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PROTECTED SPECIES ECOLOGICAL SCOPING SURVEY REPORT

Site name: Barns at Moorend Farm, Weston Beggard, Herefordshire

Commissioned by: Mr & Mrs Bayliss, owners

Date: Ver. 1.0, 5-9-11

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Executive Summary

1. An assessment for bats and any other protected species issues was undertaken at the location of Moorend Farm, Weston Beggard during the summer of 2011.
2. Current roosting evidence for two species of bat was identified in the large barn building under consideration for a maternity group of lesser horseshoe bats, and for small numbers of long-eared bats. No signs of other protected species were discovered (other than bird nesting locations). No signs of any protected species were identified in a second smaller barn at the location.
3. Historic evidence of in-building flight, possibly for feeding purposes, by a small species of bat was also identified in the large barn.
4. A common pipistrelle bat roost was identified as using the farmhouse.
5. The two barns surveyed were easy to fully and completely assess leaving negligible potential for missed evidence.
6. Proposed modification works to the large barn would therefore appear, to the extent of our knowledge concerning the planned work, to present a high risk of disturbance or disruption to bat roosting or resting locations directly, access to them, or as a result of the work process. (There is also the potential to disturb breeding birds if work is undertaken at inappropriate times of the year).
7. Proposed modification works to the small barn would therefore appear, to the extent of our knowledge concerning the planned work, to present a very low or negligible risk of disturbance or disruption to bat roosting or resting locations directly, access to them, or as a result of the work process.
8. No other protected species (including barn owls) were directly identified within the survey envelope, although note the extent and nature of the survey visits.

9. It is concluded, within the knowledge presently held, that a Natural England Wildlife Licensing Unit protected species disturbance licence (EPSL) for bats is required to enable any disturbance works to take place to the large barn (but not to the small barn).
10. No dedicated surveys for other protected species were made other than searches for signs of use or visitation by reptiles and amphibians etc, and coincidental to the bat surveys. There was no observation of any evidence of such use of the survey site.
11. Indicative mitigation measures are outlined.

1. Introduction

- 1.1 Europaeus Land Management Services was commissioned by Mr Bayliss, the owner, to carry out a protected species, habitat and bat ecological "scoping" assessment survey of the two barn buildings and immediately adjacent land (the "survey site") at Moorend Farm, Weston Beggard prior to various proposed works there (to create ancillary domestic accommodation). Issues pertaining to protected species and particularly bats and barn owls were addressed. This report sets out the findings of the survey and provides recommendations in the light of those findings.
- 1.2 There is a proposal to carry out modification to the former agricultural structures currently present at the location (attached large two-storey barn and detached smaller barn). As a consequence there is the possibility of direct or indirect disturbance to parts of the buildings and site which may have potential for use by bats and other protected species.

The need for a bat survey

- 1.3 Some bat species in Britain are reported to be declining in numbers and distribution. There are 17 resident species in the country constituting over a third of all mammal species present. With habitat loss, fragmentation and degradation, building conversion, misuse of timber-treatment chemicals, increase in predators and direct persecution, the situation in some areas is serious. Several of the commoner bat species are reported to have declined in numbers by approximately half in recent years. Bats are therefore protected under national and international wildlife law, and owners, developers and planners have to take due notice of their protection within activities. There is no defence under law for a plea of ignorance even when carrying out otherwise lawful activities.

Limitations

- 1.4 The optimal survey period for the characterisation, mapping and assessment of the presence and nature of protected species (bats) present on a site in this geographical region, to the level required for a comprehensive ecological assessment, is May - August inclusive.

The May / August period is the optimal survey period for bats within buildings on a site in this geographical region, to the level required for a comprehensive assessment. Bats are active at this season and their droppings and other field signs, whilst typically cryptic and requiring detailed search, will nonetheless be apparent to the experienced surveyor. However, with recent extra-ordinary weather trends, bats are known to have, in some circumstances, altered their movement and occupation patterns.

This full structural and scoping survey was deemed to have taken place adequately with the aid of telescopic ladders, a flexible endoscope, binoculars and ultraviolet light transmission equipment. No other buildings were entered or surveyed.

It should be noted that investigation of the site represented a protected species appraisal and, although we feel it is highly unlikely that significant matters have been overlooked, visits may miss species not apparent at the times of survey by reason of seasonality, mobility, habits or chance. Particular seasonal limitations are indicated in the text. Weather conditions were very good at the time of the surveys for this type of approach.

Legislation

- 1.5 All species of bat and their breeding sites or resting places (roosts) are protected under Regulation 39 of the Conservation (Natural Habitats) Regulations 1994 and Section 9 of the Wildlife and Countryside Act 1981. Further enforcement has been provided by The Countryside and Rights of Way Act 2000. The Conservation (Natural Habitats &c.) (Amendment) Regulations 2007 recently updated this legislative control.
- 1.6 This means that it is illegal to:
- deliberately disturb bats (whether in a roost or not) in a way as to be likely to significantly affect
 - (a) the ability of any significant groups of animals of that species to survive, breed, or rear or nurture their young, or
 - (b) the local distribution of abundance of that species
 - damage, destroy or obstruct access to bat roosts
 - possess or transport a bat or any part of a bat, unless acquired legally and in possession of a licence to do so
 - sell, barter or exchange bats, or parts of bats unless in possession of a licence to do so.
- 1.7 Recent amendments to the Habitat Regulations (August 2007) have removed many of the former defences. This includes the commonly relied upon 'incidental result defence', which previously covered acts that were the incidental result of an otherwise lawful activity and which could not reasonably have been avoided.
- 1.8 There is, therefore, an obligation on those who seek to effect changes to buildings, structures, caves or trees, or carry out activities which might constitute a disturbance, where bats are present, thought to be present, or have the reasoned possibility of presence to seek specialist advice, and to ensure that appropriate systems are in place to avoid damage to bat roosts or their habitat.
- 1.9 As bats are protected by European legislation, works under a planning permission that will cause disturbance to a bat or bat roost shall require a specific licence from the Wildlife Licensing Unit (W.L.U.) of Natural England (DEFRA) (only after planning permission has been granted where this is required).

Conditions may be added to a licence or the granting of a licence may be refused. Under the Conservation (Natural Habitats &c) Regulations 1994 the W.L.U. can issue licences for:

- preserving public health and safety or other imperative reasons of over-riding public interest including those of a social and economic nature and beneficial consequences of primary importance for the environment;
- preventing the spread of disease;
- preventing serious damage to livestock, foodstuffs for livestock, crops, vegetables, fruit, growing timber or any other form of property or to fisheries

1.10 The W.L.U. can only issue a licence if it is satisfied that the activity meets one of the above purposes and is also satisfied that there is no satisfactory alternative, and that the action authorised will not be detrimental to the maintenance of the population of the species concerned at a **favourable conservation status** in their natural range.

1.11 Applications to apply for European Protected Species licence for bats consist of the following:-

- Application form – this provides detail on the applicant, project, the purpose of the work and consideration of alternatives.
- Method Statement – this provides detail on the methods to be used to carry out the work with regard to bats and will include a survey undertaken to determine the number of bats present.
- Reasoned Statement of Application – this provides the reasons for the disturbance and gives evidence of the justification.

Barn owls

The need for a survey

Legislation

- 1.12 Barn owls (*Tyto alba*), are fully protected under Schedule 1 of the Wildlife and Countryside Act 1981, as amended by the Countryside and Rights of Way Act 2000. As a consequence, and in addition to the general protection afforded to the majority of British wild birds, it is an offence to deliberately or recklessly disturb a nesting barn owl. Offences pertaining to Schedule 1 birds are subject to a special penalty. The barn owl is also listed in the EC Birds Directive and Appendix II of the Bern Convention. It is an 'Amber List' species of conservation concern (Gregory *et al.* 1996) and is listed as 'globally threatened' in the UK Biodiversity Steering Group Report (1995).

Limitations

- 1.13 There were no limitations or constraints, and visual observation of the structures and mature trees was undertaken with the aid of binoculars and the naked eye.

Breeding Birds

The need for a breeding bird survey

- 1.14 The Wildlife and Countryside Act 1981 (WCA 1981) provides that all wild birds are protected and cannot be killed or taken except under licence. The Act also prohibits or controls certain methods of killing or taking except under licence. Certain exceptions to this general rule apply. However, with the exception of a certain few derogated pest or very common species, the legislation gives protection to all wild birds in Britain.
- 1.15 The May – June period is the optimal season for the identification of breeding bird assemblages where song birds identify and defend nesting territories and sites, where vegetation is less dense than later and first broods might be expected to be observable.

Limitations

- 1.16 A search for active and disused nests was possible. Weather conditions were good at the time of the surveys.

Badgers

The need for a badger survey

Legislation

- 1.17 Badgers (*Meles meles*), and their setts are protected under the Protection of Badgers Act 1992, which makes it illegal to kill, injure or take badgers or to interfere with a badger sett. Interference with a sett includes blocking tunnels or damaging setts in any way. This legislation has been amended as a result of the Hunting Act 2004.

Limitations

- 1.18 A search for signs of badger activity can be undertaken at any season though early spring, when activity can be high following the winter and when undergrowth is less dense, is generally regarded as the optimum period.
- 1.19 There were no limitations. Other than a search for general signs over the period of the surveys as listed no further survey effort was undertaken.

Great Crested Newts

The need for a great crested newt survey

- 1.20 Similarly protective legislation pertains to other species such as great crested newts (*Triturus cristatus*).

Legislation

- 1.21 As with bats, crested newts are protected under the Conservation (Natural Habitats, &c.) Regulations 1994 which implements the EC Directive 92/43/EEC in the United Kingdom and it is an offence, with certain exceptions, to:

- deliberately capture or kill any wild animal of a European protected species;
- deliberately disturb any such animal;
- deliberately take or destroy eggs of any such wild animal;
- damage or destroy a breeding site or resting place of such a wild animal;
- deliberately pick, collect, cut, uproot or destroy a wild plant of a European protected species;
- keep, transport, sell or exchange, or offer for sale or exchange, any live or dead wild animal or plant of a European protected species, or any part of, or anything derived from such a wild animal or plant.

Limitations

- 1.22 Other than visual searches of the terrestrial habitat at the site on the survey visits, no further dedicated survey effort was expended.

Reptiles and amphibians (other than great crested newts)

The need for a survey

Legislation

- 1.23 The grass snake (*Natrix natrix*), slow-worm (*Anguis fragilis*), viviparous (common) lizard (*Lacerta vivipara*) and adder (viper) (*Vipera berus*) are all protected from intentional or reckless killing and injury under Schedule 5, Section 9(1), of the Wildlife and Countryside Act as amended/reinforced by the CROW Act 2000. They are also protected under Schedule 5, Section 9(5) which prohibits selling, offering for sale, possessing or transporting for the purpose of sale, or advertising for sale, any live or dead animal, or any part of, or anything derived from the species.

Limitations

- 1.24 The habitat was assessed for the possible suitability for these species, with a judgement made on whether sufficient habitat area and quality was available and whether suitable habitat within normal travelling distance was available nearby and that accessibility would be possible.

2. Survey methodology

- 2.1 **Bats:** The detailed methodologies for the survey followed best practice recommendations in *Bat Surveys: Good Practice Guidelines* (BCT 2007), and *Bat Mitigation Guidelines* (English Nature 2004).
- 2.2 **Survey objectives:** The first objective of the survey was to categorise the survey site buildings and highlight any potential issues pertaining to protected species and habitats. The objectives of the survey methodology was to identify bat (and other similarly protected species) at the survey site, and assess their uses of the location with a view to potential impacts of proposed works to the two buildings and vicinity; similarly to make an assessment of the presence or possibility of any bat or other protected species at the property, to locate bats in occupation or signs of bat use of the survey buildings and immediate vicinity, and to assess the possibility of the site being occupied by bats or other protected species.
- 2.3 A full structural survey and walkover "scoping" assessment of the site and survey buildings was undertaken examining features for the presence of protected bat species and assessing the likelihood of their occupation or use.
- 2.4 The habitat assessment was undertaken in the summer of 2011 (15-6-11) with dedicated search made by exploring the exterior and interior of the named and identified survey buildings, and the land surrounding the site.
- 2.5 This full survey, including a thorough and systematic visual examination for signs or presence of bats within the interior and exterior of the buildings was undertaken by a highly experienced ecologist. High powered torches and small beam torches were utilised with the structures viewed in detail from inside and from outside. Binoculars and a flexible endoscope were employed. Comprehensive and systematic search was made of the structures including separate rooms, and all aspects and levels, and any items stored within, and in detail to the walls, beam tops etc. Attention was given to crevices etc for bats, their droppings, food remains or characteristic grease marks at potential exit and entrance points. The exterior of the buildings was thoroughly searched, paying particular attention to

external crevices, ledges or pipes where droppings could gather undisturbed, and under potential access points such as loose tiles or broken ventilation bricks.

2.6 Signs of bat activity searched for included:

- Droppings - these can contain fragments of insect exoskeleton and will crumble to dust (unlike those of small rodents, which typically become hard). Bat droppings will stick to surfaces including walls, windows and window ledges and may also become caught in spider webs near a roost site or feeding perch.
- Feeding remains - these include the discarded wings of flying invertebrates, which may accumulate under a well-used feeding perch. Some species, such as the brown long-eared bat, have seasonal preference for moths of the *noctuid* family the accumulated wings of which identify this bat as being present.
- Oil staining - the fur of bats may leave an oily residue on surfaces close to occupied roost sites and access/egress points.
- Smell – most bat species have an identifiable aroma while certain species, such as the noctule (*Nyctalus noctula*), are noted for their “smelly roosts” due to urine scent marking activity.
- Daytime vocalisations - these are most pronounced at larger roost sites during periods of hot weather.
- Absence of cobwebs - a well used bat roost and its access points are typically clear of cobwebs.
- Scratching - scratch marks produced by the claws of many bats may be apparent close to the access point for a well-used roost.
- Dead bats, either older or especially babies within maternity roosts.
- Pupae of the bat fly.
- Tracks in dust.

- 2.7 A bat activity survey assessment was undertaken for a period of July and August, firstly over and following dusk on the evening of 8 July 2011 by a team of three experienced ecological surveyors, employing time expansion, heterodyne and frequency division bat detectors. The "emergence survey" was undertaken for a two hour period. Binoculars and night vision equipment were employed to visually monitor possible access points to the structures under survey. Observation of emergence or entrance, or returns to roosting locations was sought including an assessment of the area immediately associated with the survey structures. Two frequency division recording units were set to record all bat activity for the duration of the surveys. Particular attention was paid to the survey building's structural components and roof to identify any emergence or returns of bats. A second dusk survey was similarly carried out on 25 July 2011. A dawn survey undertaken for two hours was carried out on 19 August 2011.
- 2.8 **Equipment and technology** employed included two Pettersson D240x® time expansion ultrasonic detectors, a Bat Box Duet® frequency division and heterodyne ultrasonic detector with MP3 recording device, and two sets of Anabat® equipment. A Seben® night vision scope, headtorch, red-filter torches and high powered torches were all employed. The Anabat SD1 (frequency division) recording units were linked to and running PDA computer hardware with "AnaPocket®" software, analysing sound and recording bat sonograms to flashcard memory. The data acquired from the recording units was further analysed later on a mainframe computer running "Analook®" and "Batsound" software to confirm and extrapolate "in the field" identification.

2.9 **Barn Owls:** Signs of barn owl activity may include the following (*Observation of foraging owls*, The Barn Owl Trust; English Nature 2002):

- Pellets. These are the disgorged remains of the prey, predominantly field voles and other small mammals. Pellets are typically dark in colour, vary considerably in size and accumulate beneath feeding perches and within nesting sites. The number of pellets and their age provide information about the frequency of use and the type of roost site. They are dark and sticky when fresh, becoming greyer and drier with age. They can be distinguished from other owl pellets from their "coated" and often shiny nature, (rather than somewhat "fluffy" in the case of those produced by tawny owls). Pellets may be found in and around roost sites, often in large numbers.
- Feathers. These are distinctive and easily identified by an experienced surveyor. Accumulations within a building or associated with a tree may indicate that it has been used for significant roosting or breeding.
- Down. The presence of barn owl chick down identifies a breeding roost. This is distinguished from adult breast feathers by the absence of a central quill.
- Nest sites. Barn owl nest sites occur in a variety of locations but require a stable platform of at least 1/3 m², typically high up within a barn complex, or a hollow tree. Sites can be identified by the presence of 'nesting debris'.
- Nesting debris. Barn owls do not build traditional twig nests, but instead lay their eggs on a pile of accumulated feeding pellets, adult feathers, feeding remains, owl down (from previous breeding) and faecal matter. Currently or recently occupied nests may smell strongly of ammonia.
- Guano. White streaks of guano may assist a surveyor in finding a perch or roost location but cannot be used to accurately identify a barn owl roost in isolation from other survey evidence.
- Screeching, hissing or snoring noises from adults or owlets.

- 2.10 For **breeding birds** an assessment of nesting sites was taken during the survey visits and the site searched on each occasion. Records of any disused nests observed were also made.
- 2.11 For **crested newts** a detailed search was made of the survey site and specifically for any possible waterbodies and wet depressions or ditches etc for signs or presence. A search was conducted for adults of the species under stones, timber etc.
- 2.12 For **badgers** the following signs were sought:-
- Setts and entrances
 - Spent bedding material
 - Footprints
 - Runs
 - Feeding signs
 - Faeces including latrine sites
 - Hair (pellage)
- 2.13 For **reptiles and amphibians** signs were sought of adults, juveniles, eggs, refugia and possible feeding, foraging and breeding habitat.

3. Survey results

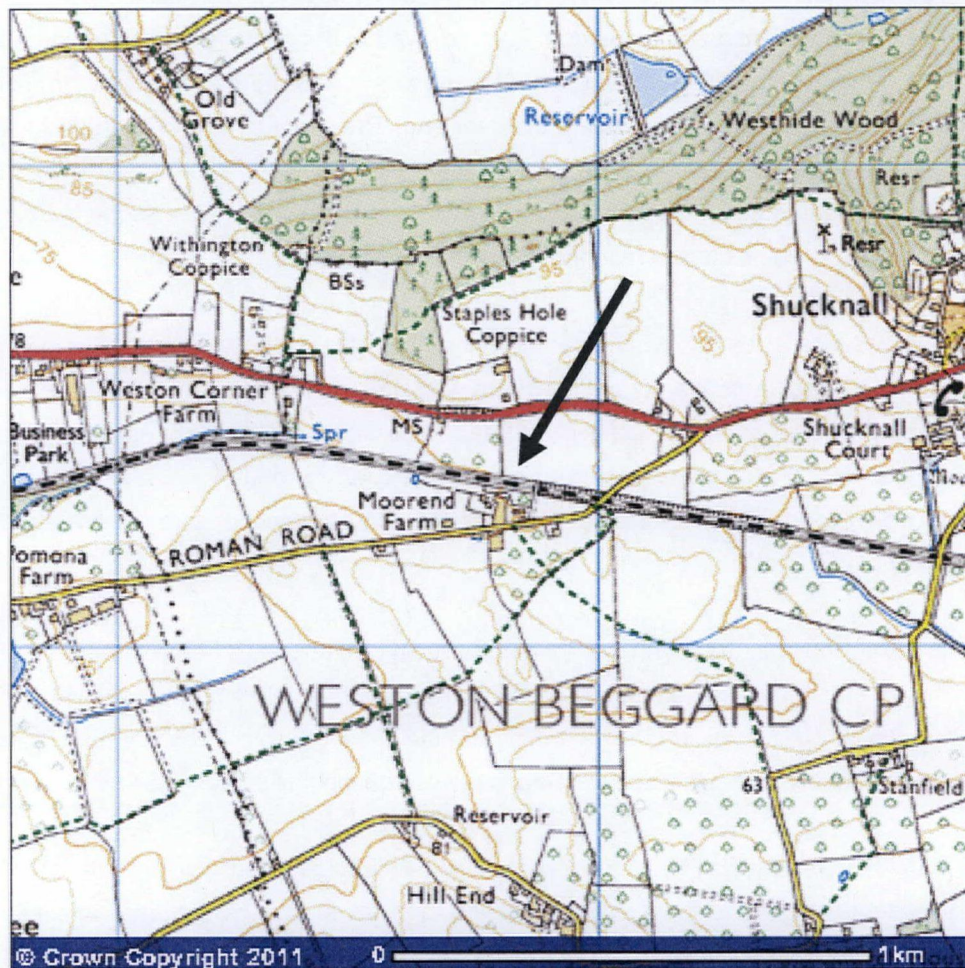
Location & description

- 3.1 The survey site is at national grid reference SO577424 and at an elevation of c75m above datum level.
- 3.2 The survey location is that of a traditional farmstead and buildings of various ages and uses with associated farmhouse and garden. The surveyed buildings consisted of the large barn (granary) over two stories with two round hop kilns at the distal end from the farmhouse, and some former residential rooms at the near end. The structure is a brick-infilled timber-framed barn having slate roof lined with bitumen felt. The barn is connected to the main farmhouse at the north-eastern corner, and has a lean-to attached to the northern elevation with a single level and sloping monopitch roof of unlined slates.
- 3.3 The second smaller barn (former cider mill), is similarly two storey though smaller and is to the north of the large barn, and north-west of the farmhouse. This structure has a corrugated cement-asbestos, unlined roof and is considerably draughty especially on the upper first floor level which appears to have been used for poultry housing. The ground floor level is used for cattle housing. There are two small attached stores to this structure variously of asbestos panels and tin sheeting.
- 3.4 Surrounding these is the farmhouse garden including fruit trees, an area of hard standing forming the farmyard, and pastures. To the north is the main Hereford railway line. There are additional agricultural structures around the main complex but these are not subject to any change of use proposals and were not surveyed during this phase.
- 3.5 All of the two main survey buildings' accessible spaces were extensively searched for bats and evidence of bat occupation both visually and in detail. The external and internal surveys of the buildings were undertaken with the aid of portable, telescopic ladders. Endoscopic investigation of each and every mortise joint and crevice was possible. Most were cobweb filled and none showed any signs of bat use or visitation in the past.

Surrounding habitat

- 3.6 The surrounding habitat beyond the site is a mixed rural part of Herefordshire with orchards, mixed farms and small woodlands. There is a significantly sized block of woodland at Westside Wood on Shucknall Hill within a kilometre to the north.
- 3.7 See Fig. 1, below for location and fig. 2 for aerial images.

Fig. 1 : Location map of survey site

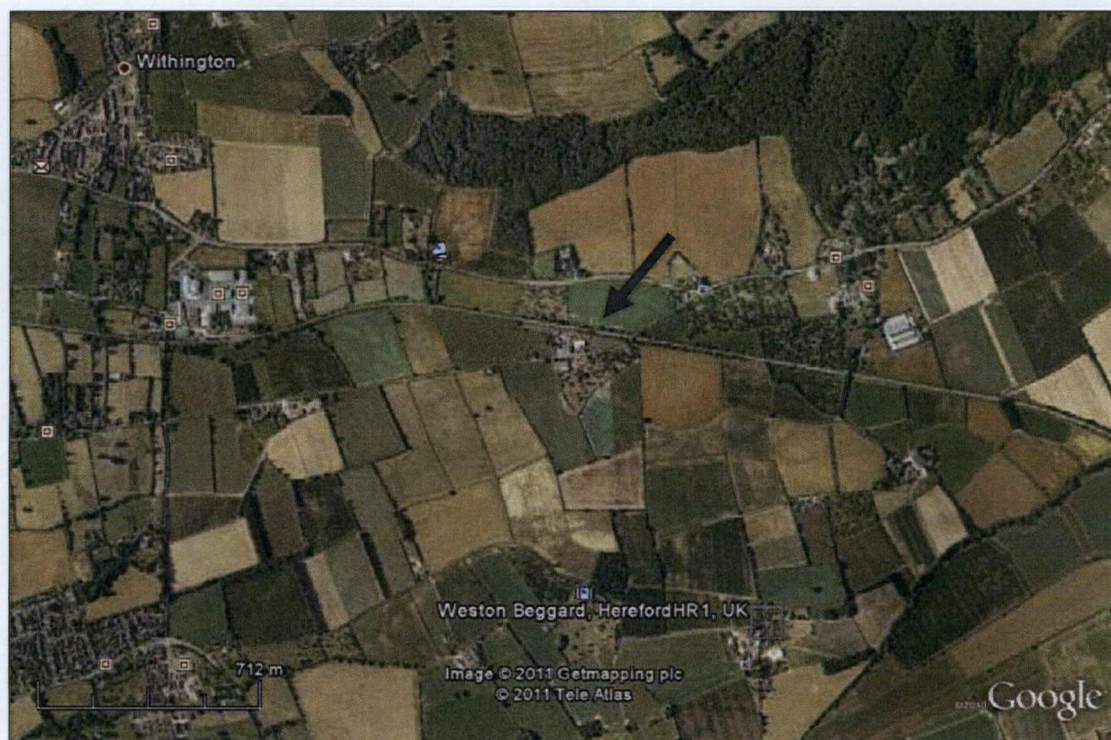


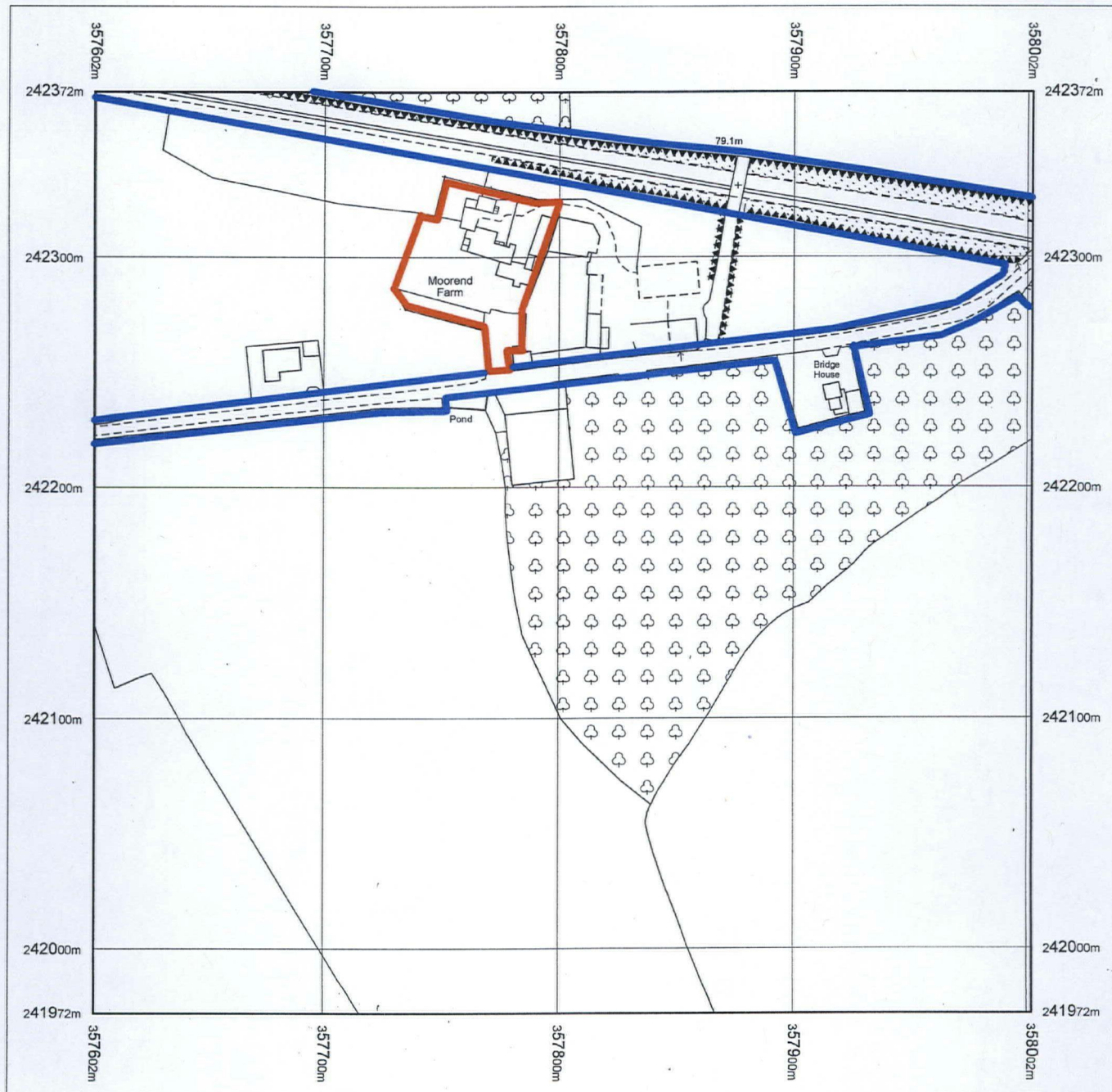
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Fig. 2: Aerial view of the survey site with the survey boundary and barns identified (Google Earth)



Fig. 3: Aerial view of the survey site location (Google Earth)





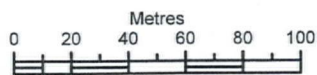
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The representation of features as lines is no evidence of a property boundary.



Scale 1:2500

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Serial number: 00672300
Centre coordinates: 357802 242171.5

Further information can be found on the OS Sitemap Information leaflet or the Ordnance Survey web site:
www.ordnancesurvey.co.uk

KEY TO EXTERNAL WORKS

- 1 Form opening in existing hedge with 1.2m high stock proof fence and gate.
- 2 Existing hedge - form opening for new private drive.
- 3 New private drive, 3.5m wide, made up of 2 x 1.25m gravel tracks with 1m grass centre strip and with 2m grass verge to each side. Increase to 4m at centre of curve.
- 4 New 1.2m high stock proof fence with hedge (see below) planted to drive side.
- 5 New 1.5m high close boarded timber fence (horizontal boards to same pattern as Granary) - privacy screen.
- 6 New 1.2m high stock proof fence with hedge (see below) planted to south side.
- 7 3 x rows granite setts across drive.
- 8 Gravel courtyard - parking and turning - stone chippings over compacted hardcore base.
- 9 New 1.2m high stock proof fence with hedge (see below) planted to Cider Mill side.
- 10 New 1.8m high close boarded timber fence.
- 11 New 1.5m high close boarded timber fence - privacy screen.
- 12 Demolish lean-to shed.
- 13 Cycle storage in existing brick lean-to.
- 14 Existing post and wire fence.
- P Standard 2.4 x 4.8m parking space (5no within courtyard).

SOFT LANDSCAPING

- T1 Existing assorted trees in garden
- T2 Existing Beech
- T3 New Oak
- T4 Existing Pear
- T5 Existing Silver Birch
- T6 New Beech
- T7 Existing Nut

New hedging - 50% Hawthorn with a conservation mix of 10% each of 5 species of native hedging of Blackthorn, Dog Rose, Field Maple, Hazel and Wild Cherry. Bare root hedging plants to be 4-600mm high, planted 7 plants per metre in a double staggered row. Provide rabbit guards for the hedgerow shrubs and a 1.2m high stock proof post and wire fence to the side indicated.

DRAINAGE - FOUL

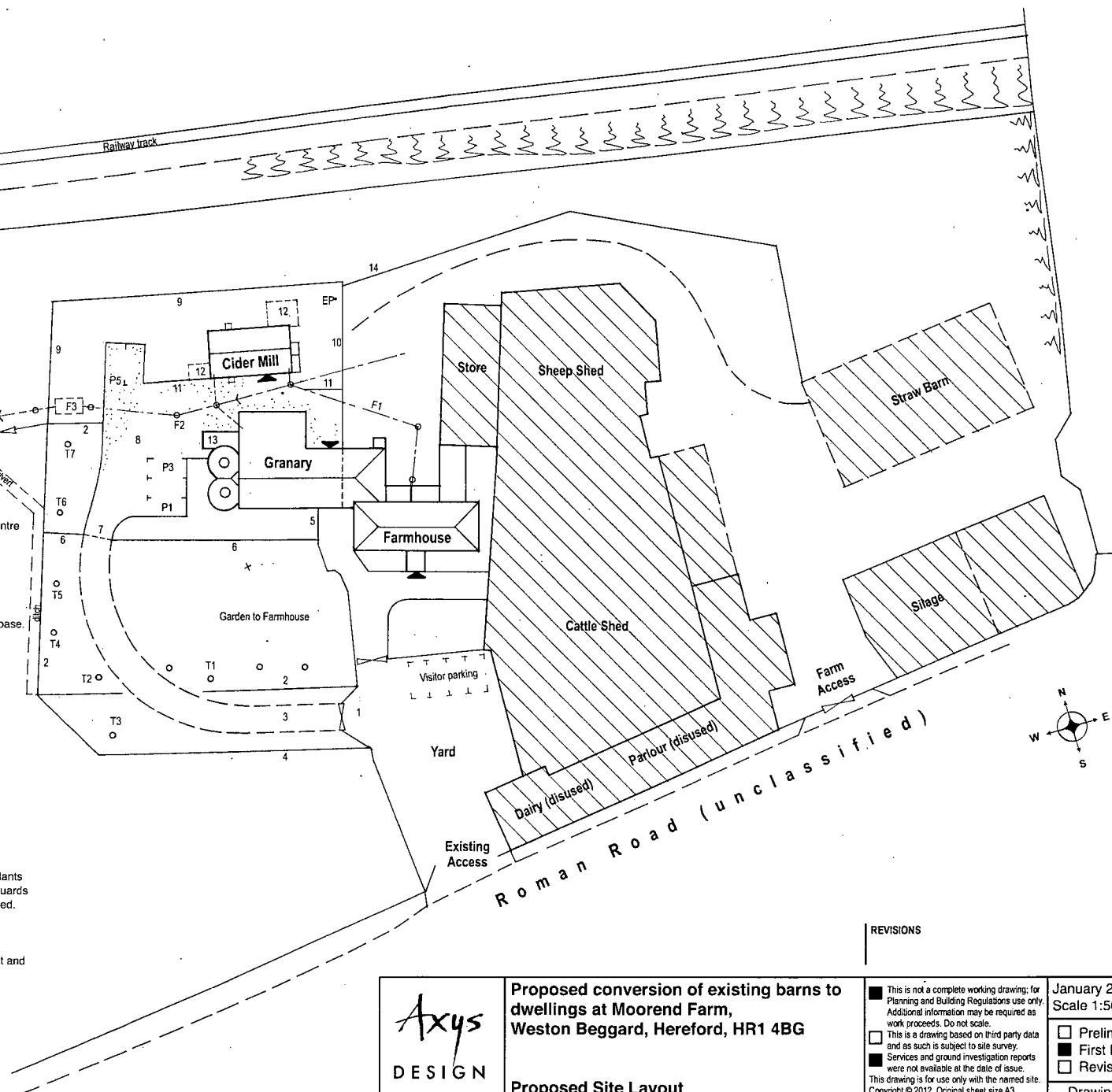
- F1 Existing foul drain run.
- F2 Existing inspection chamber. Isolate and close off existing septic tank from this point and lay drain to new treatment plant.
- F3 Package treatment plant - Model T18S1 Biodigester (18 persons) to discharge to adjacent drainage ditch (subject to Consent to Discharge).

DRAINAGE - STORM WATER

Downpipes taken to soakaways within the site, min 5m from any dwelling.

SERVICES

- Water and electricity already on site and within existing buildings.
EP Electricity pole.



Axys
DESIGN

Proposed conversion of existing barns to dwellings at Moorend Farm, Weston Beggard, Hereford, HR1 4BG

Proposed Site Layout

30 Grove Road, Hereford, HR1 2QP • Tel/fax 01432 340107 • mail@axysdesign.co.uk
T J Ford, MCAT, ACIOB • Chartered Architectural Technologist • Building Design Consultant

REVISIONS

■ This is not a complete working drawing; for Planning and Building Regulations use only. Additional information may be required as work proceeds. Do not scale.
□ This is a drawing based on third party data and as such is subject to site survey.
■ Services and ground investigation reports were not available at the date of issue.
This drawing is for use only with the named site.
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January 2012
Scale 1:500@A3

□ Preliminary
■ First Issue
□ Revision

Drawing No
749-01

0 10m

Species evidence

- 3.8 All areas of the buildings were viewed in detail on the surveys. All surfaces and stored items in the buildings were scrutinised for evidence of bats. Any cracks in the structure were examined in detail including endoscopic analysis. Similarly the roof structure was accessed and surveyed completely. Framework and structural components were examined in detail with any cracks, holes etc all examined with the use of the endoscope. By these means no evidence of bat use whatsoever of the small barn (cider mill) were identified.
- However the larger barn (granary) had a small resident colony of lesser horseshoe bats present which were directly observable in the loft space above the hipped eastern end of the structure, above a smaller and evidently former residential space. At this point in the barn there are two such first floor rooms, one to the north and the one to the south containing the bat colony. A hole in the ceiling of this room was the apparent access route for the bats. The northerly room had a small alcove below which in excess of two hundred lesser horseshoe bat droppings were accumulated.
 - Elsewhere, and particularly on the ground floor, there was evidence of roosting by a long eared bat or bats. There was a small accumulation of fifty faecal droppings on the floor of the southerly hop kiln and a few further scattered droppings on the floor and stored items of this ground floor. Up to a dozen smaller bat droppings were also identified, indicating a smaller species of bat (possibly pipistrelle species), but scattered around the ground floor and more indicative of in-building flight rather than locational roosting.
 - No other signs of bat use or use or presence of any other protected species group was identified. Active swallow and wren nests were located in both barns, with sparrows also roosting and probably nesting on the ivy growing up the hop kilns.
- 3.9 No signs of any other part of the survey site serving as a current bat roosting location were obtained although a common pipistrelle colonial roost return was identified via the activity surveys on the farmhouse itself.

- 3.10 The bat activity survey effort thus identified the farmhouse as the roosting location for a colony of common pipistrelle bats, and the surrounding land as the foraging location for several species of bat and including at least six (lesser horseshoe bats, narrowband type *Myotis* species, long-eared bats, noctule bats, and both soprano and common pipistrelle bats) which were identified as feeding or commuting via the survey work. However, apart from the pipistrelle roost in the farmhouse, the lesser horseshoe roost in the large barn (granary), a single long-eared bat roosting also in the large barn none of these others appeared to be associated with roosting occupation of the target buildings.

Summary Bats

- 3.11 The surveyed site therefore provides definite evidence of current bat usage or occupation in the surveyed large barn building (granary) for two species of bat, and no usage of the smaller barn (cider mill). Conditions appear to be locally good to optimal for a significant bat presence locally. The nature of the large barn building's structure in general and the structural form and dimensions including the diverse spaces, structural components and good to immediate connectivity appear near optimal for occupational bat use by both identified species.
- 3.12 The general quality and quantity of foraging habitat and proximity of such habitat locally is a strong factor in roost and foraging habitat selection.

Other species

- 3.13 No barn owl pellets or feathers were identified within the barns. No evidence was identified for breeding within any of the structures.
- 3.14 No signs or evidence of any other protected species (apart from nesting birds) were identified during this survey effort though please note the nature of this investigation.

Data received from other sources

- 3.15 A desktop search of records was undertaken. Data received from the Herefordshire Biological Records Centre (listed in Appendix 2) has confirmed that within a 1km search radius, no designated sites are present. Several bats of differing species have previously been recorded around the area though not very close to the survey location although this is more likely to be an indication of recording effort rather than species absence. There are a few noted protected species and regionally important recognised habitat types locally. However none of the anticipated impacts of the proposed development should affect these habitats or species directly, particularly if our mitigation strategy is followed.

4. Appraisal and recommendations

- 4.1 These recommendations are made in order to facilitate proposed works at the site location, and to ensure compliance with local and national statutory planning policies, species protection and best practice.
- 4.2 The survey site is within a relatively biodiverse region of the country. As such, protected wildlife which is supported there should figure highly in management and development proposals at the locality. The standard approach of activity surveys using electronic and night-vision bat detection equipment over a period of optimal weather and conditions during the summer has been followed. Through this the survey structure has been fully and comprehensively surveyed with visual access to all parts of the structure including all crevices etc where bats might be expected to roost, rest or perch within or upon.
- Our conclusions in respect to the small barn structure (cider mill) are that the form and scale of the building, its draughty nature, the materials of its construction, and its use and purpose is such that colonial roosting by either void or crevice-favouring bat species is currently of a distinctly low likelihood.
 - For the large barn (granary) there are evidently suitable habitat conditions to enable two species of bat to utilise the structure for roosting, and importantly the colonial and maternity usage by a nationally rare species of bat – the lesser horseshoe species.
 - The more general survey location and local habitat quality and connectivity are generally also used by a small range of bat species for commuting and foraging.
- 4.3 ***Appraisal.*** Further survey effort would probably locate a greater quantity of species evidence in terms of foraging and commuting zones, seasonal variation in activity and species assemblage in the area but the main conclusion of this survey is that the surveyed small barn (cider mill) and lean-to's do not currently serve to house or support any protected species, notably bats, and that the large barn (granary) does currently serve as the roost site for two species of bat.

- 4.4 The requirements of the bats using the broader location have not at this time been fully ascertained.
- 4.5 It could not be ruled out that bats are not occasionally using other parts of the buildings or structures at this location, or that they would not be present should work take place, therefore a strong precautionary approach should generally be followed to any building maintenance or repairs. Should any bats be discovered during works (or suspicion arise about the possible presence of bats, for instance in a timber joint, behind a cavity, or within stonework etc), that work must cease immediately and the licensed consultant employed to establish bat presence or otherwise. The situation would then be assessed in the light of that evidence.
- 4.6 It must be noted that any work schedule may well be affected should bats be discovered. It is important to note that certain bat species do not occupy the internal volume of roofs and can often be supported between, for example, felt lining and the roof covering of buildings or, for example, beneath roof ridge tiles, flashing etc and along wall tops.

Need for European Protected Species disturbance licence

- 4.7 We consider that a licence for bats is currently required for any potentially disruptive works to the surveyed large barn (granary) at the site at Moorend Farm.

Additional recommendations

- 4.8 Building work and site clearance activities should not continue where breeding birds are actively nesting. Practically this season extends throughout the summer with second and sometimes third broods. (Current evidence of breeding bird activity was identified within the two barns).

- 4.9 Any modern development proposals should provide for significant opportunity to enhance retained natural features in the local landscape which could benefit both bats and breeding birds. Retention of trees and the creation of additional scrub and hedgerow links could maintain or indeed improve habitat connectivity. Opportunities exist at the planning stage to incorporate features such as artificial bird and bat boxes for breeding and hibernation in retained trees and on buildings, and the general ecological enhancement of the area.

Personnel

The survey was carried out by Stephen West MSc MACMA MIEEM, and assisted by Julia West BSc (Hons) MSc PGCE (HEd), and Dr David Lee CPhys MInstP.

Stephen P.B. West (Principal) is an ecologist with twenty years experience of environmental consultancy, over twenty-five years of project management work and habitat management experience. He possesses a Master of Science degree (with distinction) in Habitat Creation and Management. Stephen is an experienced ecological surveyor and consultant and served on the National Council of the Bat Conservation Trust in the 1990s. He has worked with bats for three decades in the UK and abroad, and held an English Nature / Natural England licence to disturb bats for the purposes of science and education or conservation since 1991 (Licence no. 20114144). Stephen is the founding chairman of the Worcestershire Bat Group, the Treasurer of the West Midlands branch of the Institute of Ecology and Environmental Management and a longstanding, fully accredited member of the Countryside Management Association. He holds a number of Natural England and Countryside Council for Wales protected species conservation licences including great crested newt, barn owl and hazel dormouse. His work has involved extensive development of mitigation plans and DEFRA licence applications, ecological impact assessments, ecological management plans and appearing as expert witness at public inquiry. Europaeus Land Management Services was established in 1993 by Stephen and has held management and consultancy contracts with a great many organisations and private individuals.

Julia West is a scientist and an experienced surveyor and has assisted on survey work for over two decades. Dr Lee is a physicist with particular expertise in sounds and sound analysis and several years of ecological survey work for bats.

Appendix 1: Survey photographs



Plate 1 View of the southern elevation of the large barn showing the hop kilns at the western end



Plate 2 View of the large barn showing the unglazed window where the horseshoe bats were accessing the first floor room prior to flying into the loft space



Plate 3 View of large barn western end showing a small lavatory structure at the base of the kilns



Plate 4 View of the kiln towers showing the poor condition and lack of covering of much of their structure



Plate 5 View of the inside of the roof of the large barn

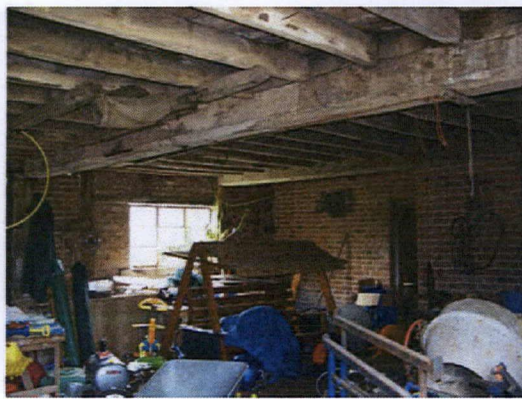


Plate 6 View of the interior of ground floor of the large barn

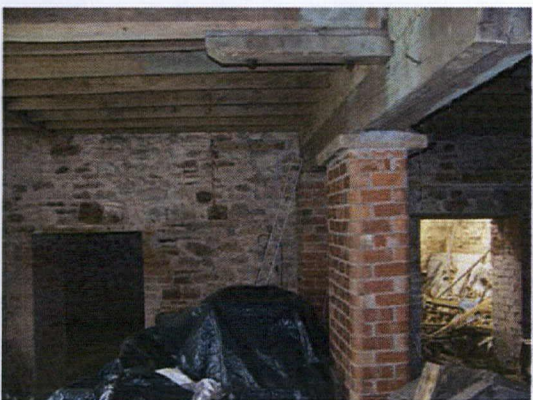


Plate 7 Further view of the interior of the large barn



Plate 8 Interior view of the hop kiln towers



Plate 9 View of accumulated horseshoe bat droppings beneath an alcove in one of the two first floor rooms of the large barn



Plate 10 Showing that roosting alcove



Plate 11 Showing the first floor room with hole in ceiling above which the horseshoe bats were roosting



Plate 12 Showing a group of the bats in residence



Plate 13 The smaller barn from the south-eastern corner showing the exterior staircase

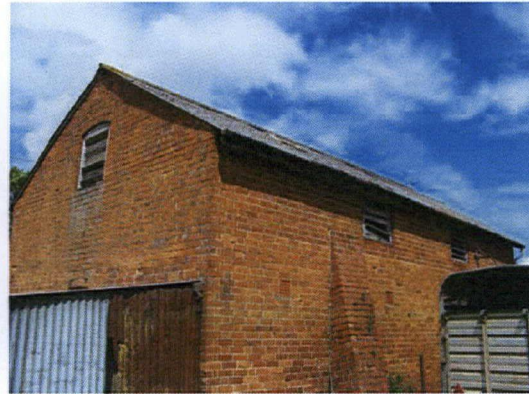


Plate 14 Showing the northern elevation of the smaller barn



Plate 15 The ground floor of the smaller barn



Plate 16 The Upper floor of the smaller barn with tightly jointed timbers



Plate 17 The underside of the roof of the smaller barn showing the nature of the roof components

Appendix 2: Data Received from Herefordshire Biological Records Centre

PO Box 230, Hereford, HR1 2ZB.

Telephone: (01432) 261538. Fax: (01432) 261802. Email enquiries: hbr@herefordshire.gov.uk

Stephen West
Europaeus Land Management Services
22 Orlin Road
Colwall
Herefordshire
WR13 6HA

1st July 2011

Our reference: 1555

Dear Stephen

SO577424

SPECIES RECORDS

Further to your request, I have conducted a search of the database for the area you identified. These records are attached along with a map indicating their distribution.

Grid references containing a combination of letters and numbers, for example 'SO54E' are formulated according to the **DINTY** system. Such records are often from botanical recording, whereby a 10km square is divided into twenty-five equal 2km x 2km squares, each alpha-coded, thus:

E	J	P	U	Z
D	I	N	T	Y
C	H	M	S	X
B	G	L	R	W
A	F	K	Q	V

Therefore the correct full grid references for SO54E are as follows: SO5048, SO5049, SO5148 and SO5149 i.e. four 1km squares.

Records of badger setts have been revealed within your search area(s). These records (and additional advice and guidance) can be provided by Herefordshire Badger Group. Please contact them for further information: Louise Hamilton Tel. (01600) 890830, e-mail herefordshire@badger-groups.org.uk

Please keep location details of any bat, badger or newt records confidential.

DESIGNATED SITES

A search for statutory designated sites revealed no sites within your area.

HABITAT INFORMATION

Finally, please find attached a map showing BAP Priority Habitats within 1km. Please be aware that where Natural England National Inventory BAP Priority Habitats data and HBRC BAP Priority Habitats data overlap in the BAP habitats map that you have been sent HBRC data has been supplied. This is because HBRC data is considered to be more reliable.

Please get in touch if you have any queries.

Yours sincerely,

Emma Wall
Ecologist (HBRC)
Encs.

Terms and Conditions for the supply of data

1. Copyright of all records remains with the recorder, and of the collated data with Herefordshire Biological Records Centre.
2. No copies of data are to be made for use by third parties, without written permission from Herefordshire Biological Records Centre.
3. Permission must be obtained in writing from Herefordshire Biological Records Centre if the data supplied is to be used for any other purpose than that described on the Data Request Form.
4. Data are provided subject to ongoing approval for use from individual recorders, local recording groups or national recording schemes. Should such providers of data withdraw permissions for use of these data, the requestor may be obliged to remove relevant data from records.
5. The data must not be entered onto a computerised database or GIS without permission from Herefordshire Biological Records Centre.
6. Herefordshire Biological Records Centre shall be acknowledged in any report relating to data supplied, and we would appreciate any details of biological records resulting from any survey undertaken.
7. Permission to use data expires 12 months after its supply. Applications to extend beyond this period should be made before the expiry date.
8. Data are as held by Herefordshire Biological Records Centre. Past records of presence of a species or habitat do not guarantee continued occurrence. Absence of records does not imply absence of a species, merely that no records are held.
9. Data are provided *without prejudice* and according to our Charging Policy, which is available on request. Commercial users are always subject to our Charging policy. Further to your request we will provide you with a quotation for processing of information and/or biological records; if this quotation is acceptable we will require approval in writing via letter or fax in order to proceed. Voluntary recording societies and local naturalists are generally exempted from this Policy.

Present Charge Rates are based on £60 per hour, exclusive of VAT.

Box 230, Hereford, HR1 2ZB.
Telephone: (01432) 261538. Fax: (01432) 261802. Email enquiries:
hbrc@herefordshire.gov.uk

FURTHER INFORMATION REGARDING SPECIES STATUSES

Note that any status listed on data provided by HBRC is provided as a guide only and not a statement of law. Full reference must instead be made to relevant documentation or legislation.

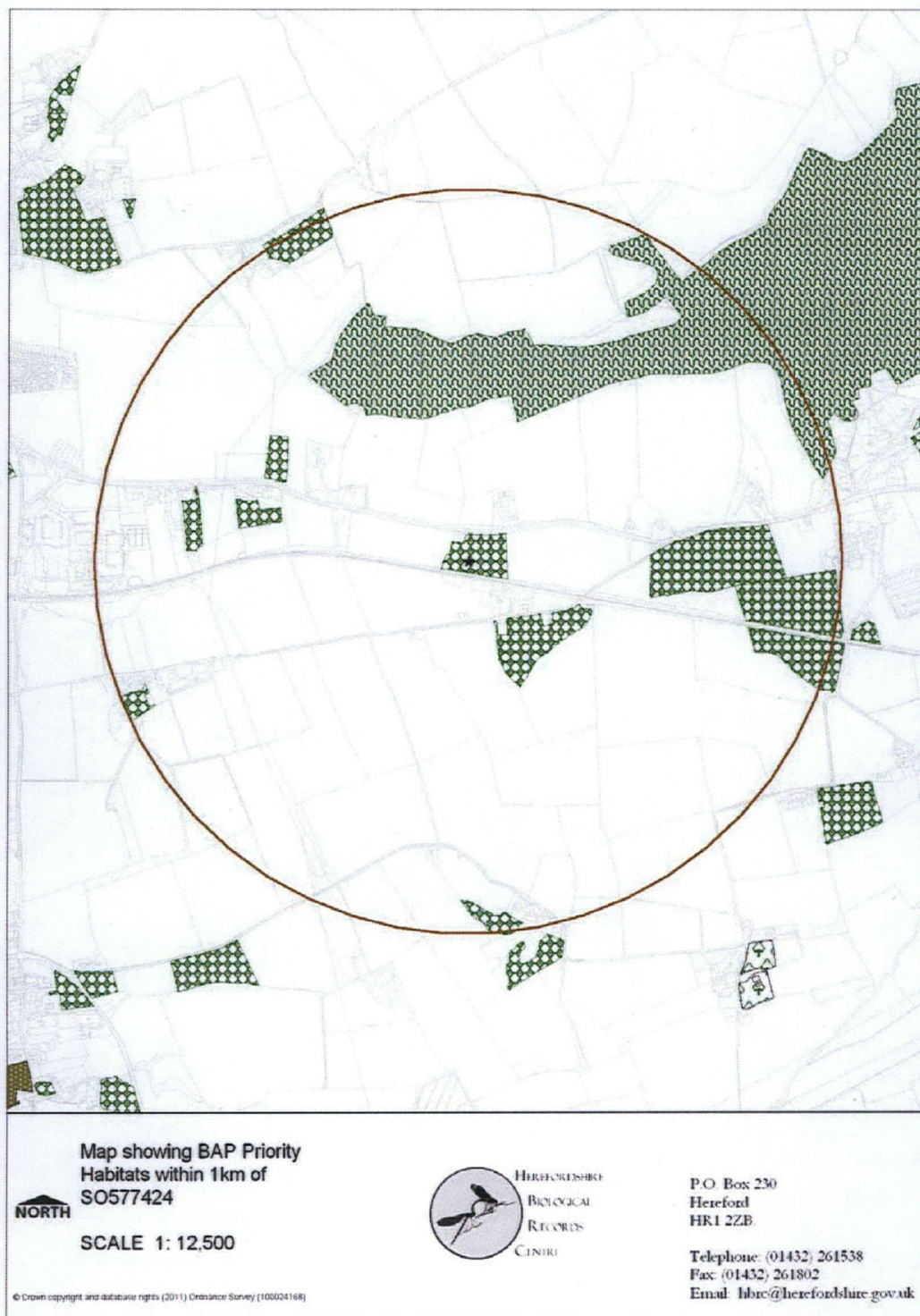
Data Search Code	Status Code	Full Title	Description
S1	PBA	Protection of Badgers Act (1992)	The Protection of Badgers Act 1992 protects badgers from taking, injuring, killing, cruel treatment, selling, possessing, marking and having their setts interfered with, subject to exceptions.
S1	Berne1	Berne Convention Appendix 1	Special protection ('appropriate and necessary legislative and administrative measures') for the plant taxa listed, including prohibition of deliberate picking, collecting, cutting, uprooting and, as appropriate, possession or sale.
S1	Berne2	Berne Convention Appendix 2	Special protection ('appropriate and necessary legislative and administrative measures') for the animal taxa listed, including: All forms of deliberate capture and keeping and deliberate killing; The deliberate damage to or destruction of breeding or resting sites; The deliberate disturbance of wild fauna, particularly during the period of breeding, rearing and hibernation, insofar as disturbance would be significant in relation to the objectives of this Convention; The deliberate destruction or taking of eggs from the wild or keeping these eggs even if empty; the possession of and internal trade in these animals, alive or dead, including stuffed animals and any readily recognisable part or derivative thereof, where this would contribute to the effectiveness of the provisions of this article.
S1	BD1	Birds Directive Annex 1	Birds which are the subject of special conservation measures concerning their habitat in order to ensure their survival and reproduction in their area of distribution. As appropriate, Special Protection Areas to be established to assist conservation measures.
S1	HabsRegs2	The Conservation (Natural Habitats, &c.) Regulations 1994 (Schedule 2)	European protected species of animals (i.e. species listed in Annex IVa of the Habitats Directive).
S1	HabsRegs4	The Conservation (Natural Habitats, &c.) Regulations 1994 (Schedule 4)	European protected species of plants (i.e. species listed in Annex IVb of the Habitats Directive).

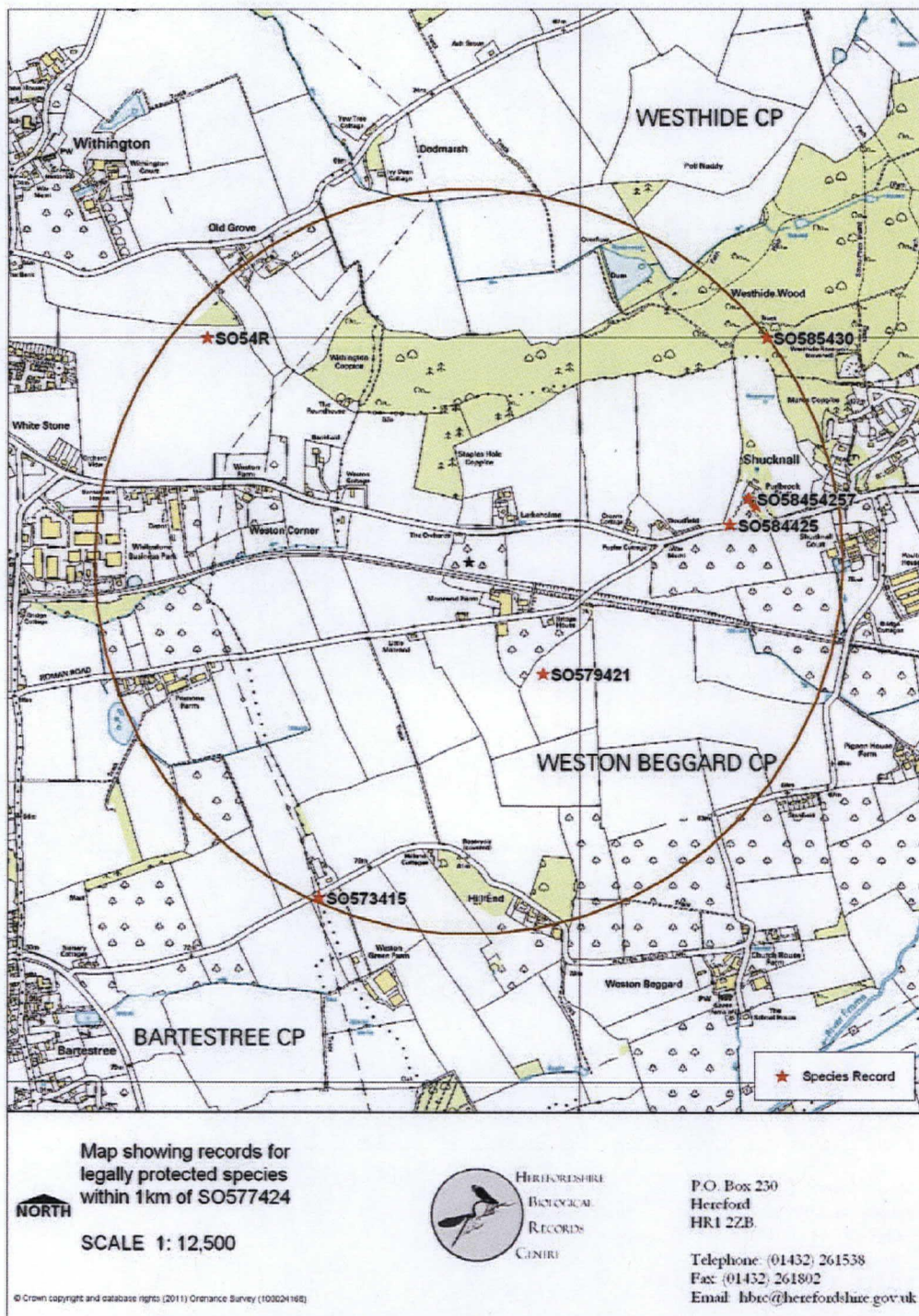
S1	HSD2np	Habitats and species directive Annex 2 - priority species	Species which are endangered, the conservation of which the Community has a particular responsibility in view of the proportion of their natural range which falls within the territory of the Community. They require the designation of special areas of conservation (SACs)
S1	HSD2p	Habitats and species directive Annex 2 - non-priority species	Animal and plant species of Community interest (i.e. endangered, vulnerable, rare or endemic in the European Community) whose conservation requires the designation of special areas of conservation.
S1	HSD4	Habitats and species directive Annex 4	Animal and plant species of Community interest (i.e. endangered, vulnerable, rare or endemic in the European Community) in need of strict protection. They are protected from killing, disturbance or the destruction of them or their habitat.
S1	WCA1i	Wildlife and Countryside Act 1981 (Schedule 1 Part 1)	Birds which are protected by special penalties at all times.
S1	WCA1ii	Wildlife and Countryside Act 1981 (Schedule 1 Part 2)	Birds which are protected by special penalties during the close season.
S1	WCA5/9.1k/l	Wildlife and Countryside Act 1981 (Schedule 5 Section 9.1 (killing/injuring))	Section 9.1. Animals which are protected from intentional killing or injuring.
S1	WCA5/9.1t	Wildlife and Countryside Act 1981 (Schedule 5 Section 9.1 (taking))	Section 9.1 Animals which are protected from taking.
S1	WCA5/9.2	Wildlife and Countryside Act 1981 (Schedule 5 Section 9.2)	Section 9.2 Animals which are protected from being possessed or controlled (live or dead).
S1	WCA5/9.4a	Wildlife and Countryside Act 1981 (Schedule 5 Section 9.4a)	Section 9.4 Animals which are protected from intentional damage or destruction to any structure or place used for shelter or protection.
S1	WCA5/9.4b	Wildlife and Countryside Act 1981 (Schedule 5 Section 9.4b)	Section 9.4 Animals which are protected from intentional disturbance while occupying a structure or place used for shelter or protection.

S1	WCA5/9.5a	Wildlife and Countryside Act 1981 (Schedule 5 Section 9.5a)	Section 9.5 Animals which are protected from being sold, offered for sale or being held or transported for sale either live or dead, whole or part.
S1	WCA5/9.5b	Wildlife and Countryside Act 1981 (Schedule 5 Section 9.5b)	Section 9.5 Animals which are protected from being published or advertised as being for sale.
S1	WCA5/9.4c	Wildlife and Countryside Act 1981 (Schedule 5)	Animals which are protected from their access to any structure or place which they use for shelter or protection being obstructed.
S1	WCA8	Wildlife and Countryside Act 1981 (Schedule 8)	Plants which are protected from: intentional picking, uprooting or destruction (Section 13 1a); selling, offering for sale, possessing or transporting for the purpose of sale (live or dead, part or derivative) (Section 13 2a); advertising (any of these) for sale.
S2	UKBAP	UK Biodiversity Action Plan priority species	The UK List of Priority Species and Habitats contains 1150 species and 65 habitats that have been listed as priorities for conservation action under the UK Biodiversity Action Plan (UK BAP).
S2	Bred	Bird Population Status- red	Red list species are those that are Globally Threatened according to IUCN criteria; those whose population or range has declined rapidly in recent years; and those that have declined historically and not shown a substantial recent recovery.
S2	Bonn1	Bonn Convention Appendix 1	Endangered migratory species in danger of extinction throughout all or a significant portion of their range, and for which Range States are obliged to prohibit taking and to take protective measures to conserve. (Note that taking may be permitted in some circumstances)
S2	Bonn2	Bonn Convention Appendix 2	Migratory species having an unfavourable conservation status for which Range States are encouraged to conclude international agreements for their benefit.
S2	CITESA	EC CITES Annex A	All CITES Appendix I species. Some CITES Appendix II and III species, for which the EU has adopted stricter domestic measures. Some non-CITES species.
S2	CITESB	EC CITES Annex B	All other CITES Appendix II species not listed in Annex A. Some CITES Appendix III species. Some non-CITES species.
S2	CITESC	EC CITES Annex C	All other CITES Appendix III species not listed in Annex A or Annex B.

S2	CITESD	EC CITES Annex D	Some CITES Appendix III species for which the EU holds a reservation (CITES reservations: English, French, Spanish). Some non-CITES species.
S2	Sect.41	Natural Environment & Rural Communities Act 2006 - Species of Principal Importance in England (s41)	Species "of principal importance for the purpose of conserving biodiversity" covered under section 41 (England) of the NERC Act (2006) and therefore need to be taken into consideration by a public body when performing any of its functions with a view to conserving biodiversity.
S2	HBAPPS	Herefordshire BAP Priority Species	Species which occur on the Herefordshire Biodiversity Action Plan Priority Species List. Please see http://www.herefordshire.gov.uk/herefordbap/ for further details.
S2	BCRP	Butterfly Conservation West Midlands Regional Action Plan: High Priority Species	Butterflies selected as high priorities according to four criteria for estimated rate of decline in 10km squares or proportion of regions' area or national resource or other justification. Moths selected as high priority moths for this region by Dr Paul Waring (see Bourn, Warren & Kirkland 1996) and all occur in less than 15 10km squares nationally. http://www.butterfly-conservation.org/downloads/74/Regional_Action_Plans.html for further information.
S3	BAmb	Bird Population Status- amber	Amber list species are those with an unfavourable conservation status in Europe; those whose population or range has declined moderately in recent years; those whose population has declined historically but made a substantial recent recovery; rare breeders; and those with internationally important or localised populations.
S3	NR(vp) NS Na Nb N	Non IUCN Red Listing (Various Guidelines)	Nationally Notable (Nationally Scarce, Nationally Notable, (classes A and B) and Notable) species as compiled within various Reviews, Status Assessment and assessed using non-IUCN methodologies (these are usually based on distribution alone).
S3	RLGB.EX RLGB.EW RLGB.CR RLGB.EN RLGB.VU RLGB.NT RLGB.REX	IUCN Red GB Listing (various guidelines)	Extinct (EX), Extinct in the Wild (EW), Critically Endangered (CR), Endangered (EN), Vulnerable (VU), Near Threatened (NT), Regionally Extinct (REX) species evaluated against IUCN criteria.
S3	RLGLB.CR RLGLB.EN RLGLB.VU RLGLB.LR(cd) RLGLB.Lr(NT)	IUCN Red Global Listing (various guidelines)	Critically Endangered (CR), Endangered (EN), Vulnerable (VU), Lower risk - conservation dependent (LR(cd)), Lower risk - near threatened (Lr(NT)) species evaluated against IUCN criteria.
S3	BCRM	Butterfly Conservation West Midlands Regional Action Plan: Medium Priority Species	Butterflies selected as medium priorities according to four criteria for estimated rate of decline in 10km squares or proportion of regions' area or national resource or other justification. Moths selected as medium priorities include all Red Data Book (RDB) species and all nationally notable (Na or Nb) species which are currently known to occur in the region. Please see http://www.butterfly-conservation.org/downloads/74/Regional_Action_Plans.html for further information.

S3	HBAPCC	Herefordshire LBAP: Conservation Concern Species	Species listed as Species of Conservation Concern within Herefordshire LBAP. Please see http://www.herefordshire.gov.uk/herfordbap/ for further details.
S4	HBAPSR	Herefordshire LBAP: Research	Species listed as Priorities for Species Research within Herefordshire LBAP. Please see http://www.herefordshire.gov.uk/herfordbap/ for further details.
S4	RLGB.DD	IUCN Red Listing (various guidelines)	Data Deficient (DD) species evaluated against IUCN criteria. Those species evaluated to Insufficient or Indeterminate using pre-1994 IUCN criteria have been grouped with Data Deficient.





Natural England National Inventories BAP Priority Habitats	Herefordshire Biological Records Centre BAP Priority Habitats
 Blanket Bog  Coastal and Floodplain Grazing Marsh  Deciduous Woodland  Fen  Lowland Calcareous Grassland  Lowland Dry Acid Grassland  Lowland Heathland  Lowland Meadow  Lowland Raised Bog  Maritime Cliff and Slope  Purple Moor Grass and Rush Pasture  Reedbed  Traditional Orchard  Undetermined Grassland  Upland Hay Meadow  Upland Heathland	 Ancient and/or species rich hedgerows  Coastal and floodplain grazing marsh  Deciduous Woodland  Fens  Good quality semi-improved grassland  Lowland beech and yew woodland  Lowland calcareous grassland  Lowland dry acid grassland  Lowland heathland  Lowland meadows  Lowland mixed deciduous woodland  Ponds  Purple Moor-Grass & Rush pasture  Reedbeds  Rivers  Traditional Orchard  Upland calcareous grassland  Upland Heathland  Upland Mixed Ashwoods  Upland oak woodland  Wet woodland  Wood-Pasture & Parkland



BAP Priority Habitats Map Legend



HEREFORDSHIRE
BIOLOGICAL
RECORDS
CENTRE

P.O. Box 230
Hereford
HR1 2ZB

Telephone: (01432) 261538
Fax: (01432) 261802
Email: hbrcc@herefordshire.gov.uk

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SO577424

Records for legally protected species within 1km

Species		Status, if known	Grid Ref.	Year	Measurement
Bats	<i>Chiroptera</i>		SO584425	2007	1+ Signs
Bats	<i>Chiroptera</i>		SO584425	2007	1+ Droppings
Plecotus	<i>Plecotus</i>	CMS_A2, HabRegs2, WCA5/9.4b, WCA5/9.4c, WCA5/9.5a, WCA5/9.5b	SO584425	2007	1+ Droppings
Unidentified Bat	<i>Myotis</i>	CMS_A2, HabRegs2, WCA5/9.4b, WCA5/9.4c, WCA5/9.5a, WCA5/9.5b	SO584425	2007	2 In flight
Unidentified Bat	<i>Myotis</i>	CMS_A2, HabRegs2, WCA5/9.4b, WCA5/9.4c, WCA5/9.5a, WCA5/9.5b	SO58454257	2007	3 Roosting
Plecotus	<i>Plecotus</i>	CMS_A2, HabRegs2, WCA5/9.4b, WCA5/9.4c, WCA5/9.5a, WCA5/9.5b	SO58474255	2007	1 Roosting
Otter	<i>Lutra lutra</i>	Bern2, CITESA, HabRegs2, HBAPCC, HBAPPS, HSD2p, HSD4, Sect.41, UKBAP, WCA5/9.4b, WCA5/9.4c, WCA5/9.5a, WCA5/9.5b	SO573415	2003	1 Dead
Otter	<i>Lutra lutra</i>	Bern2, CITESA, HabRegs2, HBAPCC, HBAPPS, HSD2p, HSD4, Sect.41, UKBAP, WCA5/9.4b, WCA5/9.4c, WCA5/9.5a, WCA5/9.5b	SO573415	2003	1 Dead
Great Spotted Woodpecker	<i>Dendrocopos major</i>	Bern2	SO579421	2003	1 Nest
Bluebell	<i>Hyacinthoides non-scripta</i>	HBAPCC, WCA8	SO54R	1991	Present
Common Dormouse	<i>Muscardinus avellanarius</i>	HabRegs2, HBAPCC, HBAPPS, HSD4, Sect.41, UKBAP, WCA5/9.4b, WCA5/9.4c, WCA5/9.5a, WCA5/9.5b	SO585430	1991	1 Present

Appendix 3: Bat echolocation recordings

Figure 1: Lesser horseshoe bat on the evening of 8 August 2011

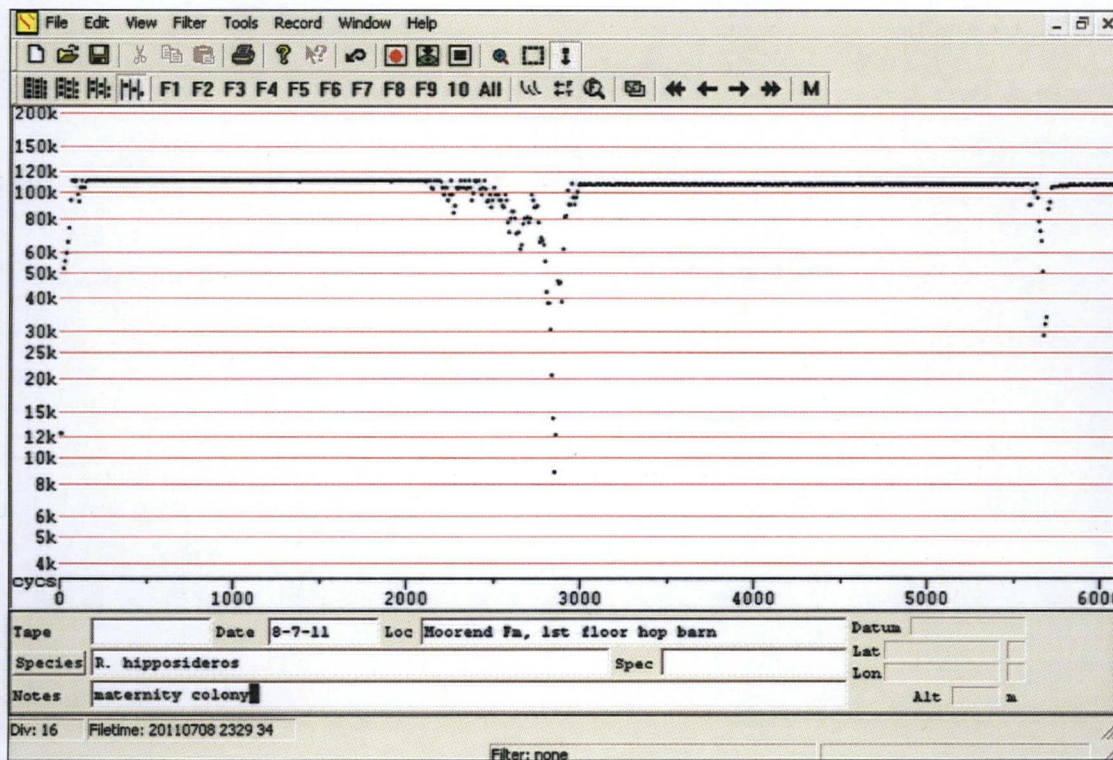


Figure 2: Common pipistrelle bat on the evening of 25 July 2011

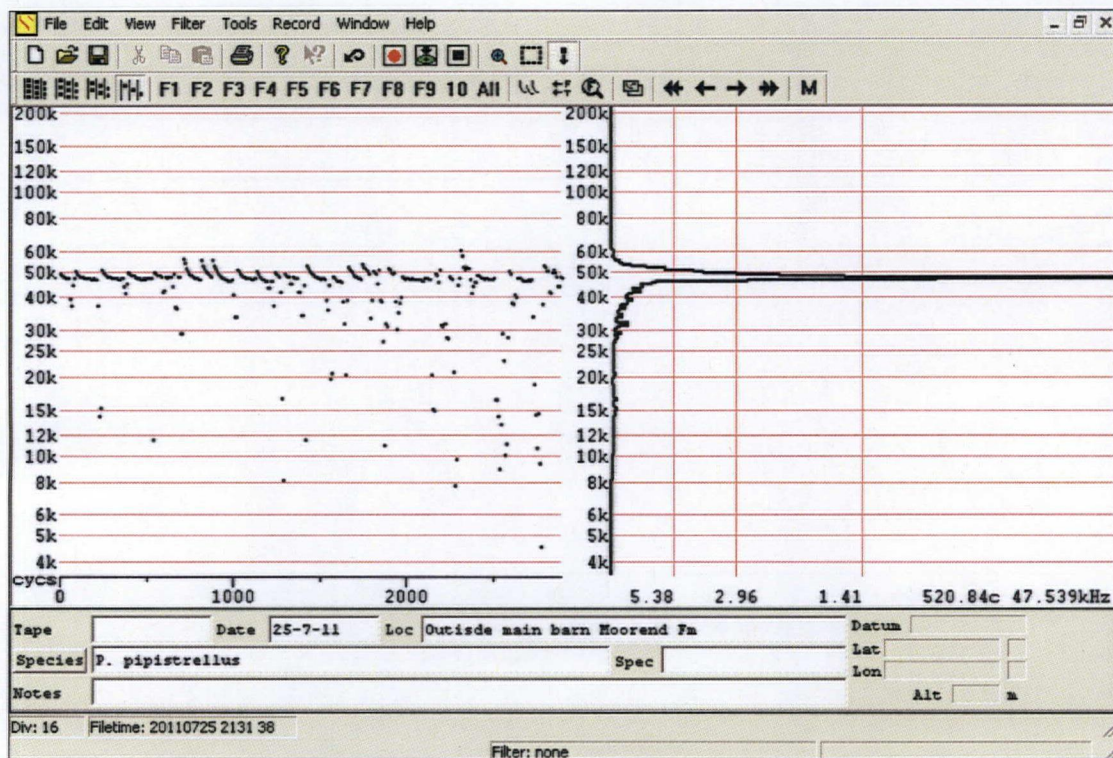
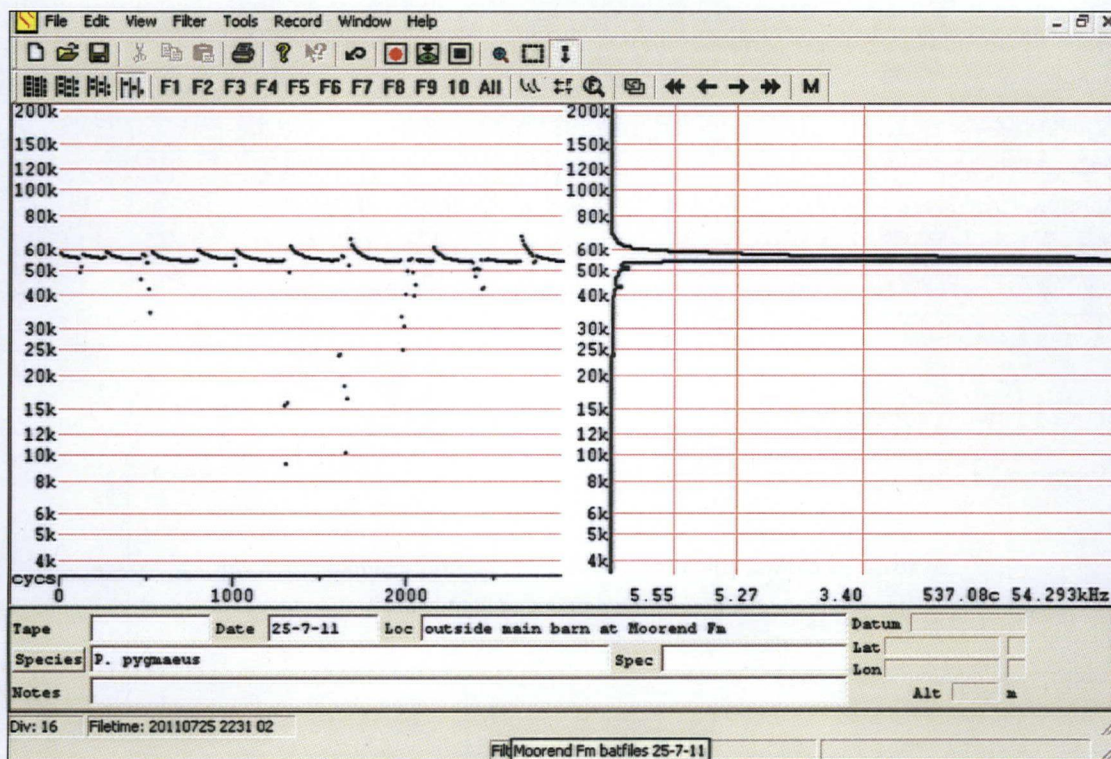


Figure 1: Soprano pipistrelle bat on the evening of 25 July 2011



Appendix 4: Aggregate survey data from bat activity assessment

Table 1 : Bat species mentioned in text

<i>Myotis bat (narrowband), possibly mystacinus or brandtii</i>	Whiskered or brandt's bat
<i>Nyctalus noctula</i>	Noctule bat
<i>Pipistrellus pipistrellus</i>	Common pipistrelle bat (45kHz)
<i>Pipistrellus pygmaeus</i>	Soprano pipistrelle bat (55kHz)
<i>Plecotus auritus</i>	Brown long-eared bat
<i>Rhinolophus hipposideros</i>	Lesser horseshoe bat

Table 2 : The bat activity data

8-7-11	Activity Survey 1 : Windspeed almost still, Cloud cover 50%, Relative humidity 63 - 80%, Temperature range 14 – 11.5°C
21.00	Commence activity survey
22.01	45 kHz Pipistrelle bat identified on exiting flight to the north of the main barn from an evident roost on the roof of the farmhouse. Followed by up to 25 others. Several remained around the site foraging for the duration of the survey.
22.42	Long-eared bat identified flying in and out of the main barn at ground level through open doors
23.10	Second long-eared bat identified recorded (possibly the same bat)
23.16	Lesser horseshoe bats exited the roost in the main barn. Seven adult bats observed.
23.45	Terminate activity survey 1

25-7-11	Activity Survey 2 : Windspeed almost still , Cloud cover 95%, Relative humidity 51 - 49%, Temperature range 22.3 – 20.1°C
20.45	Commence survey : six adult lesser horseshoe bats (and possibly others) counted in the large barn roost
21.23	First 45 kHz Pipistrelle bat emergence from the farmhouse roost. Again a modest number of bats exited the structure but surveyors concentrated on the two barns under scrutiny. At least two of the pipistrelle bats remained at the location and foraged around the orchard / garden.
21.37	Lesser horseshoe bat identified active in the upper level of the main large barn, exited the barn at 21.52 and flew away to the north. All adult bats had left the roost by 22.55 leaving three obviously young bats in the roost.
22.17	(Narrowband) <i>Myotis</i> bat identified flying between the two barns
22.23	55 kHz Pipistrelle bat identified flying across the site
22.40	Noctule bat commuting pass
23.05	Terminate activity survey 2

19-8-11	Activity Survey 3 : Windspeed still, Relative humidity 73 - 85%, Temperature range 9.2 – 6.5°C
03.55	Commence active phase of activity survey 3
	Single lesser horseshoe bat identified in known roost.
05.20	Single long-eared bat perching in the lean-to at the northern side of the large barn.
05.25	5 horseshoe bats observed to enter known roost in quick succession via an open first floor door on the northern elevation of the barn by the lean-to
	Sporadic passes of common pipistrelle bats
06.00	Terminate activity survey 3

Appendix 5: Mitigation Plan

Our proposed mitigation strategy is based on the knowledge that bats of several species utilise the survey envelope, and two species use the large barn (granary) to serve as day roost (very low numbers or individuals of long-eared bats, and small colonial and maternity roost of lesser horseshoe bats), which would otherwise be disturbed by the development proposals.

This mitigation of the build process is based around creating a continued and suitable roosting habitat for this range of bat species, roost space access points, and timing of the repair and modification works to the large barn.

For bats the **mitigation measures** recommended involve the work methodology and timing and are briefly as follows:-

1. to develop and submit for a licence to disturb a European protected species to the Wildlife Licensing Unit of Natural England in advance of the proposed work schedule (following full planning consent)
2. to follow a precautionary approach with regard to all proposed work to any parts of the structure. It is thought prudent to instigate the work during the least vulnerable time of year for bats and for breeding birds (such as the resident swallows, and wrens) thus the building stripping works would take place after planning consent and be executed during the late spring / early summer or autumn season and after a further successful check for bats' continuing absence, and a dawn pre-commencement activity survey. An early completion of this work would permit occupation of both birds and bats with the new provisions for their encouragement. (Because of the presence of the colony of horseshoe bats work to this part of the structure would be carefully timed to enable the bats to get used to their altered access route to their roost which is to be retained. Thus this part of the build process would actually take place during the late summer when bats are still resident.)
3. to provide secure suitable roosting accommodation within the development scheme (herewith outlined),

4. to ensure the consultant is present for the stripping phase of the works to survey again for bats present as roofs, timbers and wall cores become newly exposed,
5. that should any additional bats be discovered during works (or suspicion arise about the possible presence of bats, for instance in a timber joint, behind a cavity, above roofing felt, or within stonework etc), that work would cease immediately and the licensed consultant employed to establish bat presence or otherwise,
6. to restrict lighting around the building site and final completed development to avoid hindrance to commuting or foraging zones (bulkhead lighting, no spot- or up-lighting),

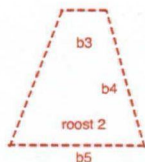
Bat roost facilities

A two fold approach is proposed to accommodate bats in the converted large barn, for the long-eared bats and any others of this type (such as niche or cavity dwelling "crawling" bats, like pipistrelles and bats of the *Myotis* genus), and a retention, albeit with altered access for the lesser horseshoe bats, in their known and identified existing roost location.

The roof structure of the repaired twin hop kilns will provide a substantial volume of "bat loft" (max height internal of 2.5m and diameter of 2.8m and each of 8.5m³ volume). These will be slated and bitumen felt lined, with suitable bat access slate cut-outs into both towers. Internally three Schwegler 1FF bat boxes will be installed in each cowled void at 2m from floor level.

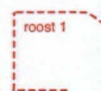
The eastern end of the barn with the two first floor rooms would be partitioned off from the rest of the building works so that bats can still use the unglazed window opening and remain undisturbed in their roost to enable a successful breeding season. However, towards the end of the summer the existing roof void above the southern of the two first floor rooms of the large barn will be left for the bats but will need the hole in the ceiling to be patched and replaced with an access hatch. Prior to this, at the late summer phase of works, a new dormer entrance of 750mm x 500mm will be constructed in the hipped end slope of that roof void. This will be lowdown on the slope in respect to the loft void such that bats will continue to fly up and in to this void, and will be sufficiently long to incorporate a wind and light baffle structure. Only when bats are observed to have acclimated to this feature and commenced using it, perhaps by carefully observed temporary blocking of the ceiling hole over several nights, will that hole then be properly sealed off to leave the new dormer entrance the sole access point for the bats. Insulation etc will only take place after the bats have left this space in the autumn for their winter accommodation.

It is proposed that provision is also made for swallow nesting within these development proposals thus incorporating multiple swallow nest boxes (form number 10 from Schwegler) wherever a suitable structure exists.

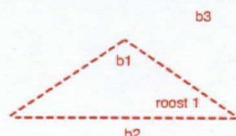


Granary

Farmhouse



Front Elevation - South



Living Room

Bedroom

Hall

Bedroom

Side Elevation - East

Typical Section

CONSTRUCTION OF BAT ROOSTS (shown in red)

Roost 1 within existing roof space

Roost will have a max height of 1.6m and a max plan of 4.8m x 3.8m. Volume will be 7.1 cu/m. Existing slate and bitumen roofing felt to be left as is.
b1 - form new dormer louvred opening with internal baffle, faced externally with lead. Frame size 750mm wide x 450mm high.
b2 - form roof access trap in existing ceiling with lockable and signed inspection hatch. Insulate at ceiling level with mineral wool and cover with building paper (to protect ceiling) with chipboard platform over.

Roosts 2 and 3 formed within existing cowls

Roosts will have a max height of 2.5m and a plan diameter of 2.8m, reducing to a diameter of 0.9m at ceiling level. Volume of each roost will be 8.5 cu/m.
 The cowls will be re-slated with natural slate over bitumen roofing felt.
b3 - slates fixed to permit bat access - ecologist to confirm positions and details.
b4 - internally hung Schwegler 1FF boxes, 3no to each roost at 2m above floor level.
b5 - form roof access traps in new ceilings above first floor with lockable and signed inspection hatch. New ceilings to be thermally and acoustically insulated with rigid urethane and mineral wool and covered with building paper (to protect ceiling) with chipboard platform over.
 All work to be carried out in accordance with the Ecologist's report and under his supervision.

NOTE

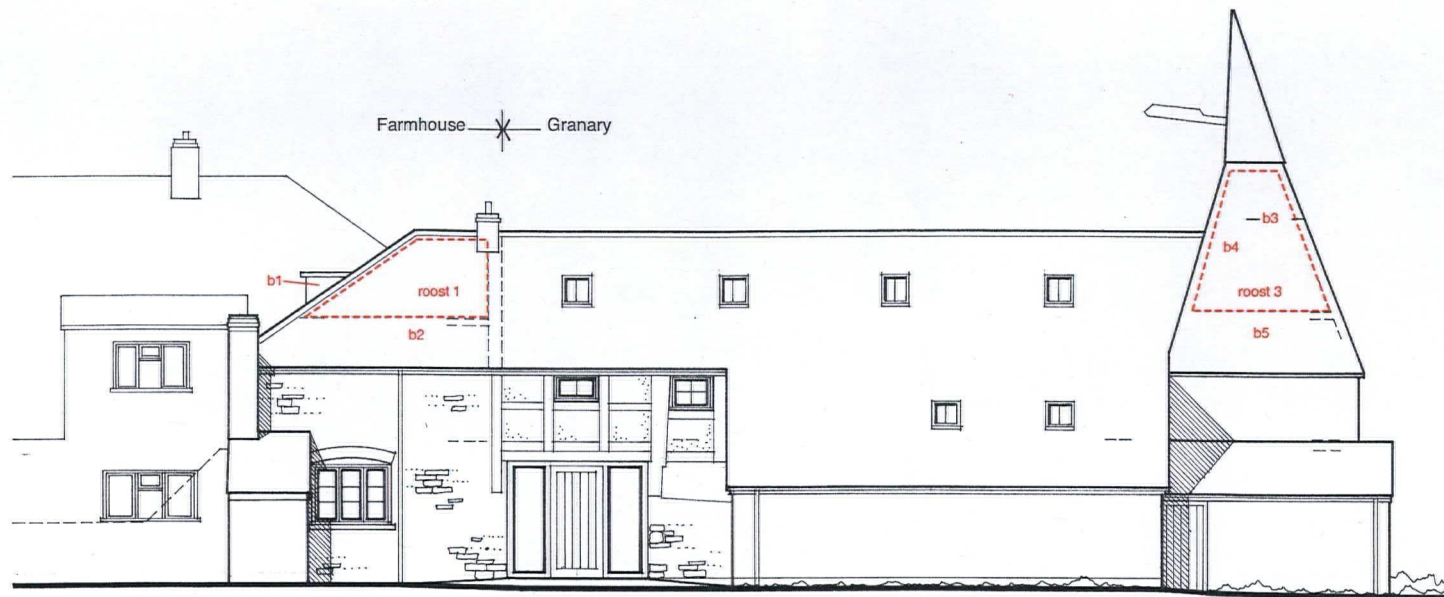
Fixed external lights placed on the elevations of the building must be kept to a minimum so as to avoid disturbance to bat flight and be sensitively located so as to avoid illumination of the key areas for bat flight around the yard. No lights to be placed on or near the part of the building devoted to bat lofts. Motion-activated security lights may be used provided that a maximum 150 Watt bulb is used and the light is set to the minimum duration and maximum sensitivity so as to avoid being set off by moths and other insects. Other low level forms of illumination may be used to enable the use of the building provided that they conform to the guidelines set out in 'Bats and Lighting in the UK' (BCT 2008).

MATERIALS

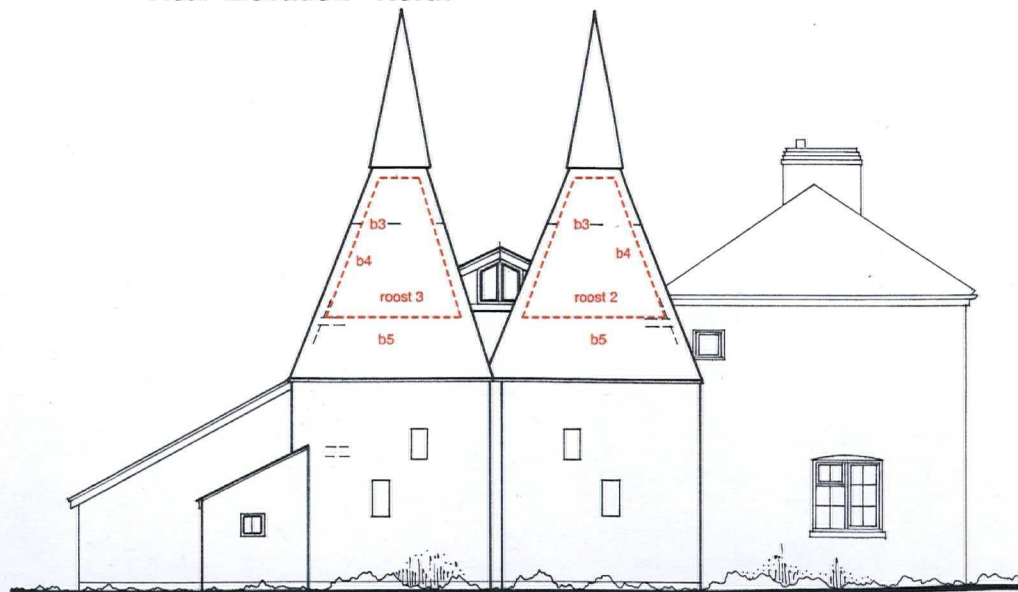
Roofs: Natural slate. Velux conservation rooflights, painted facias and barge boards. Existing timber weathervanes overhauled and repaired and returned to working condition. Existing slated roofs to main building left in-situ with missing or broken slates replaced with matching as necessary. Cowls to be re-slated over bitumen roofing felt.
Guttering and downpipes: Lindab galvanised steel, half round gutters, round downpipes.
Walls: Existing brickwork. Repair and repoint only as identified by Structural Engineer. Weatherboarding and repairs to timber frame as described on Floor Plans.
Doors and windows: painted timber windows and door frames. Doors in oiled oak. All paint colour Farrow and Ball French Gray 18.

REVISIONS

	<p>Proposed conversion of existing barns at Moorend Farm, Weston Beggard, Hereford</p> <p>Granary Proposed Elevations</p>	<p><input checked="" type="checkbox"/> This is not a complete working drawing; for Planning and Building Regulations use only. Additional information may be required as work proceeds. Do not scale.</p> <p><input type="checkbox"/> This is a drawing based on third party data and as such is subject to site survey.</p> <p><input checked="" type="checkbox"/> Services and ground investigation reports were not available at the date of issue. This drawing is for use only with the named site. Copyright © 2012. Original sheet size A3.</p> <p>0 2m</p>	<p>March 2012 Scale 1:100@A3</p> <p><input type="checkbox"/> Preliminary <input checked="" type="checkbox"/> First Issue <input type="checkbox"/> Revision</p> <p>Drawing No 749-04</p>
<p>30 Grove Road, Hereford, HR1 2QP • Tel/fax 01432 340107 • mail@axysdesign.co.uk T J Ford, MCIAT, ACIOB • Chartered Architectural Technologist • Building Design Consultant</p>			



Rear Elevation - North



Side Elevation - West

CONSTRUCTION OF BAT ROOSTS (shown in red)
See 739-04 and Ecologist's details.

MATERIALS

Roofs: Natural slate. Velux conservation rooflights, painted fascias and barge boards. Existing timber weathervanes overhauled and repaired and returned to working condition. Existing slated roofs to main building left in-situ with missing or broken slates replaced with matching as necessary. Cows to be re-slated over bitumen roofing felt.
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REVISIONS

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