Maximus

Land North of Beaconside, Stafford

ECOLOGICAL APPRAISAL

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SUMMARY

An initial Phase 1 habitat survey was carried out on land to the north of Beaconside, Stafford. The following report provides the results of the surveys carried out.

The site consists of intensively managed grassland with hedgerows and water courses along field boundaries providing limited ecological value within the site. Further features of ecological value include the occasional mature field perimeter tree, and a single pond with connections to further ponds and habitats off site.

Habitats present within and bounding the site provide potentially suitable habitat for water vole, great crested newt, roosting bats, breeding and wintering birds and badger.

The initial Phase 1 habitat survey has ruled out the potential presence of water vole within the site. However, evidence of badger was recorded across the site and suitable habitat for protected species including roosting bats, great crested newts and breeding and wintering birds was also recorded.

Habitats of value on the site include the hedgerows, which are a UKBAP priority habitat, associated mature trees, water courses and ponds. The proposed scheme for the site ensures that hedgerows can be retained and enhanced and that water courses will be enhanced via the creation of new habitats of ecological value including new tree and shrub planting. Such proposals will ensure that local badger, great crested newt, bat and bird populations can be maintained and enhanced. In addition to ensuring potential impacts are mitigated for, habitat creation associated with the scheme will provide biodiversity enhancements to the site and the surrounding area through new complementary native species planting.

1.0 INTRODUCTION

1.1 The following report has been prepared by FPCR Environment and Design Ltd on behalf of Maximus. It provides details of a Phase 1 habitat survey and preliminary protected species survey undertaken on land north of Beaconside, Stafford.

Site Context

1.2 The survey is approximately 175ha in size 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.

Photograph1: Improved grassland field

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 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

Desk Study

2.1 In order to compile existing baseline information, relevant ecological information was requested from both statutory and non-statutory nature conservation organisations for the purposes of this Ecological Appraisal, including:

- Multi Agency Geographic Information for the Countryside (Magic) website
- Staffordshire Biological Records Centre (SBRC)
- Local Badger Group

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

2.3 The search area for biodiversity information was related to the significance of sites and species and potential zones of influence, as follows:

- 5km around the application area for sites of International Importance (e.g. Special Area of Conservation (SAC), Special Protection Area (SPA), Ramsar site)
- 2km around the application area for sites of National or Regional Importance (e.g. Site of Special Scientific Interest (SSSI), Local Nature Reserves (LNR))
- 1km around the application area for sites of County Importance (e.g. Sites of Importance for Nature Conservation (SINC)/Wildlife Sites (WS) and species records (e.g protected, UK BAP or notable species).

Extended Phase 1 Survey

2.4 Survey methods followed the extended Phase 1 survey technique as recommended by Natural England (JNCC, 2003). This comprised a systematic walkover of the site in February 2010 to classify and map the principal habitat types present. An updating survey was conducted in July 2012 during the optimum survey period (May to September). Features such as trees were considered with regard to their ecological value and potential to provide suitable habitats for protected species. Where habitats or features of particular interest were present, more detailed notes and species lists were taken. Whilst the plant species lists obtained should not be regarded as exhaustive, sufficient information was obtained to determine broad habitat types.

2.5 Hedgerows were surveyed individually using the Hedgerow Evaluation and Grading System (HEGS) after Clements and Toft (1993) to enable identification and evaluation of important hedgerows within the site. Hedges were graded on a scale of 1-4:-

1= high to very high value

2= moderately high to high value

3= moderate value

4= low value.

2.6 Also, hedgerows were assessed against Hedgerow Regulations 1997 criteria, to identify any hedges, which were classified as "important" under this act. The methodology for assessing hedges to this criteria involves assessing each hedge in 30m sections with emphasis upon the average number of woody species and associated features of each hedge.

Fauna

2.7 Throughout the walkover survey, consideration was given to the actual or potential presence of protected species, such as, although not limited to those protected under the Wildlife and Countryside Act 1981 (as amended), the Protection of Badgers Act 1992 and the Conservation of Habitats and Species Regulations 2010. Consideration was also given to the existence and use of the site by other notable fauna such as Biodiversity Action Plan (BAP) or Red Data Book (RDB) species.

Bats

Visual Assessment of Trees

2.8 All trees on site were assessed for their potential to support roosting bats. Features which could provide suitable bat habitat include cracks, fissures, cavities, woodpecker/rot holes or missing limbs. Presence of dense ivy cover was also noted as this can obscure the aforementioned features. The number, size and condition of these features is then used to give a semi-quantified assessment of potential for bat occupation (see Table 1).

Table 1 – Classification of Bat Potential in Trees

Roost Potential	Description of Feature
Confirmed roost site	The presence of bats within features or the presence of bat evidence in association with suitable features.
High	A large number of potential roost sites/access points and/or more than one feature/s of note such as a large cavity which potentially leads to a roost site.
Moderate/High	A number of potential roost sites/ access points and/or more than one feature/s of note such as a large cavity which potentially leads to a roost site.
Moderate	A number of potential roost sites/access points and/or one feature of note such as a large cavity.
Low/Moderate	A limited number of potential roost site/access point and/or one feature of note.
Low	A limited number of potential roost sites/access points.
None	No access points/roost sites.

2.9 In combination with the above, all trees within the site were visually assessed for the existence of large cavities with the potential for use by nesting or roosting barn owl. Additional signs, such as pellets and faecal splashing were also searched for on or around potential perches.

Visual Assessment of Buildings – Whitehouse Farm and Flat Meadow Farm

2.10 All aspects of the buildings were examined to determine the potential for bat roost sites. Structural features were recorded and suitable access points such as small gaps in eaves/soffit boards, raised or missing ridge tiles, gaps through degraded mortar and gaps at gable ends were sought. Direct evidence of use by bats or potential access points was also sought, such evidence including staining and the presence of bat droppings. Confirmation that access points were disused, included the presence of heavy cob-webbing and general detritus around such points. Binoculars were used to aid the surveys.

2.11 Full internal inspections of the properties could not be made during the survey but if any features were observed incidentally, these have been noted.

2.12 The internal and external features were used to identify the bat potential of the structures 'Bat potential' is a non-quantifiable measure of suitability for bats and is subject to surveyor subjectivity.

2.13 Building surveys were conducted by licensed bat workers on the 1st and 2nd of February 2010.

Badger

2.14 A general walkover of habitats within the site boundary was undertaken during the extended Phase 1 Habitat Survey with regard to assessing the potential of the site generally to support badgers. This survey incorporated a search for any evidence of badger activity including setts, latrines, paths or evidence of digging within the site. The standard methodology as recommended by Harris, Creswell and Jefferies (1989) was followed to complete a thorough search for evidence which would indicate the presence of badgers both on the site and locally, including the identification of:

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

2.15 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. Annexe's 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

2.16 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

Great crested newts

2.17 Great crested newts (GCN) and their sites or structures of breeding or shelter are afforded legal protection by Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and the Conservation of Habitats & Species Regulations 2010.

2.18 Any water-bodies present were noted and described to indicate their potential as suitable habitats for amphibians generally, but with particular consideration of the potential to support GCN. An assessment was also made of the potential suitability of any terrestrial habitat present within the site to support such a population.

Reptiles

2.19 An assessment of the suitability of the habitats present to support common reptile species was completed at the time of the habitat survey. The assessment of suitability involved a review of habitats and habitat structure for suitable shelter for reptiles, such as areas of scrub, grassland with well-developed and varied structure, areas suitable for basking, large tussocks etc. This assessment was based on the methodology detailed in the Herpetofauna Workers Manual (Gent and Gibson, 1998) and the Froglife Advice Sheet 10 – Reptile Survey (Froglife 1999).

Other Species

2.20 The potential for other protected and/or notable species was assessed during the Phase 1 survey. Bird species present at the time of survey were also noted.

Survey Constraints

2.21 The quality of field data will be affected by the season of the survey, with some plant species only being evident or identifiable at certain seasons. The initial habitat assessment was completed in February 2010, but was updated in July 2012, i.e. during the plant growing season (April-September). Therefore there were no survey timing limitations to the quality of the Phase 1 survey data.

2.22 Access was available into all sections of the site for survey.

3.0 RESULTS

Desk Study

Statutory Designated Sites

3.1 No statutory sites of nature conservation importance are present within the site. No designated sites of international nature conservation importance e.g. SACs, SPAs or Ramsar Sites are located within a 5km radius of the site.

3.2 Doxey Tillington Marshes SSSI lies approximately 1.5km to the south-west of the site. This site is protected for its wetland habitats including marsh, swamp and pools. Aston Fields Balancing Lakes Local Nature Reserve (LNR) is located approximately 900m to the south of the site and supports wetland habitats including saltmarsh.

Non-Statutory Designated Sites

3.3 Two Sites of Biological Importance (SBI) are located within 1km of the site boundaries. Stafford Common is recorded within 20m west of site, to the opposite side of Marston Lane, and Aston Fields is located approximately 530m to the south.

Protected Species

3.4 Records from the SBRC highlight a number of recent records for badger activity within the site boundaries and the surrounding area. Recent records also indicate hibernating GCN 500m south of site. A number of bat records have been received for the area, no records highlight active roosts within 1km of the site boundaries

Habitats

3.5 The survey area consisted of a series of large improved grassland field compartments separated by native species hedgerows and wire fencing. Further habitats within site included limited broadleaved plantation and scattered trees and a section of Marston Brook and two smaller brooks.

Broadleaved Plantation Woodland

3.6 An area of established broadleaved plantation was located towards the south of site (TN1) along the course of a disused rail track. Lack of management had allowed woody species from embankments to colonise the main path of the rail line. Mature woody species were dominated by oak *Quercus robur* and ash *Fraxinus excelsior*, the shrub layer formed frequently dense stands dominated by bramble *Rubus fruticosus* agg. Further woody species included within the shrub layer included frequent elder Sambucus nigra, occasional crab apple *Malus sylvestris* and holly *Ilex aquifolium*. Ground flora where present and identifiable included stands of common nettle *Urtica dioica* with red campion *Silene dioica* and herb *Robert Geranium robertianum*.

3.7 A small area of semi-mature broadleaved plantation was recorded in association with the pond to the south of Newbuildings Farm. Species recorded within the canopy included silver birch *Betula pendula*, aspen *Populus tremula* and wild cherry *Prunus avium*. Limited shrub species included elder, hazel *Corylus avellana* and hawthorn

Crataegus monogyna. A number of mature aspen extended from the plantation northward along the pond banks.

3.8 Sapling tree species had been planted in a strip within the west of site highlighted by TN2. Species within the plantation strip included beech *Fagus sylvatica*, rowan *Sorbus aucuparia*, cherry *Prunus* sp., and oak with occasional Scots pine *Pinus sylvestris.*

Scattered Trees

3.9 Standard trees were frequent throughout the site, often recorded in association with hedgerows and boundary features. Specimens ranged from immature to mature in age with the latter contributing most to numbers. Species commonly included pedunculate oak and ash. Occasional species included horse chestnut *Aesculus hippocastanum* and within damper conditions to the west of site, alder *Alnus glutinosa* and crack willow *Salix fragilis*.

3.10 Five trees were considered to be of possible veteran status due to general size of trunks and other features such as dead wood within the canopy and sap runs. These included examples of ash and pedunculate oak and are highlighted in Figure 1. A number of trees were also identified to have potential for supporting roosting bats.

Scrub

3.11 The site was well managed with little or no scrub recorded within field compartments. Scrub commonly consisting of bramble was often confined to areas of plantation forming the shrub layer where management was less intense. Bramble also formed a small constituent of hedgerows and occasionally encroached into field boundaries.

Improved grassland

3.12 The site supported large uniform improved grassland fields as the major habitat type. Grassland cover predominantly consisted of perennial rye-grass *Lolium perenne* with further species including those grasses typical of improved grazing pasture such as timothy *Phleum pratense*, cock's-foot *Dactylis glomerata* and Yorkshire fog *Holcus lanatis*. Occasional herb species were those common to areas of high levels of nutrients and disturbance including creeping buttercup *Ranunculus repens*, white clover *Trifolium repens* and daisy *Bellis perennis*.

Semi-Improved grassland

3.13 Two small grazed fields containing species-poor semi-improved grassland at the south-western corner of the site contained a number of ponies at the time of survey. Grassland species present included perennial rye grass, smooth meadow-grass *Poa pratensis*, creeping buttercup, meadow buttercup *R. acris*, false oat grass *Arrhenatherum elatius*, wild

Photograph 2: Grazed semi-improved grassland field

angelica *Angelica sylvestris*, common sorrel *Rumex acetosa*, hawkweed *Hieracium* agg., nipplewort *Lapsana communis*, creeping thistle *Cirsium arvense*, dandelion *Taraxacum officinale* and meadowsweet *Filipendula ulmaria*. Scattered tall ruderal species present included cow parsley *Anthriscus sylvestris*, spear thistle *C. vulgare* and common nettle *Urtica dioica*.

Hedgerows

3.14 Hedgerows were incorporated into field boundaries throughout the site. These were generally in good condition and dominated by hawthorn. These hedgerows were frequently associated with a number of structural features such as hedge banks, ditches and standard trees.

3.15 H29 and H44 were classified as 'important' when assessed under the Wildlife Criteria as set out in the Hedgerow Regulations 1997. This was due to their position along a public byway, containing 4 or more woody species per 30m stretch and the at least four associated features including continuous canopies with no gaps, hedge banks, connections to further hedgerows and parallel hedgerows within 15m

3.16 Many hedgerows throughout the site were categorised as of 'moderate' value to nature conservation when assessed using HEGS. Hedgerows H5, 9, 11, 12, 13, 14, 17, 18, 20, 22, 25, 28, 29, 30, 32, 35, 42, 45, 46, 50 however were of moderate to high nature conservation value due to their associated features and the level of connectivity to further hedgerows or habitats within the site. All hedgerows present comprised >80% native species therefore met the criteria for UK BAP priority habitat.

Waterbodies

3.17 One waterbody was recorded present within the site: a pond adjacent to Newbuildings Farm (TN3). The pond measured approximately 2000m^2 (MAGIC) with sloping banks varying in height to 3m above the water level. The pond supported frequent stands of bulrush *Typha latifolia* and scattered great willowherb *Epilobium hirsutum* within marginal areas. Bank side vegetation included mature aspen *Populus tremula* and further, semi-mature tree species including oak, ash and horse chestnut. Ground flora consisted of ruderal vegetation dominated by a large stand of common nettle and creeping thistle small areas of bramble scrub were also included within bank side vegetation.

Photograph 3: Pond adjacent to farm buildings

3.18 Examination of the relevant OS explorer map indicates a large number of small water bodies to the north of site. Access to these was not granted at the time of survey however, inspection of two ponds close to the site boundaries was possible.

3.19 Pond TN4 to the north of the site was approximately 100m^2 and well shaded by a mature oak, with a dense stand of bulrush to the north side. Bank vegetation included scattered scrub and woody species such as hawthorn and elder. Tussocky grasses including false oat-grass *Arrhenatherum elatius* cock's-foot and Yorkshire fog were also supported on pond banks. A number of wood piles were present at the margins.

3.20 TN5 was also recorded to the north of the site and appeared to be a well managed ornamental pond of 150m^2 with well mown grassland banks ornamental pampas grass *Cortaderia selloana* and a small island with waterfowl roosting huts. Little shade was provided by surrounding vegetation and a large number of water fowl were noted to be using the pond.

Watercourses

3.21 Three brooks were recorded in association with the site. Marston Brook (S1) runs directly adjacent to the western site boundary, with a short (c.200m) section running through the south-westernmost corner of the site. Vegetation along the course of this brook included a number of scattered mature tree species including alder, crack willow and ash. Scattered shrub species included hazel, elder and hawthorn. The height of the banks ranged from 0.3m above the water level to approximately 2.0m in limited areas to the north. The depth of water was unknown due to fast flowing and turbid conditions. No aquatic vegetation was noted present.

Photograph 4: Marston Brook (S1)

Photograph 5: South-eastern brook (S3) and adjacent hedgerow

3.22 The second brook (S2) was recorded running through the site in association with hedgerows H6 and H9 and a strip of adjoining mature shrubs and trees. Banks ranged from approximately 0.5m above water level to approximately 3.0m where the course of the stream ran through the area of scrub and trees. The depth of the water was generally shallow from 0.1-0.3cm and the substrate was coarse and pebbly. Vegetation recorded within the course of the stream included occasional small aquatic plants brooklime *Veronica beccabunga* and water-cress *Rorippa nasturtium-aquaticum* to larger marginal plants including common reed *Phragmities australis* forming locally dense stands in association with H6, and great willowherb *Epilobium hirsutum*.

3.23 The third watercourse was a narrow brook located to the south-east of the site, adjacent and parallel to hedgerow H40. This feature was fenced on both sides, therefore was protected from cattle poaching and browsing. The bank height was approximately 0.4m above the water level and the water depth was approximately 0.25m at the time of survey. Adjacent vegetation included dense stands of nettle and Himalayan balsam *Impatiens glandulifera*, with occasional foxglove *Digitalis purpurea*.

3.24 Hedgerows within the west of site were frequently associated with wet ditches with a limited depth of water averaging around 0.1m. Banks were generally steep to approximately 0.5m above water level and poorly vegetated by ruderal species including common nettle, false oat-grass and greater willowherb. At the time of survey a small area of brooklime was recorded within the course of the ditch associated with H5.

3.25 A newly channelled ditch followed the path of H40 within the south east of the site. Due to recent disturbance bank side vegetation was limited to species associated with H40. Ditch banks were steep to approximately 2.0m above the water level which ran at 0.1-0.2m in depth. Recently channelled banks were devoid of any vegetation consisting of bare earth.

Fauna

Badgers

3.26 During the walkover survey a number of active badger setts were recorded throughout the site. Sett 1a to the east of Newbuildings 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.

3.27 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 stream banks. The second hole was excavated into the western stream bank but had been blocked off by wooden stakes and 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 within the entrance way.

3.28 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.

Photograph 6: Badger sett 4

3.29 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.

3.30 Sett 5a and 5b were located within the banks of the disused railway within the south of site following the course of H39. 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.

Bats

Tree Survey (Figure 1 and Appendix 1)

3.31 All mature trees within the curtilage of the site were surveyed for the potential of having features that could provide roosting opportunities for bats. In total, 28 trees and 2 tree groups were identified with bat potential. The following is a summary of the features recorded (See Appendix 2 for detailed results). Note that trees have been grouped into categories of potential for conciseness.

3.32 High potential trees – Only one tree with high bat potential was observed, T25. Features recorded included a branch socket cavity on the northern aspect, a trunk cavity at the base on the eastern aspect, dead wood on the southern cavity and a trunk cavity on the western aspect.

3.33 Moderate to High potential trees – No trees were recorded within this category.

3.34 Moderate potential trees – Four trees were recorded within this category, T7, T9, T18 and T23. T7 was a common alder with a trunk cavity and a number of branch splits on the eastern aspect. T9 was an ash with a branch socket cavity and trunk cavity on the western 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.

3.35 Low to moderate potential trees – Ten trees were recorded within this category, T1, T2, T6, T8, T10, T14, T16, T19, T27 and T28. T1 was a Pedunculate oak had loose/lifted bark on the northern and western aspect, and a branch socket cavity on the southern aspect. T2 was a common alder had 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. T10 was an alder with 2 woodpecker holes on the southern aspect. 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. T19 was an ash with a trunk cavity and 2 branch socket

cavities on the western aspect. T27 was a mature oak and T28 was a mature ash, each with two small branch socket cavities and minor aerial deadwood.

3.36 Low potential trees – Twelve trees were recorded within this category, T3, T5, T11, T12, T13, T15, T17, T20, T21, T22 T24 and T26. T2 was an ash with a branch socket cavity on the western aspect. 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. T24 was an oak with branch socket cavity on the northern 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.

3.37 In addition TG1 and TG2, both had low potential, due to the only features observed being dense ivy cover.

3.38 The remainder of the trees on site had no potential for roosting bats due to the generally good condition of the tree and a lack of bat features.

Visual Assessment of Buildings – Whitehouse Farm (Figure 2)

3.39 The buildings on site are divided into two distinct sections, those comprising Newbuildings Farm and those comprising Newbuilding Cottage, which is up the lane to the north. The following are summary descriptions of the buildings, for full descriptions please consult Appendix 3. For conciseness buildings of a similar construction have been grouped together.

3.40 Building 1 was a single/two storey, brick built farmhouse with a multi-pitched/hipped slate tile roof. Other external features of note comprised brick built chimneys and corbelled brickwork. Potential bat access points comprised occasional gaps under roof and ridge tiles and some limited gaps between soffit boxes and brickwork. Although no internal access was available, the building is likely to have roof voids present due to the nature of external construction.

3.41 Buildings 2 and 9 were single storey, brick built garages/sheds with pitched clay tile roofs. Other external features of note comprised ivy cover on the northern aspect of B2, and areas of missing roof on B9. Potential bat access points comprised limited gaps under roof/ridge tiles in B2 with these access points being more numerous in B9. Internally, although full access into either building was not possible, a chipboard ceiling was present in building 2 forming a makeshift roof void. The internal features of B9 are not known but given the height of the unit it is unlikely a roof void is present.

3.42 Buildings 3a and 7b are single storey, brick/concrete based timber and asbestos barns with pitched single sheet asbestos sheet roofs. Other external features of note comprised open doors/windows/walls/sections, which also represented the only viable bat access points. Internally, although full survey could not be undertaken it was observed that no roof void or underlining of the roofs was present.

3.43 Buildings 3b and 7a was a single/two storey, brick built stables with a multi-pitched slate/clay and asbestos sheet roof. Other external features of note comprised open doors/windows/walls/sections, which also provided bat access points. Additional access points comprised gaps under roof/ridge tiles. Internally, although full survey

could not be undertaken it was observed that no roof void or underlining of the roofs was present.

3.44 Building 4 was a single storey, brick built stable with a mono-pitch, single skinned asbestos sheet roof. Other external features of note comprise the open front, which provides the only potential access point for bats. Internally, it was observed that no roof void or underlining of the roofs was present.

3.45 Building 5 was a single storey timber built stable with a pitched, single skinned asbestos sheet roof. Other external features of note comprise the open front, which provides the only potential access point for bats. Internally, it was observed that no roof void or underlining of the roofs was present.

3.46 Building 6 was a single storey, metal built cow-shed with a pitched/curved asbestos/metal sheet roof. Other external features of note comprised open doors/windows/walls/sections, which also provided bat access points. Additional access points comprised gaps under roof/ridge tiles. Internally, although full survey could not be undertaken it was observed that no roof void or underlining of the roofs was present.

3.47 Building 8 was a two storey, brick built farmhouse with a multi-pitched slate tile roof. Other external features of note comprised brick built chimneys. Potential bat access points comprised occasional gaps under roof and ridge tiles. Although no internal access was available, the building is likely to have roof voids present due to the nature of external construction.

Great Crested Newts

3.48 One waterbody, TN3, was recorded within the site boundary providing potential for use by a breeding population of GCN. Analysis of the pond using the Habitat Suitability Index (HSI) indicated this pond to have 'Excellent' suitability with a score or 0.8. Some connectivity to further ponds offering potential breeding habitat was provided through surrounding hedgerows and suitable refugia were provided within areas of plantation and scrub around pond banks.

3.49 Pond TN4 on the northern boundary of site was also assessed to provide 'Good' suitability to GCN when assessed under the HSI. Surrounding tussocky grassland and scattered woody species including log piles provided potential refugia to newt species. Pond TN5 located to the north of site was assessed to be of 'Poor' suitability to GCN due to the lack of surrounding vegetation and the presence of large numbers of waterfowl.

Reptiles

3.50 No evidence of reptile was observed at the time of survey. Limited habitat of suitability to this species was provided through the presence of hedgerows and around pond banks where land management was more relaxed. Log piles in association with TN4 may provide potential to hibernating reptile species.

3.51 Habitats alongside stream S1 and S2 were deemed to be of restricted value to reptile species due to their limited extent and frequently open ground flora.

Water Voles

3.52 Habitats on site were deemed to be of sub optimal suitability to support a water vole population. S1 was not considered to have banks of suitable height or to support adequate vegetation cover to allow for burrowing along most of its course adjacent to site. Where banks rose to an adequate level towards the north of site, no evidence of vole activity was observed. S2 was not considered to contain a sufficient depth of water to support water vole activity and contained a limited amount of suitable vegetation for water vole foraging. A lack of suitable forage plants within stream 1 also reduced the likelihood of this species being found within the area. Examination of streams and ditches revealed no evidence of water vole at the time of survey in 2010 0r 2012.

4.0 DISCUSSION & RECOMMENDATIONS

Statutory Sites

4.1 SSSIs receive full protection under Section 28 of the Wildlife and Countryside act 1981 (as amended). Under this act it is an offence to carry out an operation which damages any of the flora, fauna or geological or physiographical features that have justified the site to be of special interest. This act applies even when operations to be undertaken are not to be conducted on land included within the SSSI.

4.2 No statutory sites fall within the foot print of the development or are likely to be affected by proposed works within the site. The closest statutory protected site is located 900m with some connectivity to site is provided the disused railway and Marston Brook. Due to the high levels of management within the site it is unlikely that the presence of any species for which the LNR has been awarded its status are likely to be supported within the proposed development area. Any development of the site would need to ensure that run off into the stream was of a level and quality agreed with the Environment Agency in order to ensure that no down stream habitats are affected by the proposals.

Non-Statutory Sites

4.3 No non-statutory sites were located on or within the site, two local SBIs are located within 1km of the boundaries. Stafford Common, located to the opposite side of Marston Lane has been taken into consideration within current site plans (drwg. BIR.2908_02-1C) which indicate the retention of existing boundary features and additional planting to create areas of public open space within the site that would help prevent increased use of the common.

4.4 Aston Fields located approximately 530m to the south of the site has some connectivity to site through adjacent pasture and associated hedgerows to the north. However, the A513 acts as a substantial barrier between these areas and surrounding land use comprises military facilities and industrial areas subjected to high levels of disturbance. It is considered that an increase in new residents may create higher level of pressure on the site. The retention of existing boundary features and additional planting to create areas of public open space within the site that again help to reduce the pressure on this area.

Habitats

4.5 Although the site is dominated by improved grassland fields of low nature conservation value, some features of greater interest do occur. Hedgerows throughout the site are dominated by 80% or more native species and, as such, qualify as a priority habitat under the UK BAP. They are likely to be of value for wildlife generally due to their value as commuting routes and shelter, forage and nesting sites for wildlife and provide potential habitat for some UKBAP species such as song thrush and dunnock.

4.6 Where possible hedgerows should be retained. However, it is accepted that some inevitable disturbance or loss would occur as a result of development. Where such losses are unavoidable it is recommended that these be mitigated or compensated via the enhancement of existing hedges and/or through the creation of new species-rich native hedgerows elsewhere within the site. Under current plans no hedgerows of importance under the Hedgerow Regulations are due for removal.

4.7 A number of mature trees were recorded across site often in association with hedgerows and other boundary features. As an established beneficial resource to local wildlife it is recommended that these are retained within site proposals. If it is necessary to remove any mature trees within the site, compensation should be provided in the form of native species planting within the landscaping of the site. Five trees of potential veteran status were recorded within the site (highlighted in red on Figure 1). These trees are of greatest value due to their contribution to biodiversity conservation. As such it is recommended that they should receive priority for retention within site plans.

4.8 Two small streams were recorded within the west of site. Examination of the relevant OS map at 1:50,000 indicates that the source of these streams is within 2.5km of the site, therefore qualifying them as a UKBAP priority habitat as described within Headwaters. Rivers and Streams are also recognised within the Staffordshire Biodiversity Action Plan (SBAP) which aims to maintain and restore natural river features and create further river habitats within the county. It is recommended that as a priority habitat these features are retained within site plans. SBAP promotes sympathetic management of rivers and streams through the provision of buffer zones and wildlife corridors along water courses. Current site plans indicate the retention of linear habitats along these features which will act as buffer zones and maintain habitat links across the site. Should development plans change it is recommended that buffer zones be maintained along water courses in order to maintain the level of connectivity and biodiversity value within the site. In addition to buffer habitats, works on site will need to ensure that all streams are protected from works including the potential for pollution from diesel spills and the like. It is recommended that site compounds are located well away from any water course (a minimum of 25m is suggested).

4.9 It is also recommended that appropriate on site balancing is incorporated into the development to ensure any water entering water courses is of sufficient quality and quantity to avoid any degradation of the water courses.

4.10 Ponds on site as a habitat of value to local wildlife should also be taken into consideration within site plans. Ponds within the site do not qualify as a UKBAP priority habitat however they are included within the SBAP. Pond TN3 is to be retained within current proposals for the site, and pond TN4 within close proximity to the site boundaries should not suffer any adverse effects from development due to the provision of green open space along its associated boundary and lack of access to the public. Connectivity between pond TN3 and TN4 is maintained through the retention of linear hedgerow habitats H20 and H18. Further retention and

enhancement of hedgerow habitats within the east of site link the pond TN3 to streams S1 and S2 and habitats within the wider countryside.

4.11 Ponds were assessed for their potential to support GCN using the HSI method of analysis and were found to provide suitable habitat to this species, this is discussed further within section 4.27.

Protected Species

4.12 Principal pieces of legislation protecting wild species are Part 1 of the Wildlife and Countryside Act 1981 (as amended) (WCA) and the Conservation of Habitats & Species Regulations 2010. Some species, for example badgers, also have specific protective legislation (Protection of Badgers Act 1992). The impact that this legislation has on the planning system is outlined in ODPM 06/2005 Government Circular: Biodiversity and Geological Conservation – Statutory obligations and their impact within the Planning System.

4.13 This guidance states that as the presence of protected species is a material consideration in any planning decision, it is essential that the presence or otherwise of protected species, and the extent to which they are affected by proposals is established prior to planning permission being granted. Furthermore, where protected species are present and proposals may result in harm to the species or its habitat, steps should be taken to ensure the long-term protection of the species, such as through attaching appropriate planning conditions for example.

4.14 In addition to protected species, there are those that are otherwise of conservation merit, such as those included as priority species in the UK BAP which are also listed as species of principal importance for the purpose of conserving biodiversity under the Natural Environment and Rural Communities (NERC) Act 2006.

4.15 The implications that various identified species or those that are thought reasonably likely to occur may have for developmental design and programming considerations are outlined below:

Badgers

4.16 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, are capable of being material considerations in planning decisions.

4.17 During the walkover surveys the use of the site by badgers was evidenced through the identification of five separate setts, however no main sett was found during the survey and the level of use was undetermined. A number of snuffle holes were also noted along hedgerows and within plantation throughout the site. It is therefore recommended that a full badger survey is undertaken prior to the commencement of works to fully establish the level of badger activity on site. This should be undertaken between mid September and April. It is also recommended that the setts, especially the larger more active ones are retained within the development proposals and buffer habitats created that will also provide an additional source of forage. Links should

also be provided through the site to ensure that badgers can safely reach foraging habitats outside the site boundary.

Bats

Trees

4.18 During the survey, 28 standard trees and 2 tree groups were recorded with the potential to provide roosting sites for bats within the survey area. No bat evidence was recorded during the survey. At this stage it is not known which trees will be affected by the proposals, however once this has been determined it is recommended that all trees with low-moderate to high potential are subject to further survey to determine the presence/absence of roosting bats.

4.19 The trees with High and Moderate potential (T7, T9, T18, T23 and T25) will be surveyed using full aerial assessment and one nocturnal survey per tree. Provided no bats or evidence of bats is recorded during the surveys, works on these trees can be completed without further action. However if a bat roost is recorded a Natural England licence will be sought to legitimise destruction of the roost. Given the size and scale of the development, it is highly likely that mitigation can be incorporated into the green infrastructure scheme.

4.20 The trees with Low-moderate potential (T1, T2, T6, T8, T10, T14, T16, T19, T22, T27 and T28) will be surveyed using full aerial assessment OR one nocturnal survey per tree. As the potential of these trees is much lower only one survey method is recommended. Provided no bats or evidence of bats is recorded during the surveys, works on these trees can be completed without further action. However if a bat roost is recorded a Natural England licence will be sought to legitimise destruction of the roost. Given the size and scale of the development, it is highly likely that mitigation can be incorporated into the green infrastructure scheme.

4.21 In terms of the trees with low potential, including T3, T5, T11, T12, T13, T15, T17, T20, T21, T22 T24, T26, TG1 and TG2, the majority of these are trees with ivy cover only. Therefore the presence of bats is reasonably unlikely but cannot be completely discounted. Therefore it is recommended that these trees are removed using good practice method statement, comprising either:

- *Sectionally felled by tree surgeons* - The features of interest within the tree will be removed in 1m sections and checked for bats/bat evidence. The sections will then be lowered to the ground. If cavities are recorded during the section felling the tree will continue to be removed sectionally until the extent of the cavity is reached. Due to the low potential it is not necessary to have these works supervised by a licensed bat worker. If any bats/bat evidence is recorded then felling works will be delayed until a Natural England licence has been sought. If no bats are recorded 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. Then further advice will be sought from Natural England. Due to the low potential it is not necessary to have these works supervised by a licensed bat worker. If no bats are recorded the tree will be felled as soon as possible and the timber left overnight prior to chipping or transportation.

Buildings

4.22 During the survey no evidence of bat occupation was observed in association with any of the buildings on site. Significant potential for bat occupation was observed in association with buildings 1, 2, 3b, 7a, 8 and 9. At this stage the presence of roosting bats cannot be discounted within these units and full internal survey has not been completed. Therefore further survey is recommended to ascertain the presence / absence of roosting bats.

4.23 This will comprise an internal inspection of the buildings including any roof voids present, followed by one nocturnal survey of the buildings in question. During the survey, bat personnel will be placed around the buildings so all aspects can be observed. These surveys should be conducted during the appropriate season (May-August inclusive) and when suitable weather conditions are available (a minimum temperature of 10°C, no rain and little/no wind). If bats are recorded during these surveys further nocturnal survey and a Natural England licence will be required to legitimise destruction of the roost site. In which case further survey would be provided. In addition, if significant bat activity is recorded around dusk/dawn then an additional nocturnal survey should be undertaken to ensure a roost is not present.

4.24 During the survey very limited potential for bats was recorded in association with building 3a, 6 and 7b. These buildings do not appear to have any suitable features for roosting bats internally but the presence cannot be fully discounted without a full internal survey. Therefore, a full internal survey should be conducted. If no new additional features are recorded, no further action will be required. If any new features such as underlining are recorded or bat evidence is present within any of the buildings, further action should be undertaken in an identical manner to that in paragraph 4.7.

4.25 During the survey no potential for bats was recorded in association with building 4 and 5. These buildings do not appear to have any suitable features for roosting bats internally and the presence can be fully discounted without further action.

4.26 Transect surveys to monitor bat activity were undertaken during the bat active season 2001. The results of these surveys will be incorporated into this report at a later date.

Great Crested Newts

4.27 The pond at target note TN3 was identified as having ‘excellent’ potential for use by GCN due to the provision of egg laying substrate, suitable terrestrial habitat and the large number of ponds within the local area. Further to this, consultation responses indicated the presence of newts in an area 500m south of the site.

4.28 Great crested newts and their breeding and resting places are protected under the Wildlife and Countryside Act 1981 (as amended) and the Conservation of Habitats & Species Regulations 2010. The pond within the site, and where possible those within 500m of the site boundary were therefore surveyed for GCN during the 2011 breeding season, in accordance with the Natural England guidelines. The results of these surveys will be incorporated into this report at a later date.

4.29 The above pond will be retained within the scheme, and it is recommended that this be suitably buffered from works, with a border of marginal and tall grassland vegetation maintained around its perimeter and creation of enhanced terrestrial habitat links in the form of tussocky grassland, shrub and tree planting. It is also suggested that the creation of wetland habitats be considered within site proposals to provide habitat enhancements suitable for use by GCN.

Birds

4.30 A number of features within the site may provide suitable habitat to breeding bird populations. A number of mature trees, hedgerows, ponds and plantations recorded within the survey area are considered to provide potential nesting and foraging opportunities to a number of UK BAP priority bird species. In order to confirm the value of these more established habitats to populations of breeding birds, three breeding bird surveys were undertaken once a month between April and June 2011. The results of these surveys will be incorporated into this report at a later date.

4.31 All birds are protected whilst on the nest. If any hedgerow sections, scrub or trees are due for removal all vegetation should be removed outside of the bird breeding season (March to Aug/Sept) if this is not possible, vegetation should be checked prior to removal by an experienced ecologist. If active nests are found vegetation should be left untouched until all birds have fledged. Specific advice should be sought prior to undertaking the clearance.

4.32 Development proposal indicate retention of the main hedgerows, which will continue to provide habitat for breeding birds, new green infrastructure will provide further suitable habitat in the form of grassland and shrub and tree planting.

Water Vole

4.33 Conditions for water vole within the site were considered to be sub optimal and no indications of the presence of this species were evidenced during the walkover survey. Streams on site supported little bank side vegetation that may provide sheltering opportunities to this species, and within watercourses little vegetation of value as forage material was present. No consultation responses indicate the presence of water voles within any part of the watercourses that run through site or adjacent to site. It is therefore considered that the presence of this species is unlikely and should not pose a constraint to development.

4.34 The current scheme ensures retention and enhancement of the features of greater value including watercourses, the pond and hedgerows. It also includes considerable areas of green infrastructure which will be used to provide mitigation for loss of badger foraging and habitat enhancements should GCN be recorded in the pond on

site. Current proposals should ensure that the biodiversity of the site is maintained and enhanced but in order to make sure that this is the case it is recommended that locally native species are used in creation of the new habitats and that where feasible grassland should be species rich rather than amenity and new water bodies and areas of marsh are included within the detailed design. It is also recommended that bat and bird boxes are erected in order to encourage wildlife into the area whilst the development is establishing and that green infrastructure is the subject of a long term management plan in order to maintain and enhance the value of the site.

Appendix I: Botanical Species List

Broadleaved Plantation

TN1-established broadleaved plantation

Quercus robur	Pedunculate Oak
Fraxinus excelsior	Ash
Sambucus nigra	Elder
Crataegus monogyna	Hawthorn
Rosa canina	Dog Rose
Rubus fruticosus agg	Bramble
Malus sylvestris	Crab Apple
Silene dioica	Pink Campion
Geranium robertianum	Herb Robert
Urtica dioica	Common Nettle
Ilex aquifolium	Holly

TN2- Young sapling strip

Betula pendula	Silver Birch
Prunus avium	Wild Cherry
Fagus sylvatica	Beech
Pinus sylvestris	Scots Pine
Crataegus monogyna	Hawthorn
Quercus robur	Pedunculate Oak

TN3-Plantation beside pond

Betula pendula	Silver Birch
Prunus avium	Wild Cherry
Populus tremula	Aspen
Corylus avellana	Hazel
Salix caprea	Goat Willow
Crataegus monogyna	Hawthorn
Fraxinus excelsior	Ash
Aesculus hippocastanum	Horse Chestnut
Quercus robur	Pedunculate Oak

Standard Trees

Fraxinus excelsior	Ash
Alnus glutinosa	Alder
Quercus robur	Pedunculate Oak
Tillia x europaea	Lime
Salix fragilis	Crack Willow
Aesculus hippocastanum	Horse Chestnut
Prunus avium	Wild Cherry

Scrub

Rubus fruticosus agg	Bramble
Crataegus monogyna	Hawthorn
Sambucus nigra	Elder

Improved Grassland

Lolium perenne	Perennial Rye-grass
Dactylis glomerata	Cock's-foot
Holcus lanatus	Yorkshire Fog
Ranunculus repens	Creeping Buttercup
Trifolium repens	White Clover
Anthylis sylvestris	Cow Parsley
Urtica dioica	Common Nettle
Taraxacum officinale	Dandelion
Bellis perennis	Daisy
Cirsium vulgare	Spear Thistle
Stellaria media	Common Chickweed
Veronica persica	Field Speedwell

Hedgerows

Crataegus monogyna	Hawthorn
Sambucus nigra	Elder
Corylus avellana	Hazel
Fraxinus excelsior	Ash
Quercus robur	Oak
Ulmus procera	English Elm
Ilex aquifolium	Holly
Prunus spinosa	Blackthorn
Rosa canina	Dog Rose

Acer campestre	Field Maple
Ulex europaeus	Gorse
Ligustrum vulgare	Wild Privet

Aquatic Vegetation

Typha latifolia	Bulrush
Veronica beccabunga	Brooklime
Phragmites australis	Common Reed
Juncus inflexus	Hard Rush
Epilobium hirsutum	Great Willowherb
Rorippa nasturtium-aqauticum	Water Cress

Appendix II: Hedgerow Survey Results

	No. Canopy species	Associated Features: Bank or wall; <10% gaps; Ditch along half its length; connections; >1 standard tree/50m; parallel hedge within 15m or public byway	Important under Hedgerow Regulations	Grade under HEGS	Species Rich	Length (m)
1	1	Hedge bank, grass verge	No	3	No	70
2	1	Grass verge	No	3-	No	40
3	2	Ditch, grass verge	No	3+	No	90
4	2	Ditch, grass verge	No	3+	No	250
5	3	1-<3 standard tree per 50m, ditch, grass verge	No	2-	No	400
6	3	Grass verge, ditch,	No	3	No	40
7	1	Grass verge, 1-<3 standard tree/50m	No	3	No	350
8	2	<1 standard tree/50m, grass verge	No	3+	No	500
9	4	Ditch, grass verge, <1 standard tree/50m	No	2	No	490
10	1	Hedge bank, grass verge	No	3+	No	200
11	6	Ditch, hedge bank	No	2	No	170
12	2	Ditch, 1-<3 standard tree/50m, grass verge	No	2-	No	140
13	3	Grass verge, ditch	No	2-	No	450
14	3	Hedge bank, grass verge	No	2-	No	220
15	1	Grass verge	No	3	No	200
16	3	Grass verge, parallel hedge	No	3	No	100
17	4	Grass verge, hedge bank, parallel hedge	No	2-	No	250
18	8	Grass verge, hedge bank, <1 standard tree/50m, parallel hedge	No	2-	No	580
19	1	Hedge bank, grass verge	No	3+	No	75
20	5	Hedge bank, grass verge, parallel hedge	No	2	No	240
21	1	Grass verge	No	3	No	250
22	2	Hedge bank, grass verge	No	2	No	70
23	5	Public byway, hedge bank, grass verge	No	3+	No	200
24	4	Public byway, grass verge	No	3	No	160
25	4	Hedge bank, grass verge	No	2-	No	330
26	2	Hedge bank, grass verge	No	3+	No	75
27	4	< 1 standard tree/50m, hedge bank, grass verge	No	3-	No	400

	No. Canopy species	Associated Features: Bank or wall; <10% gaps; Ditch along half its length; connections; >1 standard tree/50m; parallel hedge within 15m or public byway	Important under Hedgerow Regulations	Grade under HEGS	Species Rich	Length (m)
28	3	<1 standard tree/50m, hedge bank, grass verge	No	2-	No	360
29	**5**	**Hedge bank, 1 standard tree/50m, grass verge, public byway, parallel hedge, <10% gaps**	**Yes**	**2**	**No**	**380**
30	5	Hedge bank, grass verge, public byway, <10% gaps	No	2-	No	670
31	2	Hedge bank, grass verge, < 1 standard tree/50m,	No	3	No	250
32	3	Hedge bank, grass verge	No	2-	No	60
33	6	Hedge bank, grass verge, < 1 standard tree/50m	No	3+	No	430
34	2	Grass verge, public byway, <10% gaps	No	3	No	360
35	2	Hedge bank, grass verge, < 10% gap	No	2	No	240
36	2	Grass verge, <10% gaps	No	3	No	320
37	2	Grass verge, < 10% gaps, Public byway	No	3+	No	170
38	2	Ditch, grass verge	No	3+	No	100
39	2	Grass verge, hedge bank	No	3	No	250
40	3	Ditch, grass verge	No	3	No	400
41	2	Grass verge, public byway	No	3	No	420
42	2	Hedge bank, grass verge, public byway	No	2	No	170
43	6	Hedge bank, grass verge, public byway, parallel hedge, <10% gaps	No	3	No	680
44	**6**	Grass verge, hedge bank, <10% gaps, public byway, parallel hedge	**Yes**	**3**	**Yes**	**100**
45	2	Grass verge, hedge bank, <10% gaps, public byway, parallel hedge	No	2-	No	270
46	2	Hedge bank, grass verge, <10% gaps	No	2-	No	80
47	2	Hedge bank, grass verge, <10% gaps	No	3+	No	100
48	3	Hedge bank, grass verge	No	3-	No	120
49	5	Grass verge, hedge bank, <10% gaps, public byway, parallel hedge	No	3+	No	250
50	4	Hedge bank, grass verge, 1 species/50m,	No	2-	No	300

	No. Canopy species	Associated Features: Bank or wall; <10% gaps; Ditch along half its length; connections; >1 standard tree/50m; parallel hedge within 15m or public byway	Important under Hedgerow Regulations	Grade under HEGS	Species Rich	Length (m)
		<10% gaps, public byway				
51	2	Grass verge	No		No	150
52	4	<1 standard tree/50m, grass verge	No		No	85
53	5	Grass verge, 1-<3 standard tree/50m, <10% gaps	No		No	195

Appendix III: Bat Tree Survey Results

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.
		S Branch socket cavity (5)	W Loose/lifted bark (G-6)			
T2	**Ag**	N	E	Low-Moderate	No.	Further survey work required.
		S Branch socket cavity (5)	W			
T3	**Fe**	N	E	Low	No	Remove using precautionary method statement.
		S	W Branch socket cavity (5)			
T5	**Qr**	N Loose/lifted bark (G-6), Branch split (3-6).	E	Low	No	Remove using precautionary method statement.
		S	W			
T6	**Ag**	N Hollow trunk (N/A)	E Hollow trunk (N/A)	Low-Moderate	No	Further survey work required.
		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.
		S	W			
T8	**Ag**	N Hollow trunk (N/A)	E Hollow trunk (N/A)	Low-Moderate	No.	Further survey work required.
		S Hollow trunk (N/A)	W Hollow trunk (N/A)			
TG1	**Ag (multiple)**	N Ivy cover (G-10)	E Ivy cover (G-10)	Low	No	Remove using precautionary method statement.
		S Ivy cover (G-10)	W Ivy cover (G-10)			
T9	**Fe**	N	E	Moderate	No.	Further survey work required.
		S	W Branch socket cavity (2), Trunk cavity (4).			
T10	**Ag**	N	E	Low-Moderate	No.	Further survey work required.

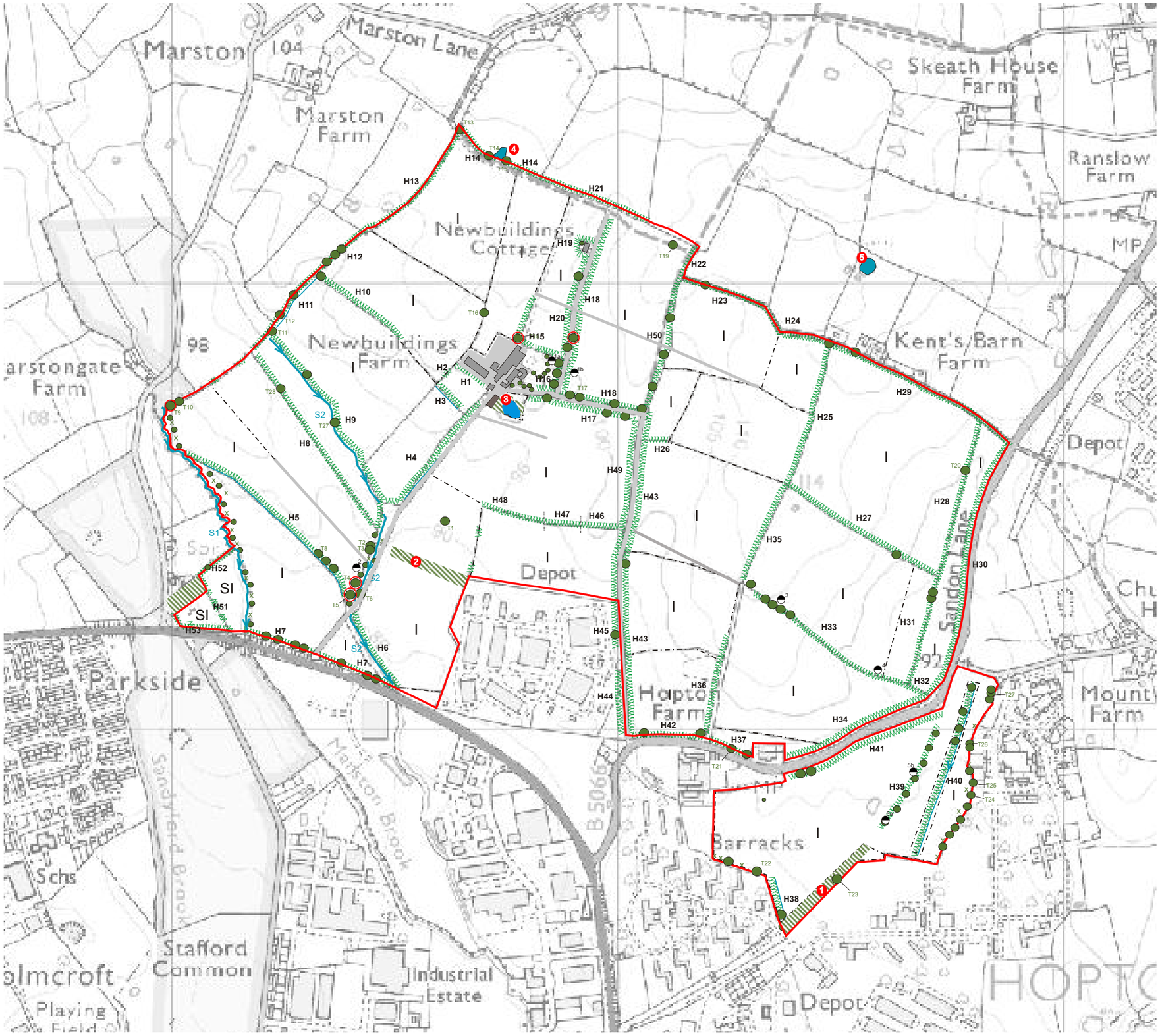
Tree Ref.	Species	Aspect and height of feature (metres) (e.g. N - cavity 5m, E – Fissure 3-4m)		Potential for roosting bats (None, Low, Moderate, High Can include sub-categories e.g. mod-high)	Evidence of roosting bats? (species, evidence type i.e. live bat or droppings)	Proposed Action (e.g. Further survey work required, precautionary removal, sectional felling, none, etc)
		S Woodpecker hole x 2 (4)	W			
T11	**Fe**	N Ivy cover (G-8)	E Ivy cover (G-8)	Low	No	Remove using precautionary method statement.
		S Ivy cover (G-8)	W Ivy cover (G-8)			
T12	**Fe**	N	E Trunk cavity (3)	Low	No	Remove using precautionary method statement.
		S	W			
T13	**Qr**	N Ivy cover (G-9)	E Ivy cover (G-9)	Low	No	Remove using precautionary method statement.
		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.
		S Loose/lifted bark (4-5)	W Trunk split (4-6)			
T15	**Qr**	N	E Trunk cavity (4)	Low	No	Remove using precautionary method statement.
		S	W			
T16	**Qr**	N Loose lifted bark (6-8)	E Loose lifted bark (6-8)	Low-Moderate	No.	Further survey work required.
		S Loose lifted bark (6-8), Branch split x4 (6)	W Loose lifted bark (6-8), Branch split (6), Branch socket cavity (5)			
TG2	**3 x Qr**	N Ivy cover (G-8)	E Ivy cover (G-8)	Low	No	Remove using precautionary method statement.
		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	Remove using precautionary method statement.
		S Ivy cover (G-7)	E Ivy cover (G-7)			
T18	**Fe**	N Woodpecker holes x 4 (4)	E	Moderate	No	Further survey required.
		S Branch cavity	W			
T19	**Fe**	N	E	Low-Moderate	No.	Further survey work required.

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)
		S	W Trunk cavity (3), Branch socket cavity x 2 (3)			
T20	**Fe**	N Ivy cover (G-7)	E Ivy cover (G-7)	Low	No.	Remove using precautionary method statement.
		S Ivy cover (G-7)	W Ivy cover (G-7)			
T21	**Fe**	N Ivy cover (G-7)	W Ivy cover (G-7)	Low	No.	Remove using precautionary method statement.
		S Ivy cover (G-7)	E Ivy cover (G-7)			
T22	**Qr**	N Ivy cover (G-7)	W Ivy cover (G-7)	Low.	No.	Further survey required.
		S Ivy cover (G-7)	E Ivy cover (G-7)			
T23	**Qr**	N	E Trunk cavity (4.5)	Moderate	No.	Further survey required.
		S Loose/lifted bark (G-4)	W Branch socket cavity x2 (3)			
T24	**Qr**	N Branch socket cavity (8m)	E	Low	No.	Remove using precautionary method statement.
		S	W			
T25	**Fe**	N Branch socket cavity (3.50)	E Trunk cavity (G-1)	High	No.	Further survey required.
		S Dead wood (G-8)	W Trunk cavity (3m)			
T26	**Fe**	N Ivy cover (G-7)	W Ivy cover (G-7)	Low	No.	Remove using precautionary method statement.
		S Ivy cover (G-7)	E Ivy cover (G-7)			
T27	**Qr**	N Branch socket cavity	E	Low-Moderate	No.	Further survey work required.
		S Branch socket cavity	W			
T28	**Fe**	N Branch socket cavity	E	Low-Moderate	No.	Further survey work required.
		S Branch socket cavity	W			

Appendix IV: Bat Building Survey Results

	Building Construction/Description.	Structural Features Present						Other Structural Features of Note	Potential Bat Access Points	Internal Features	Bat Potential/ Evidence
		Gables	Barge Boards	Soffit Boards	Fascia Boards	Flashing	Roof Void				
B1	Single/two storey, brick built farmhouse with a multi-pitched/hipped slate tile roof.	✓	x	✓	✓	✓	✓	Brick built chimneys. Corbelled brickwork.	Occasional gaps under roof/ridge tiles. Limited gaps in soffits.	N/A - It is likely a roof void is present but exact features are unknown.	Moderate potential. No evidence.
B2	Single storey, brick built garage with a pitched clay tile roof.	✓	✓	x	✓	x	✓	Ivy cover on northern aspect.	Occasional gaps under roof/ridge tiles.	Chipboard ceiling with void above but no access at time of survey.	Low - Moderate potential. No evidence.
B3a	Single storey, brick based timber and asbestos sheet barn with pitched asbestos sheet roof.	✓	✓	x	✓	x	x	Open doors/ aspects.	Open doors/aspects.	No roof void or underlining. Timber roof beams.	Low potential for foraging bats only. No evidence.
B3b	Single/two storey, brick built barn/stables with multi-pitched slate/clay/asbestos sheet roof.	✓	✓	x	✓	x	x	Open doors/ windows.	Open doors/windows. Occasional gaps under roof/ridge tiles	No roof void or underlining. Timber roof beams.	Low potential for foraging bats only. No evidence.
B4	Single storey, brick built stable with mono-pitch asbestos sheet roof.	✓	✓	x	✓	x	x	Open fronted.	Open front.	No roof void or underlining. Timber roof beams.	Low potential for foraging bats only. No evidence.
B5	Single storey, timber built stable with pitched asbestos sheet roof.	✓	✓	x	✓	x	x	Open fronted.	Open front.	No roof void or underlining. Timber roof beams.	Low potential for foraging bats only. No evidence.
B6	Single storey, metal built cow-shed with pitched and curved asbestos/metal sheet roof.	✓	✓	x	✓	x	x	Open aspects.	Open aspects.	No roof void or underlining. Timber roof beams.	Low potential for foraging bats only. No evidence.

	Building Construction/Description.	Structural Features Present						Other Structural Features of Note	Potential Bat Access Points	Internal Features	Bat Potential/ Evidence
		Gables	Barge Boards	Soffit Boards	Fascia Boards	Flashing	Roof Void				
B7a	Single/two storey farm units with multi-pitch slate tile roof. Some asbestos roof sections.	✓	✓	✓	✓	✓	x	Open windows/doors/aspects.	Occasional gaps under roof/ridge tiles. Gaps in open doors/windows/aspects.	Full internal access not possible but no roof voids or underlining observed.	Moderate potential. No evidence.
B7b	Single storey, brick based timber and asbestos sheet barn with pitched asbestos sheet roof.	✓	✓	x	✓	x	x	Open doors/ aspects.	Open doors/aspects. Gaps between timber laths on northern gable.	No roof void or underlining. Timber roof beams.	Low potential for foraging bats only. No evidence.
B8	Single/two storey, brick built farmhouse with a multi-pitched/hipped slate tile roof.	✓	x	x	x	✓	✓	Brick built chimneys.	Occasional gaps under roof/ridge tiles.	N/A - It is likely a roof void is present but exact features are unknown.	Moderate potential. No evidence.
B9	Single storey, brick built garage with a pitched clay tile roof.	✓	✓	x	✓	x	✓	Ivy cover on northern aspect.	Occasional gaps under roof/ridge tiles. Limited gaps in soffits.	Chipboard ceiling with void above but no access at time of survey.	Low - Moderate potential. No evidence.



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 ONE HABITAT PLAN

N

Not to scale @ A3 DAW/RG/KEH 03.07.2012

Figure 1

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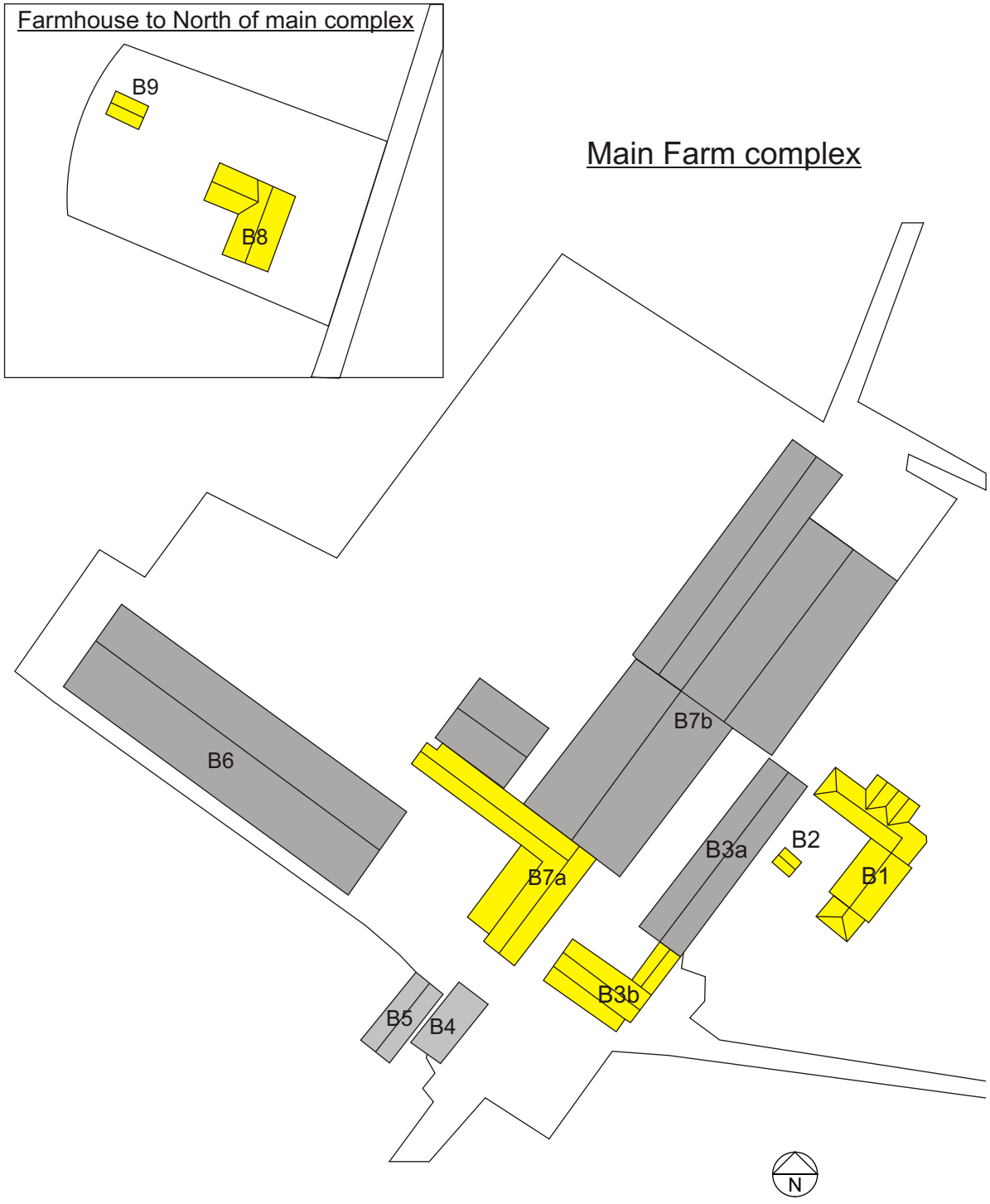
J:4200/4258/Ecology/Phase one plan new format



Areas requiring further nocturnal survey

Areas not requiring further nocturnal survey

B1 Building reference

rev	date	description	by

fpcr

architecture
landscape
ecology
environmental assessment
masterplanning
urban design

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client
Maximus

project
Land north of Beaconside, Stafford

drawing title
BUILDING REFERENCE PLAN

scale	drawn	date
Not to scale @ A4	EF	February 2010

drawing number
Figure 2

rev