic bat detectors (Bat Box Duets) with line-in mp3 recorders were used to aid species identification. 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. This information provided an overview of the bat activity present on site and highlighted which habitat types were associated with bat activity.
- 2.7 Transect surveys were conducted by a licensed bat worker 20122628 and experienced bat workers from FPCR.

Tree Assessment

- 2.8 Mature trees previously identified to display features with potential to support roosting bats and/or requiring additional survey work in 2010 were reassessed by a licensed bat worker on the 25th August 2011. Trees were assessed from ground level, with the aid of a torch, endoscope and binoculars, where required, to visually assess the potential to support bat roosts. The trees were assessed by a licenced bat ecologist (Natural England licence number: 20120618). During the survey, features considered to provide suitable roost sites for bats were noted where present including:
- Trunk cavity . Large hole in trunk caused by rot or injury
 - Branch cavity - Large hole in branch caused by rot or injury
 - Trunk split . Large split / fissure in trunk caused by rot or injury
 - Branch spilt . Large split / fissure in branch caused by rot or injury
 - Branch socket cavity . Where a branch has fallen from the tree and resulted in formation of an access point in to a cavity
 - Woodpecker hole . Hole created by nesting birds suitable for use by roosting bats
 - Lifted bark . Areas of bark which has rotted / lifted to form suitable access point/roost site for bats
 - Hollow trunk . Decay in heartwood leading to internal cavity in trunk
 - Hazard beam failure- Where a section of the tree stem/branch has failed causing collapse and leading to longitudinal fractures / splits / cracks along its length
 - Ivy cover . Dense / mature ivy cover where the woody stems could create small cavities / crevices
- 2.9 The trees were classified according to perceived roost potential based on the presence of features listed above. Table 3 classifies the potential categories as accurately as possible and is based upon Table 8.4 in Bat Surveys- Good Practice Guidelines (Bat Conservation Trust, 2012).

Table 3: Bat Survey Protocol for Trees

Tree category and description	Survey requirements prior to determination.	Recommended mitigation works and / or further surveys.
Category 1 Confirmed bat roost with field evidence of the presence of bats, e.g. live / dead bats, droppings, scratch marks, grease marks and / or urine staining.	Identified on map and on the ground. Further assessment such as inspection with canopy access and / or dusk / dawn surveys should be undertaken to provide an assessment on the likely use of the roost, numbers and species of bat present.	Avoid disturbance where possible. Felling or other works that would affect the roost would require a Natural England licence with like for like roost replacement as a probable minimum. Works may also be subject to timing constraints.
Category 2a Trees that have a high potential to support bat roosts.	Identified on map and on the ground. Further assessment such as inspection with canopy access and / or dusk / dawn surveys should be undertaken to assess presence / absence of roosting bats. Trees may be upgraded to Category 1 if presence of roosting bats is confirmed, or downgraded following further surveys if features present are of low suitability.	Trees where no bat roost confirmed after further surveys: Avoid disturbance where possible. Further nocturnal surveys during the active bat season immediately prior to felling may be required. Use soft felling techniques and avoid cutting through tree cavities.
Category 2b Trees with a low potential to support bat roosts.	None.	Avoid disturbance to trees where possible. Trees would be felled using reasonable avoidance measures such as soft felling, removing ivy cover by hand etc.
Category 3 Trees with negligible potential to support bat roosts.	None.	None.

Tree Climbing Survey

- 2.10 Aerial inspections were undertaken on 25th August 2011 on selected trees that had been categorised as containing moderate or high bat roost potential during the visual assessment of trees. Surveys were undertaken by a Licensed bat worker (licence number 20120618) using arborist tree climbing methods. Each feature that was suspected of being suitable for roosting bats was visually inspected using torches and endoscopes as appropriate. Evidence of bat occupation was sought in the form of droppings, live or dead bats, urine staining or scratch marks around access points. Similarly the characteristic of each feature was assessed with regard to its suitability to support roosting bats. The size of each potential roost site and its exposure to the

elements was taken into account, as were features such as dense cobwebs or evidence of use by other species, e.g. woodpeckers, squirrels, wasps etc.. Following assessment, each tree feature was re-categorised (where appropriate) in order to prescribe a suitable course of action for tree removal/works.

Great-crested Newt

Habitat Suitability Index (HSI)

- 2.11 This methodology assesses ponds against ten pre-determined criteria, producing a score which indicates suitability for great crested newt (GCN) occupation.
- 2.12 The Habitat Suitability Index provides a measure of the likely suitability that a waterbody has for supporting GCN (Oldham *et al* 2002). In general, ponds with a higher score are more likely to support GCN than those with a lower score, and there is a positive correlation between HSI scores and ponds with GCN recorded. Ten separate attributes are assessed for each pond:
- Geographic location
 - Pond area
 - Pond drying
 - Water quality
 - Shade
 - Presence of water-fowl
 - Presence of fish
 - Number of linked ponds
 - Terrestrial habitat
 - Macrophytic coverage
- 2.13 A score is assigned according to the most appropriate criteria level set within each attribute and a total score calculated of between 0 and 1. Pond suitability is then determined according to the scales shown in Table 4.
- 2.14 In some instances, although ponds were within 500m of the site, they were effectively isolated from the proposed development site by significant barriers to movement such as roads and residential areas, hence were not assessed.

Table 4: HSI Scores as a Measure of Pond Suitability

HSI score	Pond Suitability
<0.5	Poor
0.5 - 0.59	Below average
0.6 . 0.69	Average
0.7 . 0.79	Good
>0.8	Excellent

Aquatic Surveys

- 2.15 Ecologists from FPCR conducted surveys of all ponds present within the site and on safely accessible and connected land within a 500m radius of the proposed development in 2011. Surveys followed Natural England guidance, as detailed in the Great Crested Newt Mitigation Guidelines (English Nature, 2001). To determine the presence / absence of GCN, an initial four surveys were performed. A further two surveys were completed on waterbodies if the presence of great crested newts was confirmed, to allow a population size class assessment to be undertaken.
- 2.16 All surveys were completed during suitable conditions i.e. when the ambient air temperature exceeded 5°C, with little/no wind / rain and were conducted by appropriately licensed ecologists. Survey dates and weather conditions are summarised in Table 5.

Table 5. GCN Survey Dates and Weather

Date	Temperature °C	Rain	Wind
04.05.11	9-15	0	0
12.05.11	14-20	0	3
19.05.11	14-15	0	1
02.06.11	18-20	0	0
13.06.11	15-16	0	0
14.06.11	16-20	0	0

- 2.17 The following methodologies were applied over the survey period.

Bottle Trapping

- 2.18 Bottle traps were set within the waterbody in the evening at densities of one trap per two metres of shoreline (where feasible) and left *in situ* overnight prior to inspection the following morning. Traps were partially submerged in the water leaving an air bubble in the bottle, and were secured by a cane marked with a high visibility tape to ensure relocation the following day. Care was taken to ensure that trapping did not occur during excessively warm weather, when the temperature inside the trap could rise considerably, reducing oxygen levels and potentially suffocating any trapped newts.

Sweep Netting

- 2.19 Long handled sweep-nets were used to sample the margins of the pond for GCN, with approximately 15 minutes of netting per 50m of shoreline.

Torching

- 2.20 Torching involved searching the waterbody after dusk using high-powered torches to scan the margins and potential display areas for newts. The perimeter of the pond was walked slowly, spending approximately 15 minutes torching each 50m of shoreline and recording any newts observed. Torch surveys are unsuitable within

heavily vegetated and / or turbid ponds or after periods of heavy rain as visibility is diminished.

Egg Searching

- 3.11 GCN lay single eggs on the leaves of aquatic plants or other suitable pliable material, folding the material over the egg to protect it. GCN eggs can be distinguished from those of the other newts by their size, shape and colour. Submerged vegetation was examined for newt eggs and folded leaves gently opened to check for the presence of eggs. Once a GCN egg is identified, no further leaves need to be examined to minimise any further potential disturbance.

Badger

- 2.21 A badger survey was undertaken on the 1st and 2nd of February 2010, the results of which are provided in the separate Ecological Appraisal report (FPCR February 2010). An updated badger survey was conducted on the 21st June 2011. Evidence indicating the presence of badgers was sought within the site and on accessible land within 30m of the boundaries, including:
- Setts (main, annexe, subsidiary and outlier)
 - Latrines
 - Prints and trackways
 - Hairs caught on rough wood and fencing
 - Snuffle holes, scratching posts and general feeding activity
- 2.22 The identification of snuffle holes, scratching posts or feeding signs on their own does not necessarily provide conclusive evidence of the presence of badgers, and a number of such signs need to be seen in conjunction before they can be said to be conclusive of badger activity.
- 2.23 Where setts were found, their status and level of activity was noted. Sett status is broadly categorised as follows:
- *Main sett* . usually continuously used with many signs of activity around, a large number of holes and conspicuous spoil mounds
 - *Annexe sett* . usually located close to a main sett and connected to it by well used paths. Annexes may not be continuously occupied
 - *Subsidiary sett* . lesser used setts comprising a few holes and without associated well-used paths. Subsidiary setts are not continuously occupied
 - *Outlier sett* . one or two holes without obvious paths. These are used sporadically
- 2.24 Level of activity is described as:
- *Well used* . clear of debris, trampled soil mounds and obviously active, with signs of activity such as presence of prints, dislodged guard hairs around the entrances

- *Partially* used . some associated debris or plants at the entrance. Could be used with minimal excavation and usually with signs of activity within the vicinity, for example, badger pathways
- *Disused* . partially or completely blocked entrances

Wintering Birds

- 2.25 In accordance with good practice guidelines, four surveys were undertaken across the 2011/2012 winter season to permit the assessment of the population status of wintering birds on the site.
- 2.26 The survey methodology employed was broadly based on that of territory mapping (Bibby *et al.*, 2000) as developed by the British Trust for Ornithology (BTO). Standard BTO species codes and symbols for bird activities were used to identify birds and denote activity, sex and age where appropriate.
- 2.27 The site was walked over by an experienced ornithologist between 08:00 and 15:00 on each occasion. A route was mapped out prior to the surveys being undertaken, paying particular attention to linear features, such as hedgerows and tree lines, and natural features such as ponds, lakes, areas of scrub and woodland. Bird surveys were not undertaken in unfavourable conditions such as heavy rain or strong wind, which may negatively affect the results. Survey dates and conditions are summarised in Table 6.

Table 6. Wintering Bird Survey Dates and Weather

Survey	Date	Cloud (%)	Rain	Wind (Beaufort Scale)	Visibility
1	11/11/11	100	0	1	Good
2	22/12/11	50	0	3	Very good
3	27/01/12	20	0	2	Good
4	16/02/12	100	0	3	Very good

- 2.28 The conservation value of bird populations has been measured using two separate approaches: nature conservation value and conservation status. The IEEM guidance on Ecological Impact Assessment (EIA) assesses nature conservation value within a geographical context. To attain each level of value, an ornithological resource or one of the features (species population or assemblage of species) should meet the criteria set out in Table 7 below. In some cases, professional judgement may be required to increase or decrease the allocation of specific value, based upon local knowledge.

Table 7. Definition of Terms Relating to Nature Conservation Value

Nature Conservation Value	Examples of Selection Criteria
International	<p>A species which is part of the cited interest of an SPA and which regularly occurs in internationally or nationally important numbers.</p> <p>A species present in internationally important numbers (>1% of international population).</p>
National	<p>A species which is part of the cited interest of a SSSI and which regularly occurs in nationally or regionally important numbers.</p> <p>A nationally important assemblage of breeding or over-wintering species.</p> <p>A species present in nationally important numbers (>1% UK population).</p> <p>Rare breeding species (<300 breeding pairs in the UK).</p>
Regional	<p>Species of principle importance under S41 of the NERC Act, which are not covered above, and which regularly occur in regionally important numbers.</p> <p>Species present in regionally important numbers (>1% of regional population).</p> <p>Sustainable populations of rare or scarce species within a region.</p> <p>Species on the BoCC Red List and which regularly occurs in regionally important numbers.</p>
County	<p>Species of principle importance under S41 of the NERC Act, which are not covered above, and which regularly occur in county important numbers.</p> <p>Species present in county important numbers (>1% of county population).</p> <p>Sustainable populations of rare or scarce species within a county or listed in a county BAP.</p> <p>A site designated for its county important assemblage of birds (e.g. a SINC Site).</p> <p>Species on the BoCC Red List and which regularly occur in county important numbers.</p>
District	<p>Species of principle importance under S41 of the NERC Act, which are not covered above, and are rare in the locality or in the relevant Natural Area profile.</p> <p>Species present in numbers just short of county importance.</p> <p>Sustainable populations of rare or scarce species within the locality.</p> <p>A site whose designation falls just short for inclusion for its county important assemblage of birds (e.g. a SINC Site).</p> <p>Other species on the BoCC Red List and which are considered to regularly occur in district important numbers.</p>
Local	<p>Other species of conservation interest (e.g. all other species of principle importance under S41 of the NERC Act and on the BoCC Red and Amber lists which are not covered above) regularly occurring in locally sustainable populations.</p>
Site	<p>All other BoCC Green-listed common and widespread species.</p>

Breeding Birds

- 2.29 The survey methodology employed was broadly based on that of territory mapping (Bibby *et al.*, 1992) as used for the BTO Common Bird Census (CBC). Standard BTO species codes and symbols for bird activities were used to identify birds and denote activity, sex and age where appropriate. The criteria used in the assessment of breeding birds has been adapted from the standard criteria proposed by the European Ornithological Atlas Committee (EOAC 1979) and are grouped into four categories, each with their own BTO breeding codes (see Appendix 6).
- 2.30 To provide a reasonable level of accuracy for determining the population status of the breeding birds on the site, three surveys were undertaken between 05:00 and 11:00, one each month during April, May and June 2011. A route was mapped out prior to the surveys being undertaken, paying particular attention to any linear features, such as hedgerows and tree lines, and natural features such as ponds, lakes, areas of scrub and woodland. Bird surveys were not undertaken in unfavourable conditions such as heavy rain or strong wind, which may negatively affect the results. Survey dates and conditions are summarised in Table 8.

Table 8. Breeding Bird Survey Dates and Weather Data

Survey	Date	Cloud (%)	Rain	Wind	Visibility
1	28/04/11	10	0	2	Good
2	20/05/11	40	0	3	Excellent
3	14/06/11	5	0	0	Very good

Limitations

- 2.31 Surveys for GCN within pond 2 were limited as only torching and egg searching methodologies could be undertaken on three occasions during the 2011 survey season due to safety reasons. Access was only possible to pond 5 on one occasion.

3.0 RESULTS

Bats

Buildings

- 3.1 External bat inspections were undertaken on the 1st and 2nd of February 2010 (see the Ecological Appraisal Report, FPCR February 2010). Buildings 1, 2, 3b, 7a, 8 and 9 were found to have low-moderate potential, buildings 3a, 6 and 7b were considered to have limited potential, and buildings 4 and 5 were found to have negligible potential for bats.
- 3.2 Dusk emergence and dawn return to roost surveys were undertaken on the 19th and 20th July 2011, 1st and 2nd September 2011 and 20th and 21st September 2011. The results of the dusk emergence and dawn return to roost survey are summarised in Appendix 1 and in Figures 1, 2 and 3.

Emergence Survey . 19th July 2011

- 3.3 No bats were identified emerging from or returning to roost in any of the buildings monitored. Only low level bat activity was recorded over the course of the survey. Noctule *Nyctalus noctula* were recorded foraging around building 1 and building 2. Common pipistrelle *Pipistrellus pipistrellus* and soprano pipistrelle *Pipistrellus pygmaeus* were recorded foraging around building 8. A single brown long eared bat *Plecotus auritus* was recorded on one occasion foraging on site. Individual noctule and common pipistrelle were also recorded commuting across the site.

Return to Roost Survey . 20th July 2011

- 3.4 No bats were identified returning to roost in any of the buildings surveyed. Activity levels were generally low, and comprised common pipistrelle and a single brown long eared bat. The first bat identified was a noctule foraging at 03:53am.

Emergence Survey . 1st September 2011

- 3.5 Pipistrelle species were recorded regularly around building B3b and a common pipistrelle was recorded foraging within the cow shed (building B6). Small numbers of noctule bats were recorded commuting across the site, and an unidentified Myotis bat was recorded on one occasion at 20:28. No bats were identified emerging from or returning to roost in the buildings.

Return to Roost Survey . 2nd September 2011

- 3.6 One common pipistrelle was identified returning to roost within a crack in the wall on the southern aspect of B1 (Location 20, Figure 2). Three fresh pipistrelle droppings were also noted at this location. No further bats were identified emerging from or returning to roost in the buildings during the surveys.
- 3.7 Activity identified over the survey was low with common pipistrelle foraging around building B1 and building B2. Unidentified bat species were recorded circling around building B1. Activity around buildings B8 and B9 comprised of a single common pipistrelle foraging at 05:17am.

Emergence Survey . 20th September 2011

- 3.8 No bats were identified emerging from or returning to roost in the buildings. An unidentified bat and a *Nyctalus sp.* were recorded foraging over the lagoon present in the west of the site. Two common pipistrelles were recorded foraging within the cow shed (building B6). Common pipistrelles were also recorded constantly foraging on site and around B3b and B7a.

Return to Roost Survey . 21st September 2011

- 3.9 No bat activity was recorded around buildings B8 and B9. A single noctule was recorded commuting across site at 05:52am. Common pipistrelles were recorded mostly circling and / or foraging around building B1. No bats were confirmed as returning to roost in the buildings during the surveys.

Bat Activity

- 3.10 The results of bat activity transect surveys carried out in June and September 2011 are provided in Appendix 2 and Figures 4 and 5. The June transect survey recorded 14 activity locations with a maximum of 16 bats commuting and/or foraging within the site boundary. One noctule was recorded commuting along the southern boundary of the site; all other bats recorded were common pipistrelles. The September transect survey recorded bat activity at 22 locations with a maximum of 23 individual bats detected. One noctule and one *Myotis sp.* was recorded in the south of the site, likely to be commuting. All other bats recorded were common pipistrelles.
- 3.11 Species diversity was low across the site with only two species being identified to species level (common pipistrelle and noctule) and one species being identified to family level (*Myotis sp.*). No rare species were confirmed. This species assemblage is typical for a site dominated by improved grassland and situated on the urban edge.
- 3.12 On both survey occasions common pipistrelle was the dominant species recorded. Noctule was recorded once only during each transect. A *Myotis* bat was only recorded present on the second survey.
- 3.13 In general the bat activity recorded in June and September was very low, and was distributed across the site. The majority of bat activity was noted along linear features, such as hedgerows and the woodland edges. The results from the transect surveys indicate that there are no significant commuting routes or foraging areas for bats located within the site.

Tree Survey (Figure 6 and Appendix 3)

- 3.14 All mature trees within the curtilage of the site were surveyed on the 1st and 2nd of February 2010 for the presence of features that could provide roosting opportunities for bats (Ecological Appraisal Report, FPCR February 2010). Previously, 25 trees and 2 tree groups were identified with bat potential. Following re surveying on the 25th August 2011 24 trees and 2 tree groups were identified with bat potential. The following is a summary of the features recorded (See Appendix 3 for detailed results). Please note, for conciseness trees have been grouped into categories of potential.

- 3.15 Tree 29, is a mature ash. A roost was identified within a branch socket cavity on the northern elevation approximately 6m high; bat droppings were identified on the entrance to the cavity.
- 3.16 Moderate to High potential trees . No trees were recorded within this category.
- 3.17 T25 was previously assessed as having high potential in 2010. Following reassessment including inspection using an endoscope a trunk cavity on the eastern aspect and a shallow branch socket cavity on the northern aspect were confirmed to be shallow. An additional two woodpecker holes 15cm deep were noted. This tree was therefore reassessed as providing Moderate potential to be used as a roost.
- 3.18 Three further trees were considered to provide Moderate roost potential: T7, T18 and T23. T7 was a common alder with a trunk cavity and a number of branch splits on the eastern aspect. T18 was an ash with 4 woodpecker holes on the northern aspect and a branch cavity on the southern aspect. T23 was a pedunculate oak with a trunk cavity on the eastern aspect, loose lifted bark forming a potential roost feature on the southern aspect and 2 branch socket cavities on the western aspect.
- 3.19 T9 was an ash with a branch socket cavity and trunk cavity on the western aspect. This tree was previously assessed as having moderate bat potential, however following thorough inspection with canopy access this tree was reassessed to have Negligible potential for bats.
- 3.20 Five trees were considered to provide Low to Moderate potential: T1, T2, T6, T8 and T14. T1 was a pedunculate oak with loose/lifted bark on the northern and western aspect, and a branch socket cavity on the southern aspect. T2 was a common alder with a large branch socket cavity on the southern aspect. T6 was a common alder with a hollow trunk and a trunk split on the western aspect. T8 was an alder with a hollow trunk. T14 was an oak with a branch socket cavity on the eastern aspect, loose/lifted bark on the southern aspect and a trunk split on the western aspect.
- 3.21 Previously T10, T16 and T19 were assigned low-moderate potential for roosting bats, however following further inspection with canopy access these trees were identified as having no more than Low potential for roosting bats. T10 was an alder with four branch socket cavities on the western aspect. T16 was an oak tree with loose lifted bark on all aspects of the tree, branch splits on the southern and western aspects and a branch socket cavity on the western aspect. T19 was an ash with a trunk cavity on the southern aspect and 2 branch socket cavities and a woodpecker hole on the western aspect. Upon further inspection of the branch socket cavities within these trees the cavities were found to be shallow and unsuitable for roosting bats. However, other features are still present on the trees which provide some roost potential.
- 3.22 Ten trees were considered to provide Low potential: T5, T11, T12, T13, T15, T17, T20, T21, T22 and T26. T5 was an oak with lifted loose bark and a shallow branch split on the northern aspect. T12 was an ash with a trunk cavity on the eastern aspect. T15 was an oak with a trunk cavity on the eastern aspect. T11, T13, T17, T20, T21, T22 and T26 were a mix of ash and oak, all of which had dense ivy cover but no other features of note.

- 3.23 In addition TG1 and TG2 were both assessed to have Low roost potential, due to the lack of notable features other than dense ivy cover.
- 3.24 Previously T3 and T24 were assigned Low potential for roosting bats, following reassessment these trees T3 and T24 were identified as having Negligible potential for roosting bats. T3 was an ash tree with a branch socket cavity on the western aspect. T24 was an oak with branch socket cavity on the northern aspect. Upon further inspection the cavities were found to be shallow and unsuitable for roosting bats. The remainder of the trees on site had Negligible potential for roosting bats due to the generally good condition of the tree and a lack of bat features.

Great-crested Newt

- 3.25 Twenty-six ponds were identified within 500m of the site boundary (see Figure 7). A single pond (pond 1) was present within the site boundary.
- 3.26 Ponds 1,2,3,4,5,6,7, 8,9,10,11,12,13 and 23 were surveyed during 2011. Ponds 14, 15, 16, 17, 18, 19, 20, 21, 22 were surveyed in 2009. No access was possible to survey ponds 24, 25 and 26.
- 3.27 Access was only possible to pond 5 on one occasion throughout the survey season; no GCN were recorded during this survey. Ponds 8, 9, 10, 11, 12, 13 and 23 were either filled in or dry when surveyed during surveys in 2011.
- 3.28 Surveys during 2009 and 2011 confirmed the absence of GCN from pond 4, 17 and 21. A small population of common frog *Rana temporaria* was confirmed to be present in pond 4. Pond 4 is largely isolated from other water bodies within the local area as the neighbouring ponds (ponds 9, 10, 11, 13) are filled in or dry. The nearest pond that still holds water is pond 14, approximately 600m to the south.
- 3.29 Small numbers of GCN were confirmed to be present within ponds 1, 2, 3, 6, 7, 14, 15, 16, 18, 19, 20 and 22. In 2011 no more than a single GCN was recorded present on any one occasion in ponds 1-3. Pond 6 had a peak count of 3 adults, and pond 7 had a peak count of 2. Pond 6 was confirmed as a breeding pond as GCN eggs were identified during a visit in May 2011. From the surveys undertaken a Low population of great crested newts has been identified with the area.
- 3.30 Pond 1 lies 500m from the closest known GCN population to the north, and 600m from the closest GCN pond to the south.
- 3.31 Populations of smooth newt *Lissotriton vulgaris* were present within ponds 1, 2, 6, 7, 17 and 21.
- 3.32 The grassland, woodland and hedgerow habitats within the survey area provide potential opportunities for GCN to shelter, and are considered to represent suitable terrestrial habitat for this species. These boundary habitats also provide potential commuting routes to similar habitats present within the surrounding area. A number of features around the survey area, including animal holes, log piles and piles of bricks and rubble identified during the phase 1 habitat survey in February 2010 have potential to be used as places of shelter by hibernating GCN.

Badgers

- 3.33 A number of active badger setts were recorded present within the site during survey in 2010 and 2012 (see Figure 6). Sett 1a to the east of New Buildings Farm consisted of four holes within a steep wooded bank. These appeared to be well used, with discarded bedding evident within entrance ways. Sett 1b consisted of one well used hole which appeared to extend under the track and hedgerow, separating it from 1a and was likely to be an alternate entrance to these setts.
- 3.34 Sett 2 consisted of three holes. All recorded holes were located to the west bank of stream 2. Two holes were recorded within close proximity of one another with one well used hole located towards the edge of the field compartment in close proximity to the stream banks. The second hole was excavated into the western stream bank but had become blocked off by a pile of logs. The third hole was located approximately 15-20m further north and tunnelled under the western stream bank. Inspection suggested this hole was less frequently used with a lack of fresh spoil, lack of wear and no discarded bedding around the sett entrance.
- 3.35 In 2010 sett 3 comprised two holes within an earth mound along H33. Use of these holes was evident though the presence of disturbed soil outside of the tunnels. These holes were no longer evident during the 2012 resurvey.
- 3.36 Sett 4 consisted of four holes along the field boundary, one of the holes appeared to be well used in both 2010 and 2012, with a worn track, disturbed soil and some bedding within the entrance way. Use of the other three holes appeared to be of a lower frequency.
- 3.37 Sett 5a and 5b were located within the banks of the disused railway within the south of site following the course of hedgerow H39. Sett 5a was situated within close proximity to the area of broadleaved woodland on top of the existing rail bank. In 2010 this consisted of one well used hole with evidence of disturbed soil around the entrance way, and a large number of snuffle holes likely to be associated with this sett were recorded within the area of broadleaved plantation. This sett was no longer active during survey in July 2012. Sett 5b was located to the north of the disused railway line and tunnelled under the northern bank and consisted of three to four holes at the time of both surveys. Two holes appeared to be unused in July 2012. A third hole had relatively recently excavated soil outside the entrance but no clear tracks, bedding or other evidence that it was in use at the time.

Wintering Birds

- 3.38 A total of 44 bird species were recorded on site, 11 of which are notable either appearing on Schedule 1 of the W&CA, the BoCC Red list, the Staffordshire Local BAP or listed as Species of Principle Importance under Section 41 of the NERC Act (Figure 8, Table 9).
- 3.39 A further eleven BoCC Amber-listed, twenty-one Green-listed and one unlisted (introduced) species were also recorded.

Table 9. Schedule 1, NERC and BoCC Red Listed Bird Species Recorded at Beaconside, Stafford during Winter Bird Surveys 2011-12, and their Recent Status within the West Midlands region.

Species	Conservation status	Recent Breeding Status in The West Midlands region [†]
Lapwing <i>Vanellus vanellus</i>	NERC Red LBAP	Common migrant and winter visitor
Herring gull <i>Larus argentatus</i>	NERC Red	Common winter visitor
Skylark <i>Alauda arvensis</i>	NERC Red LBAP	Abundant winter visitor
Dunnock <i>Prunella modularis</i>	NERC Amber	Abundant resident
Fieldfare <i>Turdus pilaris</i>	Schedule 1* Red	Abundant migrant and winter visitor
Song thrush <i>Turdus philomelos</i>	NERC Red	Abundant resident
Redwing <i>Turdus iliacus</i>	Schedule 1* Red	Abundant migrant and winter visitor
Starling <i>Sturnus vulgaris</i>	NERC Red	Very common to abundant resident
House sparrow <i>Passer domesticus</i>	NERC Red LBAP	Abundant resident
Bullfinch <i>Pyrrhula pyrrhula</i>	NERC Red LBAP	Common resident
Yellowhammer <i>Emberiza citrinella</i>	NERC Red LBAP	Very common to abundant resident

[†] Taken from "The Birds of Staffordshire, Warwickshire, Worcestershire and the West Midlands 2009" published by The West Midland Bird Club. Qualifications of status are as follows:

- Common: 5000-20000 birds occurring or 2500-10000 pairs breeding
- Very common: 20000-50000 birds occurring or 10000-25000 pairs breeding
- Abundant: 50000+ birds occurring or 25000+ pairs breeding

*Although both fieldfare and redwing are designated as Schedule 1 species this is due to their rare breeding status within the UK and not for their wintering numbers. Therefore, their Schedule 1 status as a winter visitor to site is not considered further in this report.

Breeding Birds

- 3.40 A total of 44 bird species were recorded, of which twelve either appear on the BoCC Red or Amber lists as declining and/or are listed as Species of Principle Importance under Section 41 of the NERC Act. A full list of results and species on-site breeding status can be found in Appendix 6. The 12 notable species are listed in Table 10 and their recorded locations on site are shown in Figure 9.

Schedule 1 Species

- 3.41 No Schedule 1 bird species were recorded within the site.

NERC / BoCC Red-Listed Species

- 3.42 Ten BoCC Red-listed and NERC Species of Principal Importance were recorded, of which house sparrow *Passer domesticus* and tree sparrow *Passer montanus* were confirmed as breeding on site. Lapwing *Vanellus vanellus*, skylark *Alauda arvensis* and starling *Sturnus vulgaris* displayed evidence of probably breeding; grey partridge *Perdix perdix*, cuckoo *Cuculus canorus*, song thrush *Turdus philomelos*, linnet *Carduelis cannabina* and yellowhammer *Emberiza citrinella* were considered possible breeding species on site.

NERC / BoCC Amber-Listed Species

- 3.43 Two Amber-listed and NERC Priority Species - dunnoek *Prunella modularis* and reed bunting *Emberiza schoeniclus* were recorded present and were considered to be probably and possible breeding species respectively.

Staffordshire LBAP Species

- 3.44 Eight Staffordshire Local BAP species were recorded on site. House sparrow and tree sparrow were confirmed as breeding on site; lapwing and skylark were considered to be probably breeding; and grey partridge, linnet, yellowhammer and reed bunting were all possible breeding species.

BoCC Amber-listed Species

- 3.45 Six Amber-listed species were recorded, of which swallow *Hirundo rustica* and whitethroat *Sylvia communis* were confirmed as breeding on site. Stock dove *Columba oenas* and swift *Apus apus* displayed evidence indicating possible breeding. No evidence was recorded to indicate that mallard *Anas platyrhynchos* or house martin *Delicon urbica* nest within the site.

BoCC Green-listed Species

- 3.46 Twenty-six BoCC Green-listed species were also recorded, of which ten were confirmed as breeding.

Table 10. NERC and BoCC Red Listed Bird Species Recorded at Beaconside, Stafford during Breeding Bird Surveys 2011, and their Recent Status within the West Midlands region.

Species	Conservation status	Breeding Status on Site	Recent Breeding Status in The West Midlands region [†]
Grey partridge <i>Perdix perdix</i>	NERC Red LBAP	Possible	Fairly common resident
Lapwing <i>Vanellus vanellus</i>	NERC Red LBAP	Probable	Fairly common to common resident
Cuckoo <i>Cuculus canorus</i>	NERC Red	Possible	Fairly common summer visitor
Skylark <i>Alauda arvensis</i>	NERC Red LBAP	Probable	Abundant resident
Dunnock <i>Prunella modularis</i>	NERC Amber	Probable	Abundant resident
Song thrush <i>Turdus philomelos</i>	NERC Red	Possible	Abundant resident
Starling <i>Sturnus vulgaris</i>	NERC Red	Probable	Very common to abundant resident
House sparrow <i>Passer domesticus</i>	NERC Red LBAP	Confirmed	Abundant resident
Tree sparrow <i>Passer montanus</i>	NERC Red LBAP	Confirmed	Common resident
Linnet <i>Carduelis cannabina</i>	NERC Red LBAP	Possible	Very common resident
Yellowhammer <i>Emberiza citrinella</i>	NERC Red LBAP	Possible	Very common to abundant resident
Reed bunting <i>Emberiza schoeniclus</i>	NERC Amber LBAP	Possible	Common resident

[†] Taken from "The Birds of Staffordshire, Warwickshire, Worcestershire and the West Midlands 2009" published by The West Midland Bird Club. Qualifications of status are as follows:

- Fairly common: 500-5000 birds occurring or 250-2500 pairs breeding
- Common: 5000-20000 birds occurring or 2500-10000 pairs breeding
- Very common: 20000-50000 birds occurring or 10000-25000 pairs breeding
- Abundant: 50000+ birds occurring or 25000+ pairs breeding

4.0 DISCUSSION & RECOMMENDATIONS

Bats

- 4.1 All UK bat species are listed on the Conservation of Habitats and Species Regulations 2010 (as amended) making it illegal to deliberately disturb bats or damage / destroy a breeding site or roosting place of any such animal. Bats are also afforded full legal protection under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). Under this legislation it is illegal to recklessly or intentionally kill, injure or take a species of bat or recklessly or intentionally damage or obstruct access to or destroy any place of shelter or protection or disturb any animal whilst they are occupying such a place of shelter or protection. Some bat species, including soprano pipistrelle, are Species of Principal Importance under Section 41 of the NERC Act.

Buildings

- 4.2 Bat emergence and return to roost surveys were recommended for buildings 1, 2, 3b, 7a, 8 and 9 following the initial building assessment (detailed in the separate Ecological appraisal) as this survey identified significant potential for bat occupation of these buildings. Three fresh pipistrelle droppings were confirmed beneath a crack in the brick work during subsequent inspection in 2011.
- 4.3 No evidence of a roost was identified during activity surveys undertaken during 2010, however a single common pipistrelle bat was identified returning to roost on one occasion in 2011 (Building 1, 2nd September). It is therefore concluded that this building is only used by roosting individuals on an occasional basis and is not used as a maternity roost. Given that fresh evidence was identified in the building it is recommended that should any works to this building be proposed, including demolition, that such works should be covered by a Natural England licence where appropriate, with mitigation for loss of the roost provided within the development proposals. **It is recommended that further nocturnal surveys be undertaken to support the Natural England licence application as survey data greater than 18 months old is unlikely to be accepted.**
- 4.4 From the completed survey work it has been concluded that the presence of a bat roost is not a statutory constraint to the proposed works on buildings B2, B3b, 7a, 8 and 9.
- 4.5 Buildings 3a, 6 and 7b were identified as having very limited potential for bats and building 4 and 5 as having Negligible potential during the 2010 surveys.
- 4.6 **It is recommended that a full internal and external updating building survey be undertaken during 2013 to ensure the building descriptions and roost potential assessments are maintained up to date.** If no new additional features/evidence are recorded, no further action will be required. If evidence of roosting bats is confirmed present within any of the buildings, further survey will likely be required.

Foraging / Commuting

- 4.7 The transect survey results recorded only small numbers of locally common species using the site. It is therefore considered that the proposed development area does not provide a significant foraging area for local bat populations.
- 4.8 Hedgerows H32, H33, H34 and along woodland edges along the southern site boundary were used by small numbers of foraging/commuting bats on both survey occasions, therefore, these features are considered to be of no more than local value for bats.
- 4.9 The current layout of the proposed development has yet to be confirmed. It is recommended that main features used by bats, i.e. hedgerows and woodland edge habitats should be retained where possible. Habitat connectivity should be maintained across the site via additional native species tree/hedgerow planting connecting to existing features.
- 4.10 To further minimise potential effects to the local population low level or directional lighting should be used adjacent to retained hedgerow and along new planting corridors which will be created through the new development area. The creation of green corridors and additional planting in the new development are likely to significant enhancements foraging conditions for the local population of bats.

Trees

- 4.11 A bat roost was identified within tree T29 during the 2011 survey period. This roost was identified as a small roost which is likely to be used on an occasional basis by crevice-roosting bats. The droppings were weathered hence it was not possible to identify the bat species, however their size indicated use by a pipistrelle or Myotis species. **It is recommended that this tree is retained and that the lighting scheme be designed to avoid light spill to the roost. If tree T29 is to be affected by the development then further nocturnal surveys should be undertaken and a Natural England licence should be sought if appropriate.**
- 4.12 During site survey 24 trees and 2 tree groups were identified with bat potential (Appendix 3), of which 12 trees were considered to have no more than Low potential. At this stage it is not known which trees will be affected by the proposals, however once the Masterplan has been produced **it is recommended that an updating survey by a licensed bat worker with either access into the canopy or nocturnal survey be undertaken for any tree with more than Low potential that are to be felled or subject to tree works** as part of the development. Tree roost sites can be used in a transient manner by individual or small numbers of bats, therefore such survey will ensure compliance with the Conservation of Habitats & Species Regulations 2010 (as amended).
- 4.13 On confirmation that a roost site is not present it is recommended that features identified as suitable to be used as a roost be removed in a sectional basis and subject to a further detailed inspection by the bat worker once removed from the tree.
- *Sectionally felled by tree surgeons* - The tree will be removed in sections and carefully lowered to the ground where the features of interest checked for bats/bat

evidence. If cavities are recorded during the section felling the tree will continue to be removed sectionally until the extent of the cavity is reached. If any bats/bat evidence is recorded then felling works will be delayed until Natural England is consulted and a licence has been sought if appropriate. If no bats are recorded the remainder of the tree will be felled as soon as possible and the timber left overnight prior to chipping or transportation.

- *Slowly felled using machinery*. This is most suitable where the tree is too unsafe to climb. Machinery (excavators) will be fitted with a clasp like attachment. This will grip the entirety of the tree and pull it over as slowly as possible. If bats are recorded exiting the tree during these works, the tree will be lowered to the ground, the section with the bats present will be removed and placed on a nearby tree and Natural England will be consulted. If no evidence of bats is recorded the felled tree should be left overnight prior to chipping or transportation.

- 4.14 In the unlikely event a bat roost is confirmed in any of the trees scheduled for removal, work to the tree will be stopped and a licence from Natural England sought prior to felling. Given the size and scale of the development, it is highly likely that any additional mitigation required can be incorporated into the green infrastructure scheme.

Great Crested Newts

- 4.15 UK and European legislation fully protects GCN and their terrestrial habitat and the species is also a Priority Species under Section 41 of the NERC Act.
- 4.16 Suitable terrestrial and aquatic habitat for GCN was identified during the site surveys, and this species was confirmed to be present within the pond on site (pond 1, peak count 1 individual in 2011).
- 4.17 GCN was also confirmed to be present in the surrounding area in 2009 and 2011 within ponds 2, 3, 6, 7, 14, 15, 16, 18, 19, 20 and 22. Pond 6 was confirmed as a breeding pond as GCN eggs were identified during survey in 2011. No evidence of GCN was recorded during surveys of pond 4 (during 2011) and ponds 12 and 21 (in 2009). Only one survey was undertaken on pond 5 due to access limitations and no survey of ponds 24 and 26 were undertaken.
- 4.18** A Natural England licence will therefore be required in order for works to proceed on site. To inform the licence application up-to-date survey information will be required (i.e. the data must be no greater than 18 months old). **Updating surveys are therefore recommended during the breeding season (March-June), as recommended by Natural England guidelines.**
- 4.19 The surveys will re-confirm the presence/absence of great crested newts in ponds within 500m of the site boundary to and enable an accurate population size class assessment of GCN in the area to be established. Retention of pond 1 is recommended, with enhanced terrestrial habitat links in the form of tussocky grassland, shrub and tree planting maintained/created across the site to link to the ponds within the wider area. It is further recommended that the creation of wetland habitats be considered within site proposals.

Badgers

- 4.20 The Protection of Badgers Act 1992 states that the likelihood of disturbing a badger sett, or adversely affecting badgers foraging territory, or links between them, or significantly increasing the likelihood of road or rail casualties amongst badger populations, may be material considerations in planning decisions.
- 4.21 During the walkover surveys five separate badger setts were recorded present; however no main sett was found during the survey. A number of snuffle holes were also noted along hedgerows and within plantation throughout the site. **It is therefore recommended that an updating badger survey be undertaken prior to the commencement of works** to fully establish the level of badger activity on site (optimal timing mid-September to April inclusive). **It is further recommended that the setts, especially the larger more active ones are retained within the development proposals where possible**, and that buffer habitats be retained/created that will minimise disturbance and provide an additional forage. Habitat links should also be provided through the site to ensure that badgers can safely reach foraging habitats beyond the site boundary.

Birds

- 4.22 Of the 16 NERC/LBAP/Red-listed species recorded present within the site, two were confirmed as breeding: house sparrow at Newbuilding Farm, and tree sparrow in tree T28 (see Figure 9). Provision for nest sites should be considered (for example, house sparrow terraces of nest boxes on buildings), and it is recommended that tree T28 should be retained if feasible.
- 4.23 Four notable species displayed evidence of probable breeding on site; lapwing, skylark, dunnoek and starling. In each case, individuals or pairs were recorded defending territories in suitable breeding habitat. Lapwing and skylark are birds of open farmland, and suitable breeding habitat will be lost to development. Three pairs of lapwing were recorded holding territory in the same field compartment and up to six pairs of skylarks were recorded across the site. It is considered that these modest numbers would be able to disperse into the abundant surrounding available habitat in the wider arable landscape. Dunnock and starling are species that thrive in residential areas, taking advantage of nesting and foraging opportunities provided within residential gardens and open park areas. As such, neither species is considered likely to be negatively affected by the proposed development.
- 4.24 No direct evidence of breeding by grey partridge, linnet, yellowhammer, reed bunting, cuckoo or song thrush was observed, and they were considered to be no more than possible breeders on site.
- 4.25 Herring gull, fieldfare, redwing and bullfinch were only recorded during winter bird surveys and are therefore considered non-breeding species on site.
- 4.26 All of the species recorded on site in winter and breeding seasons are common and widespread in Staffordshire and the UK, including the 16 notable species. All species were recorded within the site in modest numbers. Any loss of habitat within

the proposed development is unlikely to result in significant negative effects on the local bird population.

- 4.27 Existing hedgerows and trees will be retained within the development proposals where possible. It is recommended that the site be enhanced via the planting of trees and shrubs throughout areas of public open space, with preference given to native plants of value to local bird populations, e.g. berry- and fruit-bearing species. **Where feasible within the proposed development design consideration should be given to providing additional enhancements for the local bird population including the installation of bird boxes on retained mature trees. The provision of such enhancements would be in accordance with local and national planning policy.**
- 4.28 To avoid disturbance to breeding birds, vegetation will be removed prior to the bird-breeding season (March to September inclusive). If this is not possible, vegetation will be checked prior to removal by an experienced ecologist. If active nests are found, vegetation will be left untouched and suitably buffered from works until all birds have fledged. Specific advice will be provided prior to undertaking the clearance. This would be a statutory requirement due to the protection of all nesting birds and their nests under the Wildlife and Countryside Act, 1981. A suitably qualified ecologist would supervise this.

Appendix 1: Dusk Emergence and Dawn Return to Roost Bat Surveys 2011

Location	Ref.	Time	Species	Passes	Description
<i>19th July 2011 – Dusk - See Figure 1</i>					
L1	NV	21:53	Pipistrelle sp.	1	Commuting
	1	21:59	Noctule	1	Foraging & commuting
	NV	22:05	Brown-long eared	1	Foraging
	NV	22:05	Noctule	1	Foraging
	2	22:06	Pipistrelle sp.	1	Foraging
	NV	22:06	Noctule	1	Foraging
	NV	22:23	Nyctalus sp.	1	4x bats foraging
L2	3	21:55	Common pipistrelle	1	Commuting
	NV	21:07	Noctule	1	Constant foraging
L3	NV	21:44	Common pipistrelle	1	Foraging
	NV	21:54	Common pipistrelle	1	Foraging
	NV	21:57	Common pipistrelle	1	Foraging
	NV	22:05	Common pipistrelle	1	Foraging
	NV	22:07	Common pipistrelle	1	Foraging
	NV	22:08	Common pipistrelle	1	Foraging
	NV	22:09	Common pipistrelle	1	Foraging
	NV	22:19	Bat Species	1	Foraging
	NV	22:24	Bat Species	1	Foraging
L4	4	21:54	Noctule	1	Commuting
	5	21:57	Soprano pipistrelle	1	Foraging
	5	22:10	Soprano pipistrelle	1	Foraging
<i>20th July 2011 – Dawn – See Figure 1</i>					
L5	NV	03:53	Noctule	1	Foraging
	NV	04:20	Noctule	1	Commuting
L6	6	04:17	Common pipistrelle	1	
	7	04:28	Common pipistrelle	1	
L7	8	04:31	Brown-long eared	1	
L8	9	04:00	Noctule	1	Foraging
<i>1st September 2011 – Dusk – See Figure 2</i>					
L5	1	20:20	Common pipistrelle	1	Foraging in cow shed
	NV	20:28	Myotis sp.	1	
	NV	20:30	Noctule	1	Commuting
	2	20:48	Common pipistrelle	1	Foraging &

Location	Ref.	Time	Species	Passes	Description
					commuting
	3	21:11	Common pipistrelle	1	Foraging & commuting
L6	4	20:12	Common pipistrelle	1	Commuting
	5	20:15	Common pipistrelle	1	Foraging
	NV	20:30	Noctule	1	Commuting
	NV	20:35	Common pipistrelle	1	2x bats constant foraging
	NV	20:45	Noctule	1	Commuting
	NV	20:56	Noctule	1	Commuting
L7	6	20:27	Noctule	1	
	7	20:28	Bat species	1	
	NV	20:29	Noctule	1	
	NV	20:38	Pipistrelle sp.	1	
	8	20:41	Pipistrelle sp.	1	
	NV	20:42	Pipistrelle sp.	1	
	8	20:43	Pipistrelle sp.	1	
	NV	20:44	Pipistrelle sp.	1	
	NV	20:46	Pipistrelle sp.	1	
	NV	20:50	Pipistrelle sp.	1	
	NV	20:53	Pipistrelle sp.	1	
	9	20:53	Noctule	1	
	10	20:56	Pipistrelle sp.	1	
	NV	20:58	Pipistrelle sp.	1	
NV	21:00	Pipistrelle sp.	1		
	11	21:04	Pipistrelle sp.	1	
	12	21:08	Pipistrelle sp.	1	2 x bats
L8	13	20:24	Common pipistrelle	1	Continuous foraging all night
<i>2nd September 2011 – Dawn – See Figure 2</i>					
L1	NV	05:23	Bat species	1	
	14	05:35	Bat species	1	
	15	05:36	Bat species	1	Circling
	16	05:46	Common pipistrelle	1	Circling
	17	05:53	Common pipistrelle	1	Foraging
L2	18	05:45	Common pipistrelle	1	Foraging
	18	05:50	Common pipistrelle	1	Foraging
	18	05:55	Common pipistrelle	1	2 x bats foraging

Location	Ref.	Time	Species	Passes	Description
	19	05:55	Common pipistrelle	1	Foraging
	20	06:04	Common pipistrelle	1	Returned to roost crack in the wall, 3 fresh droppings underneath
L3	No Bats				
L4	21	05:17	Common pipistrelle	1	Foraging
<i>20th September 2011 – Dusk – See Figure 3</i>					
L5	1	19:38	Common pipistrelle	1	Commuting
	2	19:41	Common pipistrelle	1	2 x bats foraging
	3	19:50	Bat species	1	Constant foraging
L6	NV	19:25	Pipistrelle sp.	1	Constant foraging
	4	19:39	Pipistrelle sp.	1	Commuting
	NV	19:43	Pipistrelle sp.	1	Constant foraging
	NV	19:55	Pipistrelle sp.	1	Constant foraging
	NV	20:00	Pipistrelle sp.	1	Constant foraging
	NV	20:12	Pipistrelle sp.	1	Constant foraging
L7	5	19:24	Common pipistrelle	1	
	6	19:39	Common pipistrelle	1	
	NV	19:42	Common pipistrelle	1	
	7	19:45	Common pipistrelle	1	
	NV	19:51	Noctule	1	Foraging
	NV	19:54	Pipistrelle sp.	1	2 x bats foraging
	NV	20:03	Common pipistrelle	1	Commuting
L8	8	19:35	Common pipistrelle	1	
	9	19:35	Common pipistrelle	1	2 x bats constant foraging
	10	19:54	Common pipistrelle	1	
	11	19:50	Nyctalus sp.		Constant foraging
<i>21st September 2011 – Dawn – See Figure 3</i>					
L1	NV	5:39	Pipistrelle sp.	1	
	12	5:47	Pipistrelle sp.	1	Circling
	12	5:50	Pipistrelle sp.	1	Circling

Location	Ref.	Time	Species	Passes	Description
	13	5:56	Pipistrelle sp.	1	Circling
	14	5:57	Pipistrelle sp.	1	Commuting
	13	6:01	Pipistrelle sp.	1	Circling
	13	6:09	Pipistrelle sp.	1	Circling
L2	NV	5:29	Common pipistrelle	1	Foraging/ circling
	15	5:49	Common pipistrelle	1	
	NV	5:52	Noctule	1	Commuting
L4	No Bats				
L8	No Bats				

NV= Non-visual

Appendix 2: Bat Activity Transects June and September 2011

Ref.	Time	Species	Passes	Comments
21/06/11, see Figure 4				
1	22:25	Common pipistrelle	2	Foraging
2	22:29	Common pipistrelle	1	Foraging
3	22:31	Common pipistrelle	1	Commuting
4	22:40	Common pipistrelle	3	Foraging
5	22:25	Common pipistrelle	2	Foraging
6	22:28	Common pipistrelle	2	Foraging
7	22:53	Soprano pipistrelle	1	Foraging/commuting
8	23:10	Common pipistrelle	8	3 x Constant foraging
9	23:12	Noctule	1	Commuting
10	23:24	Common pipistrelle	1	Foraging
11	23:45	Common pipistrelle	6	Foraging up and down edge of plantation
12	23:55	Common pipistrelle	1	Commuting/foraging
13	00:08	Common pipistrelle	1	Commuting/foraging
14	00:13	Common pipistrelle	1	Foraging/commuting
15/09/11, see Figure 5				
1	19:48	Noctule	1	Commuting (faint)
2	19:50	Common pipistrelle	1	Commuting
3	19:55	Common pipistrelle	1	Commuting
4	20:02	Common pipistrelle	2	Commuting/foraging
5	20:10	Common pipistrelle	1	Commuting
6	20:20	Myotis ?Nattererø?	1	Commuting
7	20:26	Noctule	1	Commuting
8	20:31	Soprano pipistrelle	1	Commuting
9	20:33	Common pipistrelle	2	Foraging
10	20:45	Common pipistrelle	1	Commuting
11	20:47	Pipistrelle sp.	4	Foraging

12	20:50	Nyctalus	2	Foraging
13	20:58	Noctule	1	Commuting (faint)
14	21:04	Common pipistrelle	1	Commuting
15	21:04	Myotis sp.	1	Commuting/foraging
16	21:15	Common pipistrelle	1	Commuting
17	21:20	Common pipistrelle	2	Foraging
18	21:20	Myotis	2	Commuting/foraging (faint)
19	21:23	Common pipistrelle	4	Foraging
20	21:27	Common pipistrelle	3	Foraging
21	21:40	Common pipistrelle	1	Commuting
22	21:40	Common pipistrelle	1	Commuting/foraging
23	21:44	Common pipistrelle	4	Foraging
24	22:00	Common pipistrelle	3	Foraging

Appendix 3: Bat Tree Survey Results 2011

Tree Ref.	Species	Aspect and height of feature (metres) (e.g. N - cavity 5m, E . Fissure 3-4m)		Potential for roosting bats (None, Low, Moderate, High Can include sub-categories e.g. mod-high)	Evidence of roosting bats? (Species, evidence type i.e. live bat or droppings)	Proposed Action (e.g. Further survey work required, precautionary removal, sectional felling, none, etc.)
T1	Qr	N Loose/lifted bark (G-6)	E	Low-Moderate	No	Further survey work required if tree works/felling proposed. Results to inform any precautionary removal methods
		S Branch socket cavity (5)	W Loose/lifted bark (G-6)			
T2	Ag	N	E	Low-Moderate	No.	Further survey work required if tree works/felling proposed. Results to inform any precautionary removal methods
		S Branch socket cavity (5)	W			
T3	Fe	N	E	None	No	None
		S	W			
T5	Qr	N Loose/lifted bark (G-6), Branch split (3-6).	E	Low	No	None
		S	W			
T6	Ag	N Hollow trunk (N/A)	E Hollow trunk (N/A)	Low-Moderate	No	Further survey work required if tree works/felling proposed. Results to inform any precautionary removal methods
		S Hollow trunk (N/A)	W Hollow trunk, trunk split (1-2)			
T7	Ag	N	E Trunk cavity (6), Branch split x 2 (6)	Moderate	No	Further survey work required if tree works/felling proposed. Results to inform any precautionary removal methods
		S	W			
T8	Ag	N Hollow trunk (N/A)	E Hollow trunk (N/A)	Low-Moderate	No.	Further survey work required if tree works/felling proposed. Results to inform any precautionary removal methods
		S Hollow trunk (N/A)	W Hollow trunk (N/A)			

Tree Ref.	Species	Aspect and height of feature (metres) (e.g. N - cavity 5m, E . Fissure 3-4m)		Potential for roosting bats (None, Low, Moderate, High Can include sub-categories e.g. mod-high)	Evidence of roosting bats? (Species, evidence type i.e. live bat or droppings)	Proposed Action (e.g. Further survey work required, precautionary removal, sectional felling, none, etc.)
TG1	Ag (multiple)	N Ivy cover (G-10)	E Ivy cover (G-10)	Low	No	None
		S Ivy cover (G-10)	W Ivy cover (G-10)			
T9	Qr	N	E	None	No.	None
		S	W			
T10	Fe	N	E Branch Socket Cavity (4) shallow	None	No.	None
		S	W			
T11	Fe	N Ivy cover (G-8)	E Ivy cover (G-8)	Low	No	None
		S Ivy cover (G-8)	W Ivy cover (G-8)			
T12	Fe	N	E Trunk cavity (3)	Low	No	None
		S	W			
T13	Qr	N Ivy cover (G-9)	E Ivy cover (G-9)	Low	No	None
		S Ivy cover (G-9)	W Ivy cover (G-9)			
T14	Qr	N	E Branch socket cavity (2)	Low-Moderate	No.	Further survey work required if tree works/felling proposed. Results to inform any precautionary removal methods
		S Loose/lifted bark, flaky & cobwebs (4-5)	W Trunk split open (4-6)			
T15	Qr	N	E Trunk cavity (4)	Low	No	None
		S	W			
T16	Qr	N Loose lifted bark (6-8)	E Loose lifted bark (6-8)	Low	No.	None
		S Loose lifted bark (6-8), Branch split x4 (6)	W Loose lifted bark (6-8), Branch split (6), Branch socket cavity (5) shallow			

Tree Ref.	Species	Aspect and height of feature (metres) (e.g. N - cavity 5m, E . Fissure 3-4m)		Potential for roosting bats (None, Low, Moderate, High Can include sub-categories e.g. mod-high)	Evidence of roosting bats? (Species, evidence type i.e. live bat or droppings)	Proposed Action (e.g. Further survey work required, precautionary removal, sectional felling, none, etc.)
TG2	3 x Qr	N Ivy cover (G-8)	E Ivy cover (G-8)	Low	No	None
		S Ivy cover (G-8)	W Ivy cover (G-8)			
T17	N/A dead.	N Ivy cover (G-7)	W Ivy cover (G-7)	Low	No	None
		S Ivy cover (G-7)	E Ivy cover (G-7)			
T18	Qr	N Woodpecker holes x 4 (4)	E	Moderate	No	Further survey work required if tree works/felling proposed. Results to inform any precautionary removal methods
		S Branch cavity	W			
T19	Fe	N	E	Low	No.	None
		S Trunk cavity (3)	W Branch socket cavity x 2 (3), Woodpecker hole (1) all shallow			
T20	Fe	N Ivy cover (G-7)	E Ivy cover (G-7)	Low	No.	None
		S Ivy cover (G-7)	W Ivy cover (G-7)			
T21	Fe	N Ivy cover (G-7)	W Ivy cover (G-7)	Low	No.	None
		S Ivy cover (G-7)	E Ivy cover (G-7)			
T22	Qr	N Ivy cover (G-7)	W Ivy cover (G-7)	Low.	No.	None
		S Ivy cover (G-7)	E Ivy cover (G-7)			
T23	Qr	N	E Trunk cavity (4.5)	Moderate	No.	Further survey work required if tree works/felling proposed. Results to inform any precautionary removal methods
		S Loose/lifted bark (G-4)	W Branch socket cavity x2 (3)			
T24	Qr	N Branch socket cavity (3.50) shallow, woodpecker	E Trunk cavity (G-1) shallow	Moderate	No.	Further survey work required if tree works/felling proposed.

Tree Ref.	Species	Aspect and height of feature (metres) (e.g. N - cavity 5m, E . Fissure 3-4m)		Potential for roosting bats (None, Low, Moderate, High Can include sub-categories e.g. mod-high)	Evidence of roosting bats? (Species, evidence type i.e. live bat or droppings)	Proposed Action (e.g. Further survey work required, precautionary removal, sectional felling, none, etc.)
		hole (15cm deep)				Results to inform any precautionary removal methods
		S Dead wood	W Trunk cavity (3m)			
T25	Fe	N Branch socket cavity (8m) shallow	E	None	No.	None
		S	W			
T26	Fe	N Ivy cover (G-7)	W Ivy cover (G-7)	Low	No.	None
		S Ivy cover (G-7)	E Ivy cover (G-7)			
T27	Qr	N Branch socket cavity	E	Low-Moderate	No.	Further survey work required if tree works/felling proposed. Results to inform any precautionary removal methods
		S Branch socket cavity	W			
T28	Fe	N Branch socket cavity	E	Low-Moderate	No.	Further survey work required if tree works/felling proposed. Results to inform any precautionary removal methods
		S Branch socket cavity	W			
T29	Fe	N Branch socket cavity (6m)	E Branch socket cavity (5m)	High	Old droppings on the edge of entrance hole, clear of cobwebs	Further survey work required if tree works/felling proposed. Results to inform any precautionary removal methods
		S Woodpecker hole (9)	W			

Appendix 4: Great Crested Newt Survey Results 2011

Pond	Date	Bottle Trapping			Torching			Egg Searching	Peak Count
		M	F	J	M	F	J		
1	04.05.12	0	0	0	0	0	0	0	0
	12.05.12	0	0	0	0	0	0	0	0
	19.05.12	0	0	0	0	0	0	0	0
	02.06.12	0	1	0	-			0	1
	13.06.12								
	14.06.12	0	0	0	0	0	0	0	0
2	04.05.12	0	1	0	0	0	0	0	1
	12.05.12	0	1	0	0	0	0	0	1
	19.05.12	0	0	0	0	0	0	0	0
	02.06.12	-			0	0	0	0	0
	13.06.12	-			0	0	0	0	0
	14.06.12	-			0	0	0	0	0
3	04.05.12	0	0	0	0	0	0	0	0
	12.05.12	0	0	0	0	0	0	0	0
	19.05.12	0	0	0	0	0	0	0	0
	02.06.12	0	1	0	0	0	0	0	1
	13.06.12	0	0	0	0	0	0	0	0
	14.06.12	0	0	0	0	0	0	0	0
4	04.05.12	0	0	0	0	0	0	0	0

	12.05.12	0	0	0	0	0	0	0	0
	19.05.12	0	0	0	0	0	0	0	0
	02.06.12	0	0	0	0	0	0	0	0
5	04.05.12	No Access Possible							
	12.05.12								
	19.05.12								
	02.06.12								
	13.06.12								
	14.06.12	0	0	0	0	0	0	0	0
6	04.05.12	0	0	0	0	0	0	0	0
	12.05.12	1	1	0	1	2	0	0	3
	19.05.12	0	0	0	1	1	1	Yes	3
	02.06.12	2	1	0	1	1	0	N/A	3
	13.06.12	0	0	0	0	0	0	N/A	0
	14.06.12	0	0	0	0	0	0	N/A	0
7	04.05.12	0	0	0	0	0	0	0	0
	12.05.12	2	0	0	0	0	0	0	2
	19.05.12	0	0	0	0	2	0	0	2
	02.06.12	0	0	0	1	0	0	0	1
	13.06.12	0	0	0	0	0	0	0	0
	14.06.12	0	0	0	0	0	0	0	0

Appendix 5: Wintering Bird Survey Results 2011-2012

Species	Latin name	Survey 1 11/11/11	Survey 2 22/12/11	Survey 3 27/01/12	Survey 4 16/02/12	Conservation Status*
Teal	<i>Anas crecca</i>	2	1	0	3	Amber list
Mallard	<i>Anas platyrhynchos</i>	2	0	0	2	Amber list
Pheasant	<i>Phasianus colchicus</i>	2	0	1	1	Not listed
Grey heron	<i>Ardea cinerea</i>	0	0	1	0	Green list
Sparrowhawk	<i>Accipiter nisus</i>	1	0	1	0	Green list
Buzzard	<i>Buteo buteo</i>	2	2	0	3	Green list
Kestrel	<i>Falco tinnunculus</i>	1	0	1	0	Amber list
Merlin	<i>Falco columbarius</i>	0	0	0	1	Amber list
Moorhen	<i>Gallinula chloropus</i>	1	2	0	0	Green list
Snipe	<i>Gallinago gallinago</i>	0	1	0	0	Amber list
Lapwing	<i>Vanellus vanellus</i>	4	0	2	0	Red list NERC
Black-headed Gull	<i>Chroicocephalus ridibundus</i>	19	41	9	1	Amber list
Lesser Black-backed Gull	<i>Larus fuscus</i>	0	7	0	0	Amber list
Herring gull	<i>Larus argentatus</i>	6	0	0	1	Red list NERC
Stock dove	<i>Columba oenas</i>	2	0	0	2	Amber list
Woodpigeon	<i>Columba palumbus</i>	58	102	30	118	Green list
Collared dove	<i>Streptopelia decaocto</i>	2	0	4	0	Green list
Tawny owl	<i>Strix aluco</i>	0	0	1	0	Green list
Great spotted woodpecker	<i>Dendrocopos major</i>	1	0	2	0	Green list
Skylark	<i>Alauda arvensis</i>	5	3	6	2	Red list NERC
Meadow pipit	<i>Anthus pratensis</i>	3	0	2	2	Amber list
Grey wagtail	<i>Motacilla cinerea</i>	0	1	0	0	Amber list

Species	Latin name	Survey 1 11/11/11	Survey 2 22/12/11	Survey 3 27/01/12	Survey 4 16/02/12	Conservation Status*
Pied wagtail	<i>Motacilla alba</i>	3	2	0	0	Green list
Wren	<i>Troglodytes troglodytes</i>	4	3	2	3	Green list
Dunnock	<i>Prunella modularis</i>	4	3	11	2	Amber list NERC
Robin	<i>Erithacus rubecula</i>	10	8	7	8	Green list
Blackbird	<i>Turdus merula</i>	12	12	11	15	Green list
Fieldfare	<i>Turdus pilaris</i>	0	141	65	37	Schedule 1 Red list
Song thrush	<i>Turdus philomelos</i>	1	2	0	2	Red list NERC
Redwing	<i>Turdus iliacus</i>	0	62	108	92	Schedule 1 Red list
Mistle thrush	<i>Turdus viscivorus</i>	0	1	2	0	Amber list
Long-tailed Tit	<i>Aegithalos caudatus</i>	16	0	0	5	Green list
Blue tit	<i>Cyanistes caeruleus</i>	3	9	3	7	Green list
Great tit	<i>Parus major</i>	4	5	7	9	Green list
Magpie	<i>Pica pica</i>	7	9	8	9	Green list
Jackdaw	<i>Corvus monedula</i>	36	19	0	0	Green list
Carrion crow	<i>Corvus corone</i>	40	26	10	11	Green list
Starling	<i>Sturnus vulgaris</i>	155	60	0	162	Red list NERC
House sparrow	<i>Passer domesticus</i>	3 colonies	3 colonies +10	3 colonies	3 colonies	Red list NERC
Chaffinch	<i>Fringilla coelebs</i>	2	4	10	14	Green list
Greenfinch	<i>Carduelis chloris</i>	7	12	12	5	Green list
Goldfinch	<i>Carduelis carduelis</i>	18	28	19	8	Green list
Bullfinch	<i>Pyrrhula pyrrhula</i>	0	1	0	0	Amber list NERC
Yellowhammer	<i>Emberiza citrinella</i>	3	0	2	0	Red list NERC
Total No. Species = 44		35	28	29	29	

Appendix 6: Breeding Bird Survey Results

Species	Latin name	Survey 1	Survey 2	Survey 3	Conservation Status	Breeding status
Mallard	<i>Anas platyrhynchos</i>	2	2	3	Amber list	Non breeder UH
Grey partridge	<i>Perdix perdix</i>	2	0	0	Red list NERC	Possible breeder H
Grey heron	<i>Ardea cinerea</i>	0	1	0	Green list	Non breeder F
Sparrow hawk	<i>Accipiter nisus</i>	1	0	0	Green list	Possible breeder H
Buzzard	<i>Buteo buteo</i>	2	2	2	Green list	Probable breeder D
Lapwing	<i>Vanellus vanellus</i>	7	3	1	Red list NERC	Probable breeder D
Stock dove	<i>Columba oenas</i>	0	3	1	Amber list	Possible breeder H
Woodpigeon	<i>Columba palumbus</i>	52	50+1 juvenile	35	Green list	Confirmed breeder N
Collared dove	<i>Streptopelia decaocto</i>	2	1	4	Green list	Possible breeder H
Cuckoo	<i>Cuculus canorus</i>	0	0	1	Red list NERC	Possible breeder S
Swift	<i>Apus apus</i>	0	1	0	Amber list	Possible breeder H
Skylark	<i>Alauda arvensis</i>	9	13	9	Red list NERC	Probable breeder T
Swallow	<i>Hirundo rustica</i>	16	16	9	Amber list	Confirmed breeder N
House martin	<i>Delichon urbica</i>	1	0	0	Amber list	Non breeder F
Pied wagtail	<i>Motacilla alba</i>	1	2	0	Green list	Confirmed breeder FL
Wren	<i>Troglodytes troglodytes</i>	9	5	9+1 family	Green list	Confirmed breeder FL
Dunnock	<i>Prunella modularis</i>	8	5	8	Amber list NERC	Possible breeder H
Robin	<i>Erithacus rubecula</i>	7	9	9	Green list	Confirmed breeder FL
Blackbird	<i>Turdus merula</i>	9	11	17+1 Juvenile	Green list	Confirmed breeder FL
Song thrush	<i>Turdus philomelos</i>	2	0	0	Red list NERC	Possible breeder H

Species	Latin name	Survey 1	Survey 2	Survey 3	Conservation Status	Breeding status
Sedge warbler	<i>Acrocephalus schoenobaenus</i>	1	0	0	Green list	Possible breeder H
Blackcap	<i>Sylvia atricapilla</i>	0	2	1	Green list	Possible breeder H
Lesser whitethroat	<i>Sylvia curruca</i>	0	0	2 + juvenile	Green list	Confirmed breeder FL
Whitethroat	<i>Sylvia communis</i>	4	2	3	Amber list	Confirmed breeder FF
Chiffchaff	<i>Phylloscopus collybita</i>	3	0	3	Green list	Possible breeder S
Long-tailed Tit	<i>Aegithalos caudatus</i>	45	2 + 1 family	2+1 family	Green list	Confirmed Breeder FL
Blue tit	<i>Cyanistes caeruleus</i>	16	6 + 1 family	3 + 4 families and 2 juveniles	Green list	Confirmed breeder FL
Great tit	<i>Parus major</i>	4	4	5 families	Green list	Confirmed breeder FL
Nuthatch	<i>Sitta europaea</i>	0	0	1	Green list	Possible breeder H
Treecreeper	<i>Certhia familiaris</i>	0	1	1	Green list	Possible breeder H
Jay	<i>Garrulus glandarius</i>	0	1	0	Green list	Possible breeder H
Magpie	<i>Pica pica</i>	9	6	13	Green list	Possible breeder H
Jackdaw	<i>Corvus monedula</i>	11	16	1	Green list	Possible breeder H
Rook	<i>Corvus frugilegus</i>	2	0	0	Green list	Possible breeder H
Carrion crow	<i>Corvus corone</i>	3	18+1 juvenile	24	Green list	Confirmed breeder NE
Starling	<i>Sturnus vulgaris</i>	58	23 + 2 families	27	Red list NERC	Probable breeder H
House sparrow	<i>Passer domesticus</i>	3 colonies	4 colonies	4 colonies	Red list NERC	Confirmed breeder UN
Tree sparrow	<i>Passer montanus</i>	0	4	1	Red list NERC	Confirmed breeder N
Chaffinch	<i>Fringilla coelebs</i>	22	27	25	Green list	Possible breeder H
Greenfinch	<i>Carduelis chloris</i>	3	6	2	Green list	Possible breeder H
Goldfinch	<i>Carduelis carduelis</i>	9	7	13	Green list	Possible breeder H

Species	Latin name	Survey 1	Survey 2	Survey 3	Conservation Status	Breeding status
Linnet	<i>Carduelis cannabina</i>	6	8	5	Red list NERC	Possible breeder H
Yellowhammer	<i>Emberiza citronella</i>	3	1	0	Red list NERC	Possible breeder H
Reed bunting	<i>Emberiza schoeniclus</i>	0	1	0	Amber list NERC	Possible breeder H
Total No. Species	44	33	35	32		

Breeding Status evidence can be broken down into four sections, each with their own codes:

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

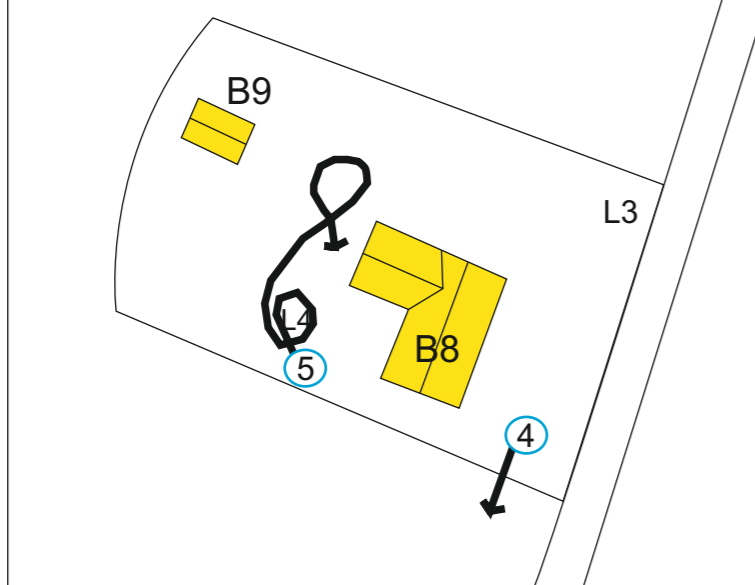
M . migrant

U . summering non-breeder

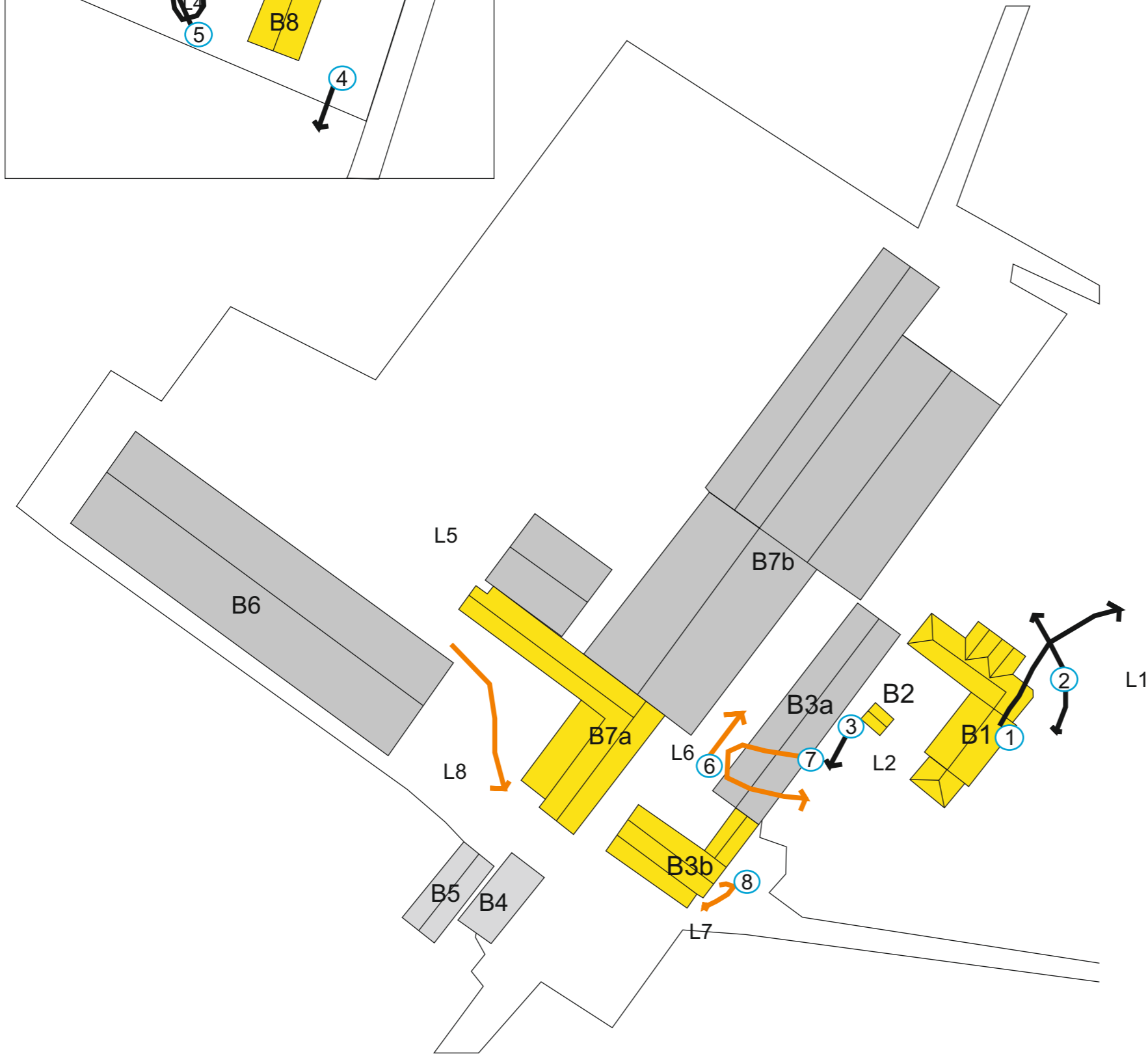
UH . observed in unsuitable nesting habitat

*NERC . Species of principle importance under Section 41 of the NERC Act





Farmhouse to North of main complex



Main Farm complex



KEY:

-  Surveyor Location
-  Reference Number
-  Visual Recorded Dusk 19.07.11
-  Visual Recorded Dawn 20.07.11



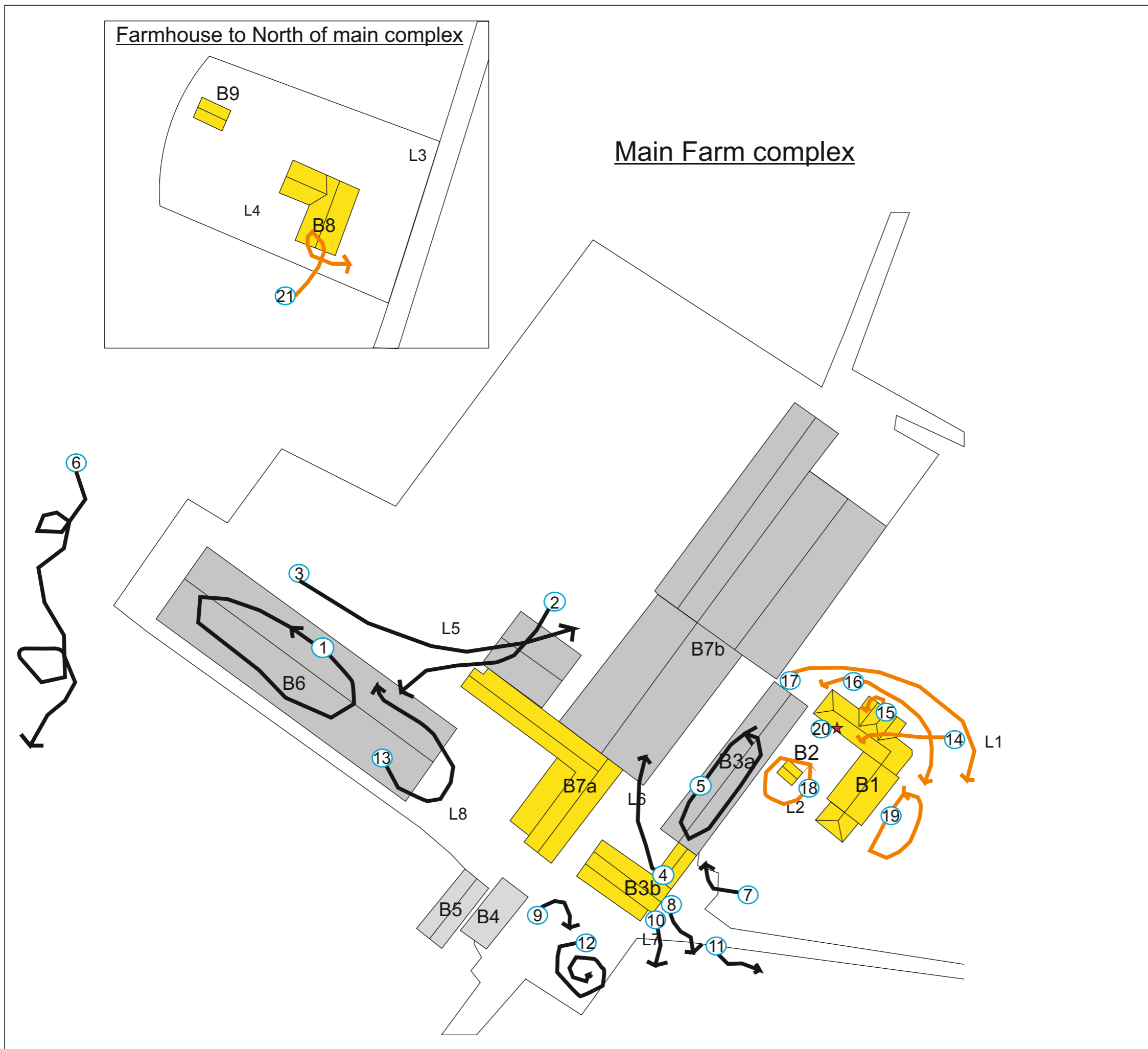


Maximus
 Land North of Beaconside, Stafford
 Dusk & Dawn Bat Survey Results
 19th and 20th July 2011
 NTS @ A3 RH 12.11.2012


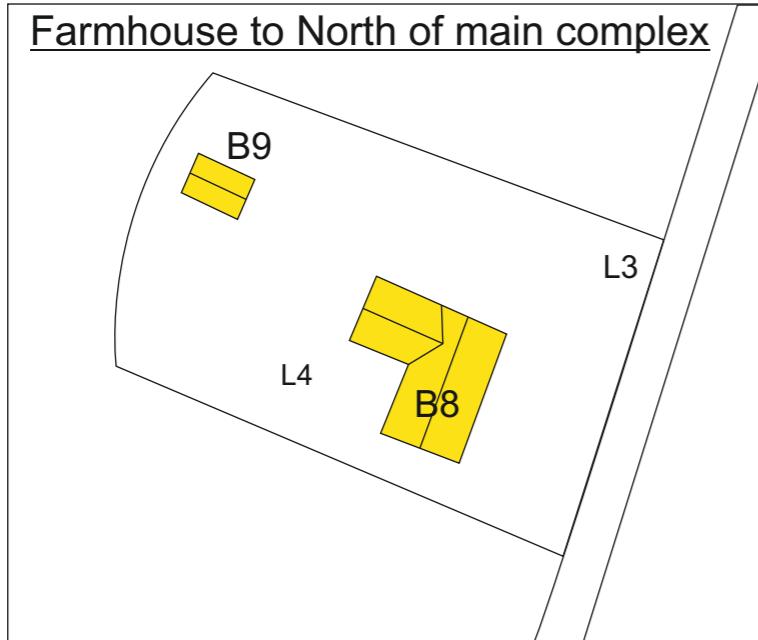
Figure 1



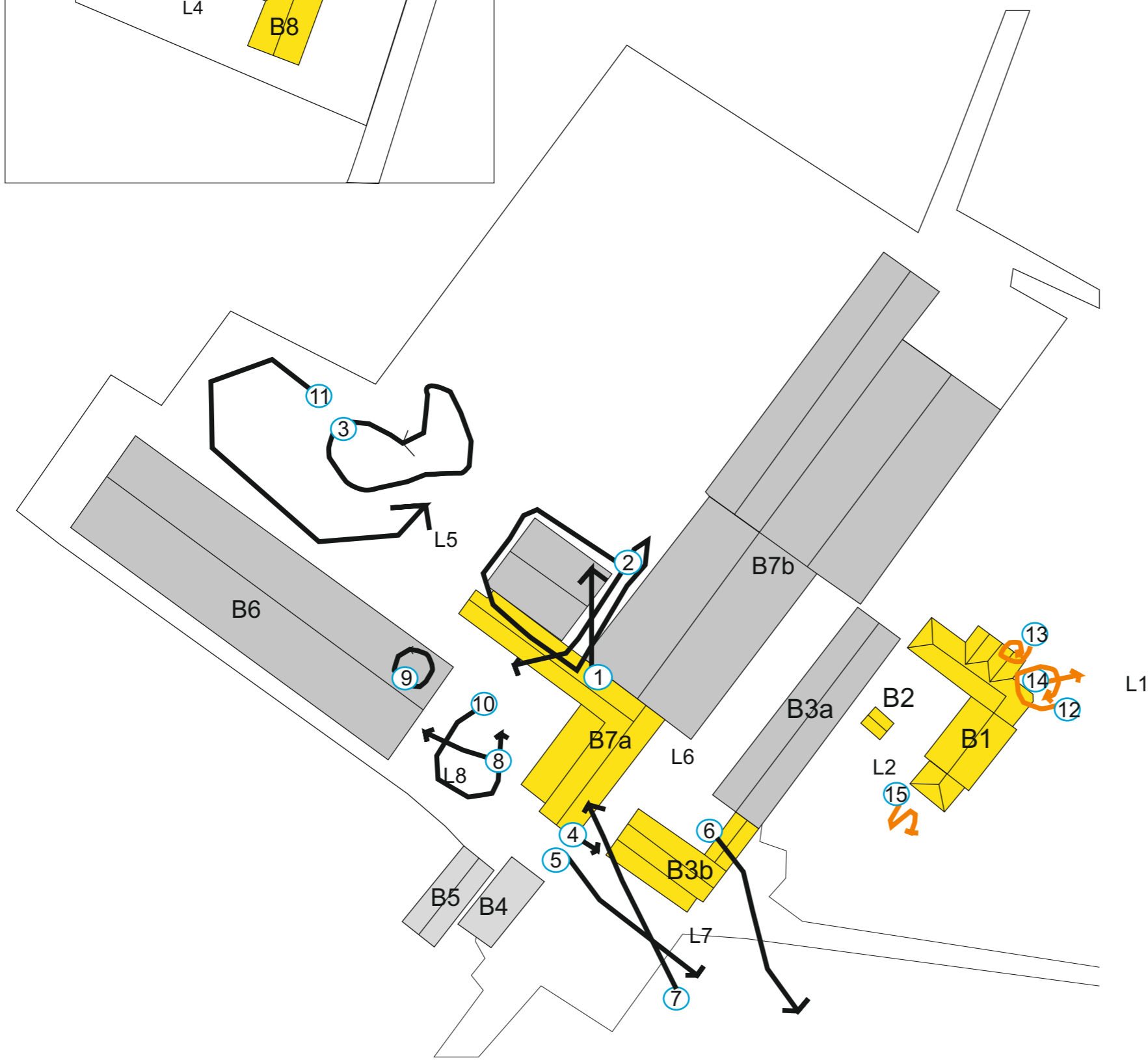
KEY:

- L1 Surveyor Location
- 2 Reference Number
- ↖ Visual Recorded Dusk 01.09.11
- ↗ Visual Recorded Dawn 02.09.11
- ★ Roost







 Maximus
 Land North of Beaconside, Stafford
 Dusk & Dawn Bat Survey Results
 1st and 2nd September 2011
 NTS @ A3 RH 12.11.2012
Figure 2




Main Farm complex








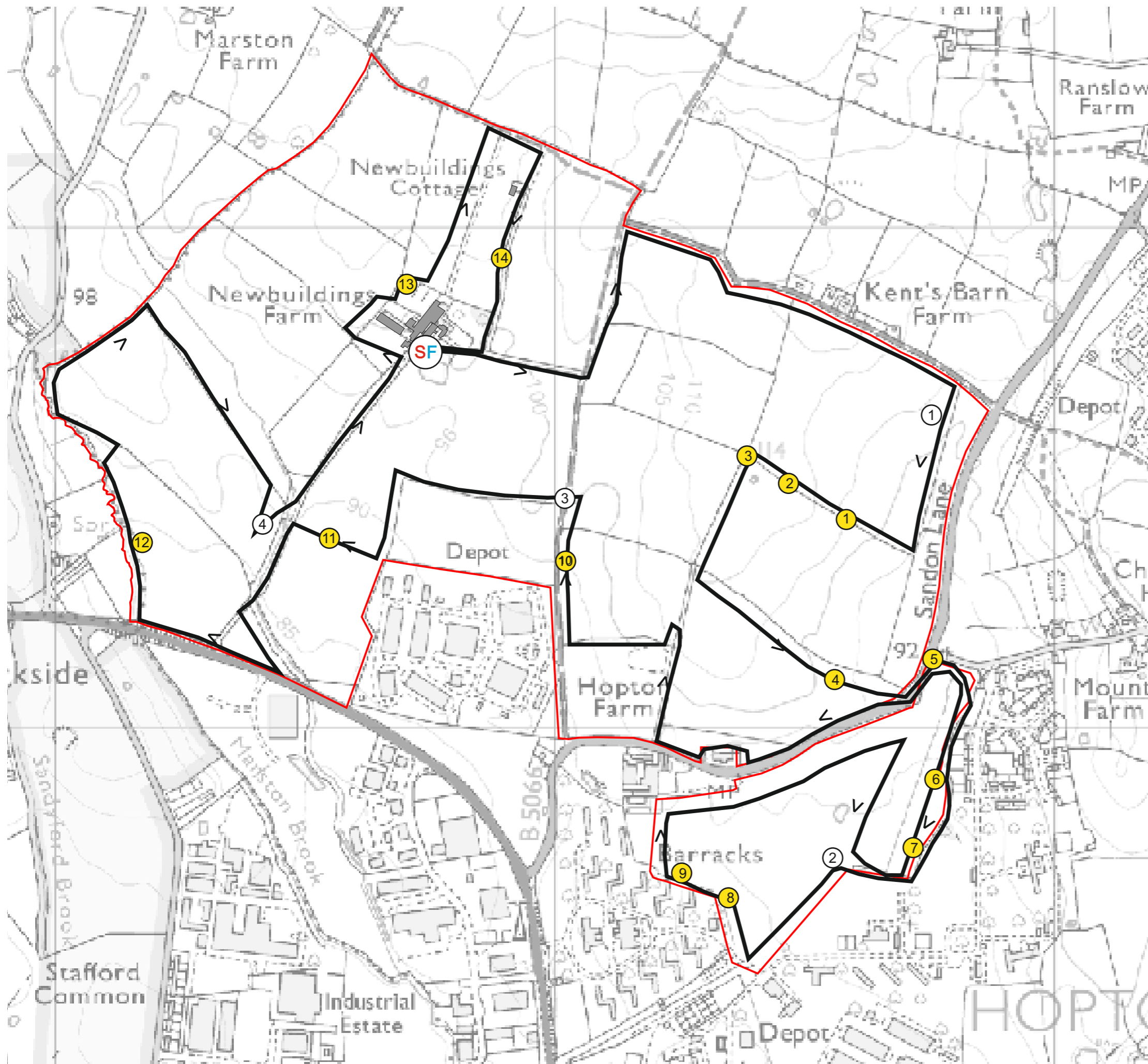
KEY:


-  L1 Surveyor Location
-  2 Reference Number
-  Visual Recorded Dusk 20.09.11
-  Visual Recorded Dawn 21.09.11
-  Roost


 Maximus
 Land North of Beaconside, Stafford
 Dusk & Dawn Bat Survey Results
 20th and 21st September 2011
 NTS @ A3 RH 12.11.2012
Figure 3






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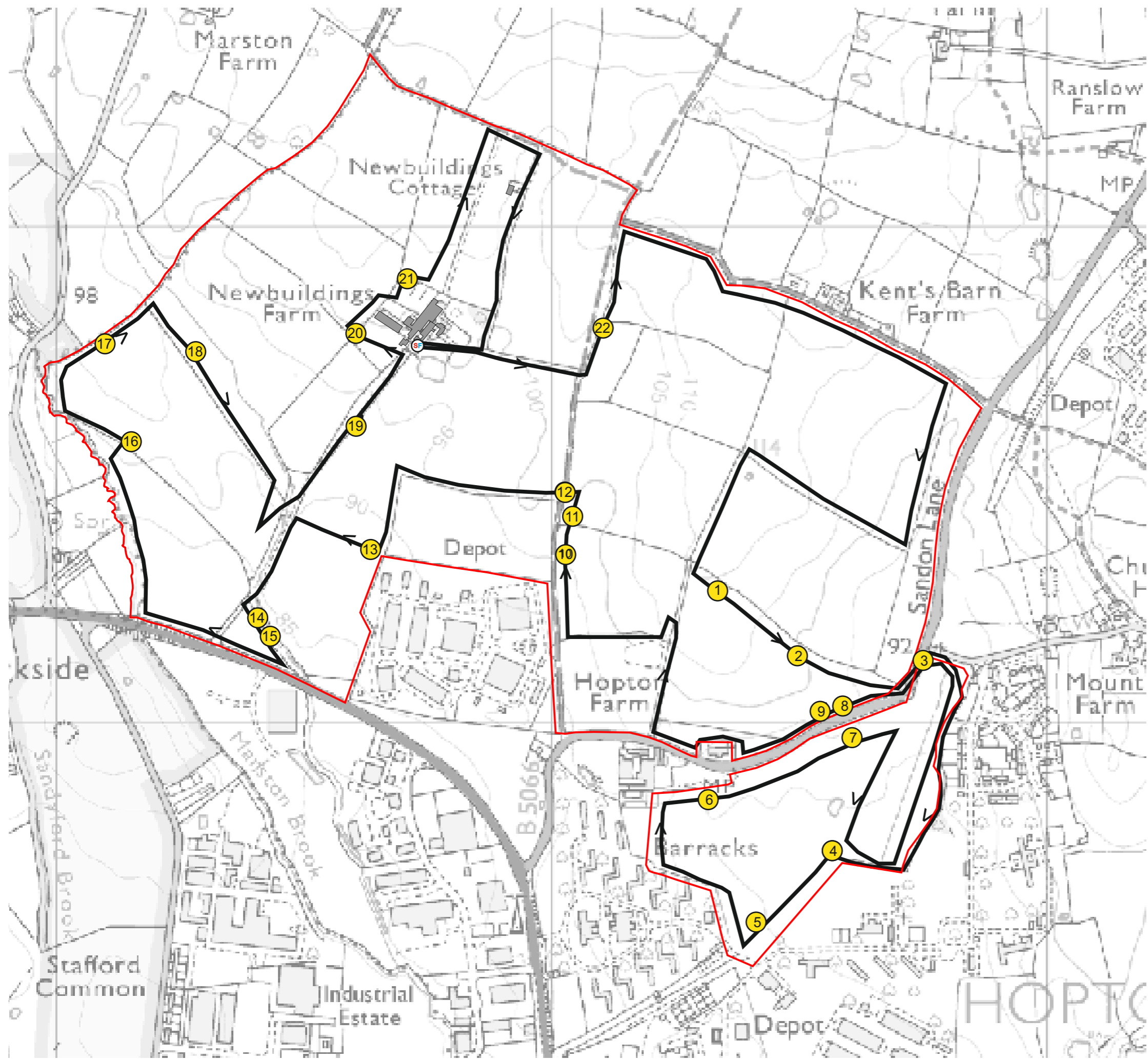
-  Site Boundary
-  Start / Finish Point
-  Transect Route
-  Bat Contact
-  Point Count





 Maximus
 Land North of Beaconside
 Stafford
 Bat Transect Dusk 21st June 2011
 Not to scale @ A3 JJW/REH 12.11.2012
Figure 4

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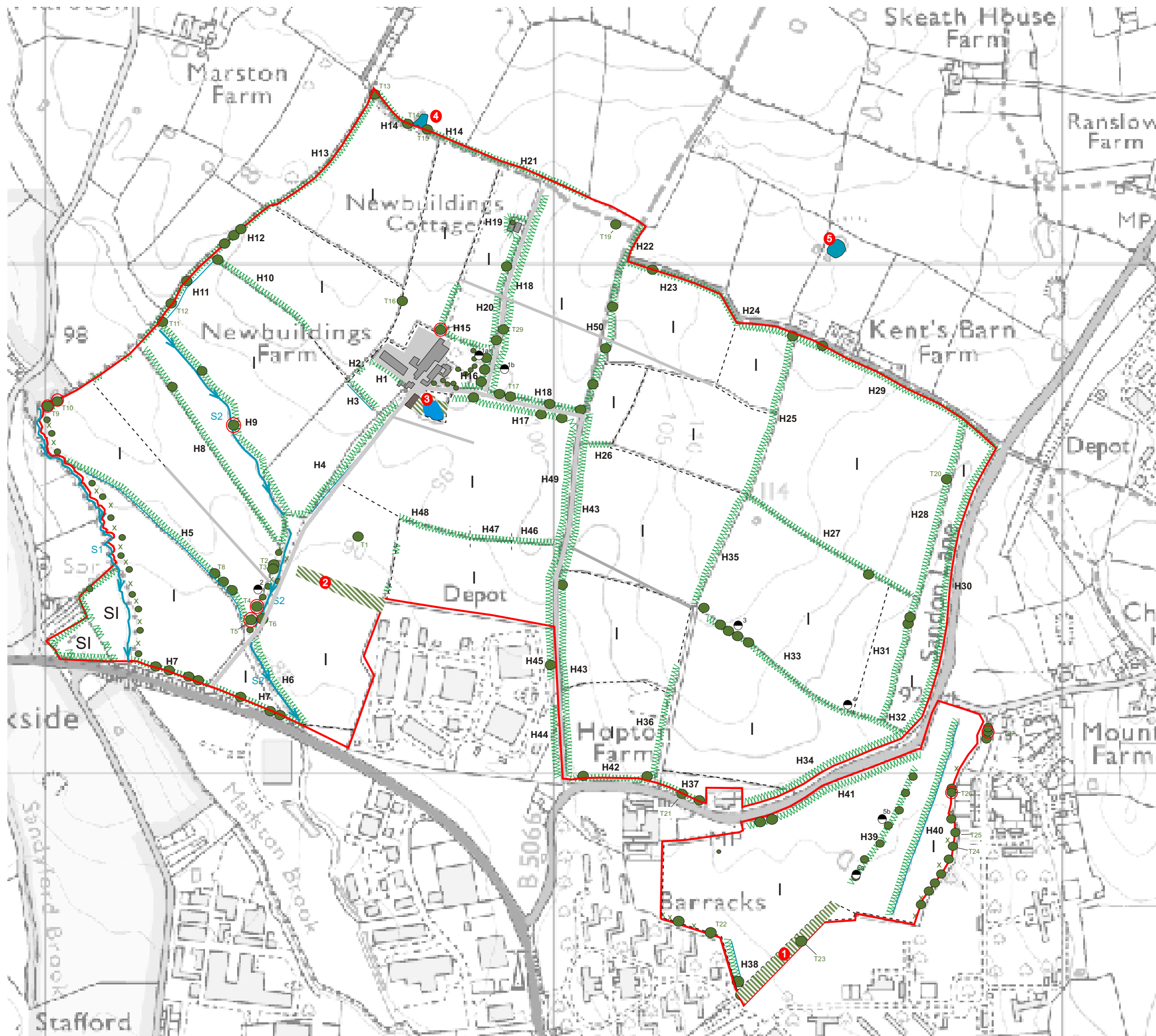
-  Site Boundary
-  Start / Finish Point
-  Transect Route
-  Bat Contact
-  Point Count




















 Maximus
 Land North of Beaconside
 Stafford
 Bat Transect Dusk 15th September 2011
 Not to scale @ A3 JJW/REH 13.11.2012
Figure 5




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-  Site Boundary
-  Broadleaved Plantation
-  Scattered Trees
-  Scattered Scrub
-  Tree with Bat Potential
-  Standard Tree/ Possible Veteran
-  Improved Grassland
-  Hedgerow
-  Stream
-  Wet Ditch
-  Waterbody
-  Badger Sett
-  Building
-  Hard-standing
-  Fencing
-  Target Note


 Maximus
 Land North of Beaconside
 Stafford
 Phase 1 Habitat Plan, Tree Locations &
 Badger Survey Results 2012

Not to scale @ A3 DAW/KEH 29.03.2011


Figure 8