Bat Assessment

Preliminary Roost Assessment and Roost Characterisation Surveys

of

Barn at The Leys
Adderbury
Banbury
OX17 3ER

for

Mr Nick Biggam

(29th March 2019)

2017-10(04)

Ryton Organic Gardens | Wolston Lane | Ryton-on-Dunsmore | Warwickshire | CV8 3LG | 02476 217727
Email: enquiries@ecolocation.org.uk Website: www.ecolocation.org.uk

Survey dates: 30th October 2017, 3rd November 2017, 18th June 2018 and 10th July 2018

Report Version	Date	Author:	Quality check by:	Approved by:
Original	29/03/19	Anna Scott-Swift BSc (Hons) MSc MCIEEM Technical Director	Jeff Grant BSc (Hons) ACIEEM Senior Ecologist	Anna Scott-Swift BSc (Hons) MSc MCIEEM Technical Director

Report updated on 13th November 2019 to include revised plans, no changes were made to the report content.

This report has been prepared in accordance with the CIEEM Guidelines for Ecological Report Writing Second Edition (2017) and is compliant with the CIEEM Code of Professional Conduct.

Summary

- A preliminary roost assessment of a stone barn and an existing dwelling was carried out at The Leys, Adderbury on the 30th October 2017 by a licensed bat surveyor in order to inform a future development at the Site.
- The habitat connectivity to the Site was considered good as the adjacent dismantled railway and hedgerows were well connected to the River Cherwell, agricultural land and a golf course, all of which were suitable for foraging bats.
- The result of this initial assessment in October 2017, together with DNA analysis, recorded evidence of 30 brown long-eared bat droppings and a small number of noctuid wings in the barn, with a moderate suitability for also supporting crevice-dwelling bats such as pipistrelle sp. in areas of the barn that were otherwise inaccessible to the surveyor during the initial inspection.
- This initial assessment also revealed a large number of potential access points for bats into the existing dwelling, with roosting opportunities in roof voids, on top of the ridgeboard and on top of the walls. No evidence of bats was recorded in Void A but there were three more roof voids that could not be accessed by the surveyor due to a lack of a loft hatch and the presence of an active wasps' nest. Therefore, it is possible that bat evidence in roof voids may have been missed. The overall suitability of building 1 for roosting bats was considered to be moderate.
- Detailed proposals were not available at the time of the initial visit, but it was subsequently understood that the barn would be converted to provide a residential dwelling whilst the existing dwelling would be retained and unaffected by the works and three dwellings would be erected in the rear garden of the dwelling.
- Consequently, two bat roost characterisation surveys were undertaken of the barn during June and July 2018 to determine the type of roosts, range of bat species, number of bats and access points, as well as to identify any additional bat roosts.
- These nocturnal surveys revealed two brown long-eared bats emerging from the south-west corner of the barn during the dusk survey with no bats seen to enter the building during the dawn survey. It is therefore concluded that the building is used occasionally as a day roost and feeding perch for two brown long-eared bats.
- As bat roosts have been identified, the proposed conversion of the barn will result in destruction of the day roost and feeding perch and, as the design of the barn cannot accommodate a suitable roof void, a Natural England derogation licence is therefore necessary for conversion works to proceed legally. This can only be applied for once planning permission has been granted and any bat-related conditions have been discharged.
- Detailed bat mitigation has been recommended for in section 5 and should form the basis of a Natural England licence application before April 2020 (otherwise updated bat activity surveys are likely to be needed).
- Bat mitigation for the barn will take the form of sensitive working practices, provision of permanent replacement roosting opportunities for bats prior to any disturbing works to the barn and a design of mitigation that is suitable for the species requirements. Retaining the bat roost has not been possible as it conflicts with the whole design of the scheme, instead, appropriate replacement roosting has been described and agreed with Mr Biggam to be included in the roof spaces above the bin store. Such measures, if implemented in full, will enable the maintenance of the favourable conservation of bat species at the Site post-development and, together with a small number of recommended enhancements for bats would, therefore, be compliant with national and local planning policies.
- As an inactive nest of a thrush species or wagtail species was recorded in the barn it is also recommended that, immediately prior to the start of any disturbing works, there should be a check of the building for nesting birds, to ensure none are present when works commence. Replacement nesting

opportunities for thrush/wagtail family birds are recommended within the scheme to ensure no net loss of nesting opportunities for this species at the Site.

Contents

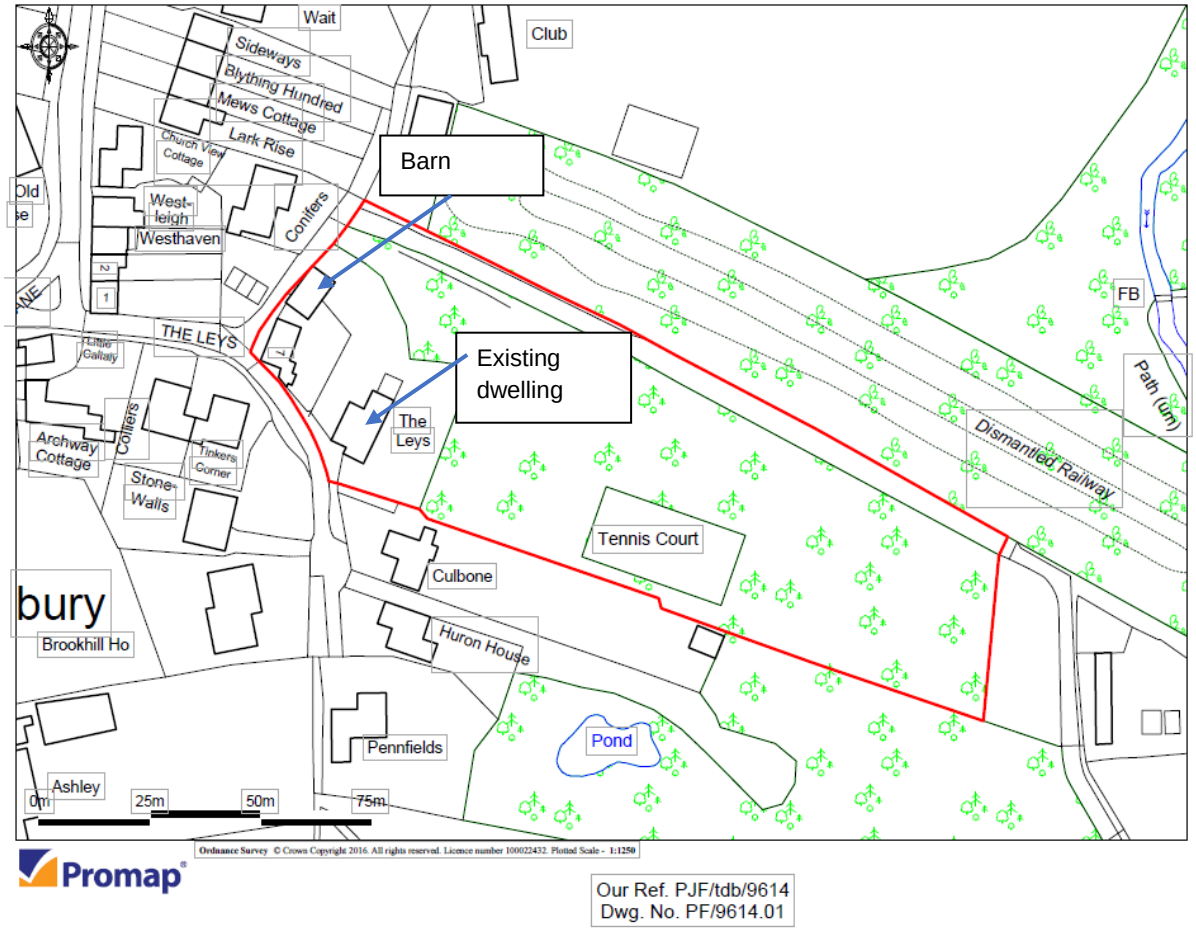
1. Introduction

1.1 Instruction

Ecolocation were commissioned by Framptons on behalf of Mr Nick Biggam to undertake a bat assessment of a residential dwelling and accompanying barn at The Leys, Adderbury in Oxfordshire (hereafter referred to as the 'Site'), which was understood would be subject to a future planning application for residential development.

1.1.1 Site Location

The Site (Grid Ref SP 46783 35232) was located in the village of Adderbury, approximately 5km south of Banbury. It was bordered by other large, detached residential dwellings off The Leys to the east, west and south, and by a small pocket of woodland along a dismantled railway to the north.



1.1.2 Proposed Plans

At the time of the surveys no detailed plans for the proposed works were available; however, these have subsequently been made available to enable the bat report to be completed and can be found in Appendix 1. They include conversion of the existing barn into a dwelling as well as the erection of three dwellings in the rear garden of The Leys.

1.2 Survey Purpose

The purpose of the survey and report was to:

- Assess the suitability of the buildings for roosting bats
- Identify presence/absence of bat roosts at the Site
- Determine the need for any further bat surveys to inform a mitigation scheme or a bat mitigation licence
- If bat roosts are present, if possible, determine species, access and egress points, roost type and size
- Assess the likely impact of the proposed works on bats
- If bat roosts are present, provide details of a bat mitigation strategy to maintain the favourable conservation status of the bat species in question
- Determine the need for a bat mitigation licence from Natural England

1.3 Legislation & Planning Policy

A number of UK and European legislation and policies deal with the conservation of biodiversity. This section briefly outlines the legal and policy protection afforded to bats and their habitats.

Bats and their roost sites are protected under UK and European legislation including the Wildlife and Countryside Act 1981 (as amended), Countryside Rights of Way Act 2000, the Conservation of Habitats and Species Regulations 2010 and the Habitats Directive. The legislation makes it an offence for any person to:

- Deliberately capture, injure or kill a bat.
- Intentionally or recklessly disturb bats, where that disturbance may affect the ability of those bats to survive, breed, rear or nurture their young, or is likely to significantly affect the local distribution or abundance of any bat species, whether in a roost or not.
- Damage or destroy a place of shelter (roost) of a bat, be that a resting or breeding place.
- Possess a bat, whole or in part, alive or dead.
- Intentionally or recklessly obstruct access to a roost
- Sell or offer for sale or exchange whole or parts of bats, alive or dead.

All species of birds are protected from disturbance under the Wildlife and Countryside Act 1981 (as amended) from the time when they begin nest construction until all of the young have naturally fledged. Barn owls benefit from additional protection under Schedule 1 of the Wildlife and Countryside Act 1981 (as amended), making it an offence to capture, kill or disturb barn owls at all times.

The ODPM Circular 06/05 makes the presence of a protected species a material consideration within the planning process. It states that it is essential for the presence of protected species and the extent they may be affected by proposed development be established through appropriate surveys before the planning permission is granted and encourages the use of planning conditions to secure the long-term protection of the species.

The National Planning Policy Framework (NPPF) section 15 outlines how applications need to conserve and enhance the natural environment. Paragraphs 174 to 177 state that sites with biodiversity value should be protected and enhanced, minimising impacts on biodiversity and establishing ecological connectivity. Furthermore, the protection of priority sites and species through developments is outlined and states where significant harm is unavoidable through alternatives or mitigation, planning permission should be refused. Finally, this section concludes that developments with aims to conserve or enhance biodiversity should be supported and any improvement around developments should be encouraged to achieve net gains for biodiversity.

Cherwell's Local Plan 2011-2031 Part One Adopted 2015 contains policy ESD 10 relating to environmental assets. This policy states that when considering proposals for development, a net gain in biodiversity will be sought by protecting, managing, enhancing and extending existing resources, and by creating new ones. It leads on to say that development proposals will be expected to incorporate features to encourage biodiversity … and where possible enhance existing features of nature conservation value within the site; in addition to identifying existing ecological networks and maintaining these to avoid habitat fragmentation.

2. Methodology

2.1 Desk Study

Prior to the site visit a desk-top data gathering exercise was undertaken. The MAGIC website was accessed to search for statutory designated sites within a 1km radius of the Site. The Thames Valley Environmental Records Centre (TVERC) was contacted for information on non-statutory designated sites and protected and notable species records within a 2km radius of the Site.

2.2 Preliminary Roost Assessment

The Site was visited by suitably experienced and licensed surveyor Anna Swift (Technical Director, MCIEEM), on two occasions - Monday 30th October 2017 and Friday 3rd November 2017. Weather conditions at the time of each survey were recorded. The total survey time took approximately 2.5 hours and weather conditions at the time of survey were recorded.

The daytime inspection was carried out in accordance with Bat Surveys for Professional Ecologists: Good Practice Guidelines 3rd edition (BCT, 2016). The survey comprised two parts: an evaluation of suitability for roosting and a search for evidence of bats. The inspection was aided by a one million candlepower torch. Extendable ladders, binoculars and a 'Seesnake' rigid endoscope were available for detailed inspections of accessible areas.

Bat evidence:

The interior and exterior of the building was systematically searched for evidence of bats including:

- Live or dead bats
- Droppings
- Staining from bat urine
- Feeding remains, such as moth wings
- An absence of cobwebs on suitable flight lines or access points

Evaluation of roosting suitability:

This comprised a detailed external and internal assessment of the building to determine the suitability for bats and the likely species, type of roost and numbers of bats the building could support. A number of factors were considered including:

- Surrounding habitats – connectivity for flight lines to the building and areas for foraging
- Internal light levels and temperature
- Weather-proof properties
- Building construction
- Potential access into the building (e.g. into a roof void, cavity in brickwork, between tiles and lining)
- Roosting features in roof void (e.g. roof timbers, ridge, wall plate)

Following a systematic survey of the building and consideration of possible factors each building was assessed as having negligible, low, moderate or high suitability for roosting bats, in accordance with the BCT guidelines.

2.3 Nocturnal Bat Activity Surveys

Two nocturnal bat activity surveys were carried out in accordance with Bat Surveys for Professional Ecologists: Good Practice Guidelines 3rd edition (BCT, 2016). These comprised one dusk emergence and one dawn re-entry

survey. Surveyors were positioned to give full coverage of the building and potential access points to observe bat activity in the area and identify any bats emerging from or re-entering a roost. The timings of the survey and weather conditions at the start and end of the survey were recorded on each occasion. Dusk surveys were started 15mins before sunset and continued until 1.5hrs after sunset. Dawn surveys were started 2hours before sunrise and continued until 15mins after sunrise.

2.3.1 Dusk Emergence Survey

The dusk emergence survey was undertaken on 18th June 2018 by the following surveyors, led by Anna Swift:

Table 01: Survey personnel and qualifications

Map ID	Personnel	Relevant licences held	Relevant survey experience (years)	Equipment used
AS	Anna Swift MCIEEM Technical Director	Bat (level 2)	12	Pettersson 240x
AR	Alex Robinson Assistant Ecologist	n/a	2	Magenta Bat5

Locations of surveyors are shown with the results of the survey in Figure 3.

A camera was used to focus on the eastern elevation of the barn as this part of the building was overhung by trees and was much too dark for a surveyor to see anything (see location in Figure 3). At 21:31hrs this was set to record in night vision mode for the full length of the survey.

A static bat detector (Peersonic) was placed at the south-east corner of the barn (see location in Figure 3) and set to record for the full length of the survey. Sound recordings were analysed using BatSound software. The data was gathered to confirm and consolidate the corresponding bat activity results of the camera and surveyors, as well as detecting any additional bat species in the vicinity.

2.3.2 Dawn Re-entry Survey

The pre-dawn re-entry survey was undertaken on 10th July 2018 by the following surveyors:

Table 02: Survey personnel and qualifications

Map ID	Personnel	Relevant licences held	Relevant survey experience (years)	Equipment used
AR	Alex Robinson Assistant Ecologist	n/a	2	Pettersson 240x
MA	Mark Ayling Field Surveyor	n/a	1	Magenta Bat5

A camera was used to focus on the eastern elevation of the barn again (see location in Figure 4). At 02:56hrs this was set to record in night vision mode for the full length of the survey.

A static bat detector (SM4) was placed inside the barn close to the southern gable (see figure 4) and set to record in full spectrum mode for the full length of the survey. Sound recordings were analysed using BatSound software. The data was gathered to confirm and consolidate the corresponding bat activity results of the camera and surveyors, as well as detecting any additional bat species in the vicinity.

2.4 Limitations

The existing dwelling did not have loft hatches to two roof voids and of the remaining two roof voids, Void B could not be accessed due to the presence of an active wasps' nest. Therefore, it is possible that evidence of bats was present in the other roof voids and was not recorded.

The barn had a large number of stored items which made searching for bat droppings difficult as many of the items were too bulky to move out of the way. This may mean that some bat droppings were not recorded by the surveyor, although it is highly unlikely that any more than a small number (20 or less) bat droppings went unnoticed.

3. Results & Evaluation

Designated Sites

The Site had no statutory or non-statutory designation for nature conservation within or directly adjacent to its boundary. The Adderbury Lakes Local Nature Reserve (LNR) was situated *c*900m to the east of the Site. The reserve consisted of two lakes and a small pocket of woodland.

Habitat Connectivity

The Site was located within a small village south of Banbury, surrounded by agricultural land bordered by hedgerows.

Immediately north of the Site was a dismantled railway which would likely have provided a linear route through the landscape, out from the Site and beyond.

There were no large areas of woodland within the search radius but there were a number of waterbodies, a habitat that is used by all species of bat for foraging and commuting. The River Cherwell was situated some 180m to the west of the Site in addition to two lakes which fell within the Adderbury Lakes LNR. This Local Nature Reserve also had small pockets of woodland which would be beneficial to foraging bats, and this reserve was located c550m north-east of the Site, connected via the dismantled railway and a series of hedgerows.

Banbury Golf Course was located c.2km to the south-east of the Site. Such sites can provide a range of habitats including ponds, scrub, grassland, hedgerows and small pockets of woodland or standard trees, and as a result can provide a range of foraging and commuting opportunities for bats.

Overall, the habitat connectivity to the Site was considered good with the Site well connected to foraging areas in the immediate vicinity and to better quality foraging further afield.

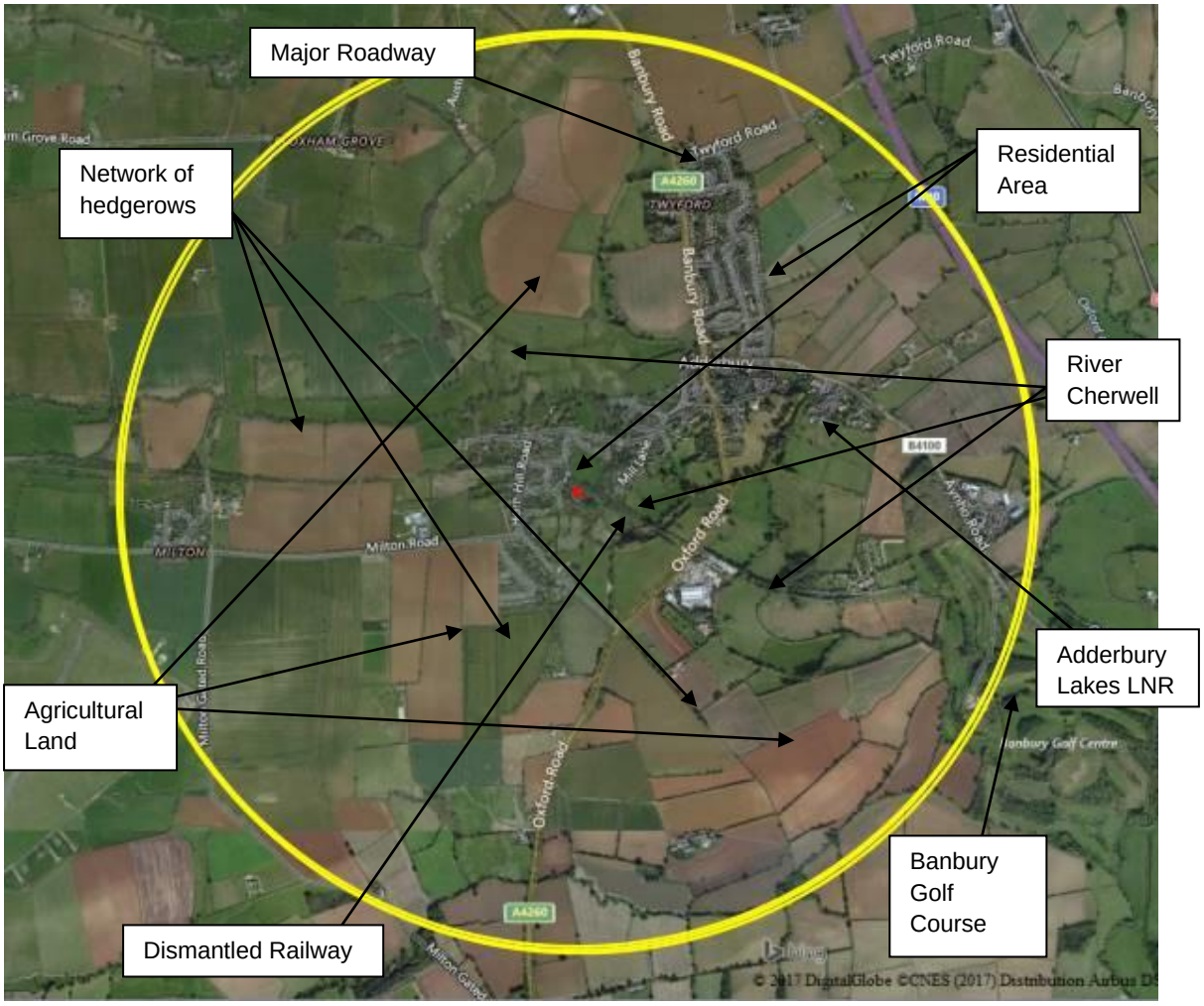


Figure 2. Habitat connectivity features within a 2km radius of the Site

3.1.2 Bat Records

There were three records of bats within 1km of the Site. Two of the records accounted for four unidentified individuals in 2003 taken from a field recording some 400m south-west of the Site, and a single record was identified as Natterer's bat droppings (*Myotis nattereri*) from 1998, although only a 1km grid reference was provided.

3.2 Preliminary Roost Assessment

3.2.1 Weather

The weather conditions during the Site visit on 30th October 2017 were as follows:

Table 03: weather conditions during preliminary roost assessment on 30th October 2018.

Parameter	Recorded Figure
Temperature	10ºC
Cloud cover	30%
Precipitation	None
Wind speed (Beaufort Scale)	1 – light air

The weather conditions during the Site visit on 3rd November 2017 were as follows:

Table 04: weather conditions during preliminary roost assessment on 3rd November 2018.

Parameter	Recorded Figure
Temperature	8ºC
Cloud cover	70%
Precipitation	None
Wind speed (Beaufort Scale)	2 – light breeze

3.2.2 Site Description

The Site comprised two buildings close to its western boundary – a dwelling and a barn. These were surrounded by mature gardens with established tree and shrub planting and a gravelled access drive. The remainder of the Site comprised rather overgrown garden, now rank grassland, with planted trees and shrubs and a tennis court.

3.2.3 Existing dwelling

This was an occupied three storey dwelling, known as The Leys. It was constructed in solid stonework and had a series of gabled roofs finished with clay tiles. Potential access points for bats were recorded via spalled mortar at gable verges, behind the fascia board, as well as under lifted tiles. There was also a large crack in the stone wall of the single storey element on its western elevation which could provide access for bats and potential hibernation opportunities within the walls.

Western elevation

Southern elevation

Eastern elevation

Northern elevation

Potential access into single storey element

Potential bat access at eaves

Crack in stone wall of single storey element

Roof voids were present at two storey level and three storey level. Two roof voids were accessible via loft hatch, a two-storey roof void that projected off the western elevation – Void A - and the third storey roof void - Void B. Any remaining roof voids were not accessible, and it should be noted that the rooms in these areas all had raked ceilings indicating that the maximum headroom in the roof void was less than the eaves to ridge measurement.

Void A was a traditional cut roof constructed with purlins and rafters but without the benefit of any lining or underfelt. A thin layer of mineral wool insulation was present at ceiling level between the joists. Small sections of daylight were visible via lifted tiles and the maximum headroom was estimated to be 1.4m.

Void A

Roosting opportunities for bats were present on top of the walls, behind the fascia boarding, and against the ridgeboard and rafters. As the roof was unlined, it was easily accessible to most bat species, except horseshoe bats which would need free-flighted access.

The void was full of cobwebs hanging from the ridgeboard and at the gable ends. A large inactive wasps' nest was also recorded together with *c*50 mouse droppings. No evidence of bats was recorded in Void A.

Cobwebs in Void A

Void B was only viewed from the loft hatch as when the loft hatch was opened, many wasps came flying out of the void and around the surveyor. More buzzing was heard in the roof void and therefore for health and safety reasons, this void was not accessed at the time of survey. What could be viewed from the loft hatch indicated a maximum headroom of around 1.2m (the ceilings were heavily raked in the third floor) with the same construction as Void A.

Void B

Consequently, the roosting opportunities in Void B were considered the same as those in Void A, and whilst Void B would receive more sunlight and was likely to be warmer than Void A, the headroom in the roof space was sub-optimal for use by maternity roosts of void-seeking species such as brown long-eared bats, but may be more suitable for maternity roosts of crevice-dwelling bats such as pipistrelle or small *Myotis*.

The ridgeline visible above the loft hatch in Void B was covered in dense cobwebs and the void clearly supported an active wasps' nest. No bat evidence was found but approximately 90% of this void could not be surveyed properly due to the presence of wasps, as such it could not be confirmed whether there was any evidence of bats in this Void B.

To its northern elevation was a single storey extension built in solid stonework with brickwork at its northern gable. It had a gabled roof finished with slates with a lean-to that had a glazed roof. This single storey element was used for the storage of logs and garden equipment.

Glazed roof of single storey element

Internally, the single storey element was vaulted and benefited from a bitumen lining to its underside. Potential access points for bats were noted at the gable verge and via gaps above the wooden door. Roosting opportunities were therefore considered possible between the slates and the lining, on top of the solid walls and inside against the ridgeboard, although this latter area did suffer from a fair amount of light ingress due to the glazed lean-to. Again, the internal roof area was densely cobwebbed and with so many stored items in the building it made searching for evidence of bats a little difficult, nevertheless, as thorough search as possible was made and no evidence of bats was recorded.

Light ingress in single storey element

Cobwebs in single storey element

In terms of suitability for roosting bats in this building, the small height roof voids were sub-optimal for maternity roosts of brown long-eared bats but could be used by pipistrelle, Natterer's, whiskered or Brandt's bats for that purpose. Daubenton's bats are unlikely due to a lack of a suitable waterbody nearby, and Leisler's are unlikely due to a lack of parkland habitat nearby, whilst rarer bat species such as horseshoes and barbastelle require suitable woodland close by to fulfil their foraging needs and such a habitat was not available, certainly not within 500m of the Site.

The potential for hibernating bats was unclear as it is not known whether bats could access any gaps within the stone walls which would otherwise insulate them from any temperature and humidity changes in the occupied dwelling.

Suitability for roosting bats: MODERATE

Barn

This was a detached barn constructed in solid stonework with a re-built blockwork wall at its southern gable. Its gabled roof was finished with corrugated asbestos/cement sheeting and was unlined. It was also covered with ivy at its northern and southern gables and over much of the roof. Two central purlins were present at the ridge, rather than a single ridgeboard, although this did provide opportunities for bats to roost on top of, and between, the two timbers.

Potential access points for bats were noted at the south-east corner of the barn where flighted access for bats was possible directly into the barn via a large gap between the top of the wall and the start of the roof. There was

also potential bat access above the wooden door on the western elevation. Once inside the barn, potential roosting opportunities for bats were noted on top of the southern blockwork wall as well as inside the wall as there may be gaps in the blocks themselves that could support roosting bats (the surveyor has witnessed common pipistrelle, Natterer's and brown long-eared roosting in this manner at sites across the Midlands). The tops of the stone walls on all elevations, except the southern gable, were sealed. Bats may alternatively roost on top of the central purlins. The internal area of the barn was very dark with little light ingress, also, close to the north-west flighted access point was a mature conifer that would provide sufficient shelter for bats accessing any possible roost in the barn.

Western elevation

Bat access at the south-east corner

Two central purlins

The barn was used for storing garden machinery and paraphernalia, with a small, lean-to log store at its northern elevation, as such some areas of the barn were difficult to search for bat droppings. Nevertheless, evidence of bats was found by way of tens of discarded noctuid wings caught in cobwebs against the southern gable with a general scattering of these throughout the barn. Additionally, two piles of medium-sized bat droppings were recorded with a pile of 10 droppings observed on the floor close to the northern gable and a pile of 20 droppings noted on the floor and on stored items in the centre of the barb below the two central purlins. At least half of these droppings appeared to be relatively fresh and likely deposited in the most recent active season (May-August).

Internal area of barn

Light ingress at south-east corner

Noctuid wings stuck to southern gable

Bat droppings on stored items under central purlins

Stored items in barn

Log store lean to at northern elevation

It is not clear whether the roost was a non-breeding day roost or potentially a nursery roost as it is possible that some bat droppings may not have been recorded as some areas of the barn were difficult to view due to the number of stored items. It is also possible that the barn could be used by roosts of crevice-dwelling bats such as whiskered, Brandt's, Natterer's or pipistrelle sp. as evidence of these species could be concealed in area inaccessible to the surveyor.

As the barn was made of stone, such buildings can offer suitable hibernation opportunities for bats within the walls and, given the presence of the mature conifer at the south-east corner and ivy at its southern and northern elevations, this could provide suitable humidity levels to support hibernating bats.

Mature conifer and ivy on the barn

Suitability for roosting bats: MODERATE-HIGH

Incidental evidence of an inactive nest from a blackbird/thrush or wagtail sp. was recorded at the southern gable wall at the time of survey.

Thrush/wagtail nest at southern gable

3.3 Bat Activity Surveys

Following the results of the initial bat survey, and on the understanding that only the barn would be impacted by the forthcoming planning application, two nocturnal bat surveys were carried out to encompass the barn only.

3.3.1 Dusk Emergence Survey

The dusk emergence survey was undertaken on 18th June 2018, using two surveyors. Sunset was at 21:28hrs.

Table 05: weather conditions during the dusk survey on 18th June 2018.

Parameter	Start	End
Time	21:13	23:00
Temperature	18°C	16°C
Cloud cover	100%	100%
Precipitation	Intermittent drizzle	None
Wind speed (Beaufort scale)	0	2

Two brown long-eared bats were confirmed as emerging from the south-east corner of the barn. No other bats were seen by the surveyors or camera to emerge, but occasional bat passes by common pipistrelle and the occasional brown long-eared bat were recorded throughout the survey and were mostly found at the southern end of the building and along the road just west of the barn.

Please refer to a summary of dusk bat activity overleaf.

3.3.2 Dawn Re-Entry Survey

The dawn re-entry survey was undertaken on 10th July 2018, using two surveyors. Sunrise was at 04:55hrs.

Table 06: weather conditions during the dawn survey on 10th July 2018.

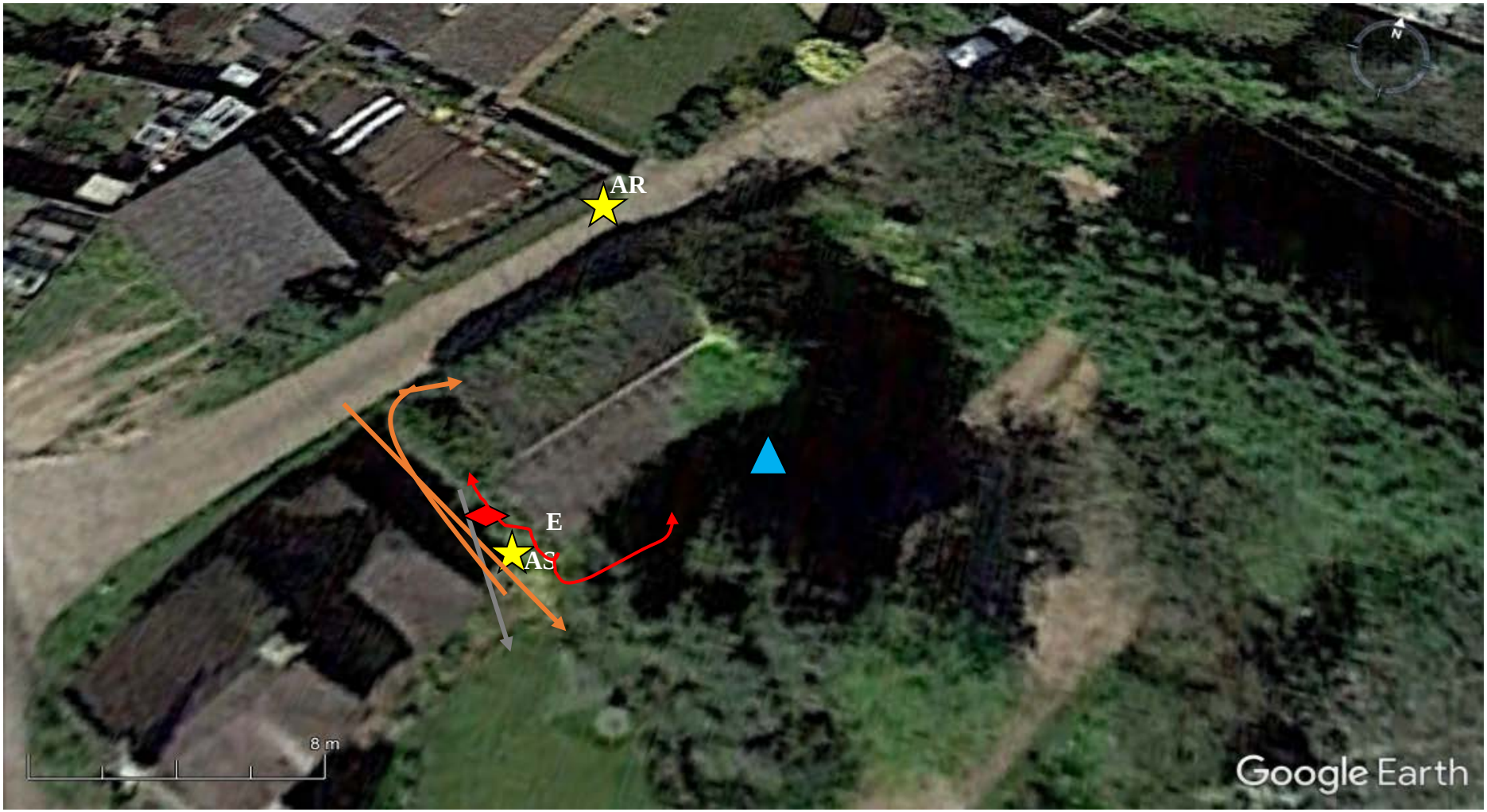
Parameter	Start	End
Time	02:55am	05:10am
Temperature	14ºC	14ºC
Cloud cover	10%	10%
Precipitation	None	None
Wind speed (Beaufort scale)	0-Calm	0-Calm

No bats were confirmed to have entered the barn during the survey, although a total of 24 passes were recorded throughout the night by the occasional brown long-eared and noctule, but mostly from common pipistrelle.

Please refer to a summary of dawn bat activity overleaf.

3.3.3 DNA analysis

A sample of bat droppings from the barn was sent off to Warwick University for DNA analysis and returned a result of brown long-eared *Plecotus auritus*. Please see Appendix 2 for the result.



KEY

: Night vision camera position

: Surveyor position

: Static detector position

: Brown long-eared

: Common Pipistrelle

: Indeterminate Bat

Figure 3: Bat Activity Map- Dusk 18/06/18	
Project: 2017-10(04)	
Date: June 2018	**Scale:** Not to scale 2018

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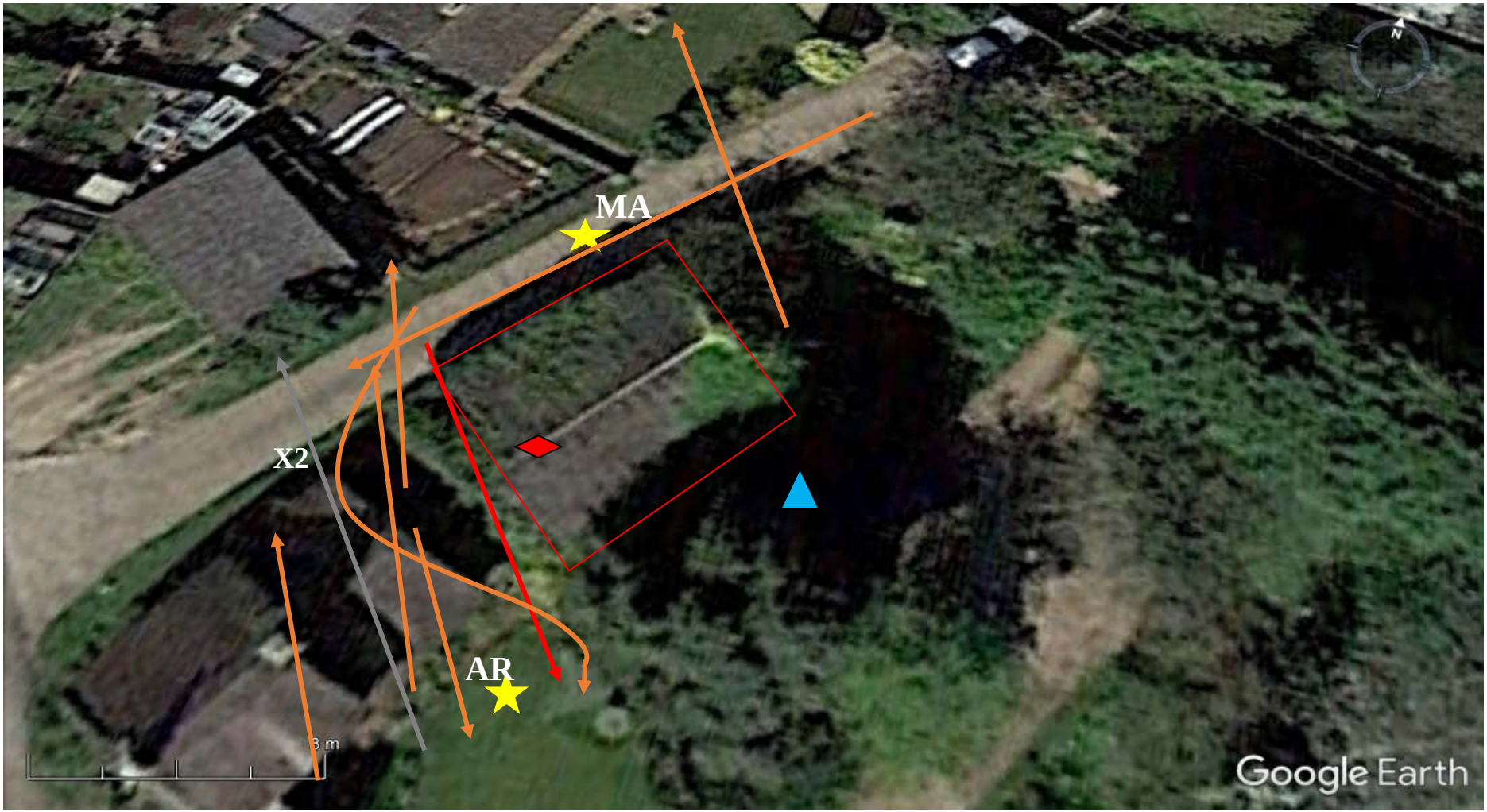

KEY

- ★: Surveyor position
- ◆: Static detector position
- □: Surveyed building
- ▲: Night vision camera
- →: Common Pipistrelle
- →: Indeterminate Bat
- →: Brown-long eared

Figure 4: Bat Activity Map- Dawn 10/07/18

Project: 2017-10(04)

Date: July 2018 | **Scale:** Not to scale 2018

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4. Discussion & Conclusions

In October 2017, Ecolocation were commissioned to undertake an initial bat assessment of an existing dwelling and barn to inform a future planning application, the details of which were unknown at that time.

The results of the initial bat assessment of the buildings in late October 2017 recorded a roost of probable brown long-eared bats in the barn together with opportunities for crevice-dwelling bats in the summer and hibernating bats in the winter. A total of 30 bat droppings and a large number of discarded noctuid wings were found in the barn directly below the central purlins and at the southern gable. At this stage, it was not known whether this roost was a day roost of non-breeding animals or potentially a nursery roost.

The dwelling known as The Leys was only subject to a thorough inspection of one roof void, namely Void A. No evidence of bats was recorded in this void, although there remained three other roof voids that could not be accessed by the surveyor to search for bats due to either a lack of loft hatch or the presence of an active wasps' nest at the time of survey. Based on the construction of the existing dwelling and the numerous potential access points for bats, it was considered that this building had a moderate suitability for supporting roosting bats.

In June 2018, Ecolocation were made aware that the proposed development would involve the conversion of the barn but would not have any impact on the existing dwelling. Therefore, in order to determine the likely scale of ecological impact to the bats using the barn, and to design an appropriate bat mitigation scheme, further survey effort was necessary.

Two nocturnal bat surveys of the barn were conducted in June and July 2018 and recorded two brown long-eared bats emerging from the corner of the barn. Foraging and commuting activity by noctule and common pipistrelle were recorded in the vicinity of the barn on both surveys but no evidence of roosting by these species was discovered during the course of the surveys. A subsequent DNA analysis of the bat droppings within the barn confirmed the presence of brown long-eared bats.

The status of bats roosting at the Site is considered thus:

1x day roost of two brown long-eared bats
1 x feeding perch of one brown long-eared bat

The proposed conversion of the barn will result in the destruction of the day roost and feeding roost of brown long-eared bats due to the lack of space to accommodate a separate roof space within the design of the barn conversion. As a consequence of this, a Natural England derogation licence is therefore necessary for conversion works to proceed legally.

Details of any licence requirements and recommended mitigation can be found in section 5 below and will allow the works to proceed in a sensitive manner, avoiding harming or injuring the bats and securing replacement roosting opportunities at the Site for the longer term, such that the favourable conservation status of these bat species in the locality should be maintained.

A licence application in respect of bats must be made to Natural England in order to ensure that the proposed works are conducted in a legal manner. Further details are provided in section 5 but please note that a licence application can only be made once planning permission has been granted and any relevant planning conditions have been discharged. Please note: Natural England generally take 30 working days to respond to a licence application and should a re-application or further information need to be made then this would incur the potential for up to a further 30 working days delay before a decision is issued.

In addition, incidental evidence of nesting thrush or wagtail sp. was recorded in the barn during the initial bat inspection and it is noted that there is a good potential for other nesting birds to make use of the barn. As such, a nesting bird check should be made prior to the start of works to ensure there are no birds in the process of nest-building, egg-laying or chick-rearing within the barn when any disturbing works begin. In addition, replacement nesting opportunities for birds from the thrush or wagtail family (the song thrush is an RSPB Red listed bird of conservation concern) must be provided post-development to ensure no net biodiversity loss in accordance with the NPPF and these can be accommodated on a suitable elevation of the converted barn.

5. Recommendations, Mitigation & Compensation

The National Planning Policy Framework paragraph 174 states that "To protect and enhance biodiversity and geodiversity, planning policies should: ...promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species populations". In order to ensure no net loss of biodiversity in accordance with NPPF & Circular 06/2005 recommendations are made below.

5.1 Bats

Certain mitigation in respect of a day roost and feeding perch of brown long-eared bats present in the barn to be converted, will be required. The following mitigation is based on a licence application being made to Natural England asap, but if conversion works are delayed past April 2020, it is advised that updated bat activity surveys of the Site be undertaken May-early August in the season preceding a licence application. On the basis of the current information, proposed mitigation locations will comprise a loft space in one of the new dwellings suitable for use by brown long-eared bats and this must be available before disturbing works to the barn commences. The location of the bat loft is illustrated on Figure 5. Detailed bat mitigation is included below.

Prior to any disturbing works to the barn

5.1.1 Permanent replacement roosting opportunities for brown long-eared bats

In advance of any disturbing works to the barn, the permanent replacement loft space for bats above the bin store should be completed and available for use by brown long-eared bats.

The loft space for brown long-eared bats must be designed as follows:

- be located as closely as possible to existing roosts. The proposed bin store has been selected for this reason (see Fig 5);
- be oriented so its ridgeline runs broadly north-south as is currently the case for the existing barn where the brown long-eared bats are roosting;
- the loft space for bats to have a footprint of a minimum 5m x 4m and a headroom of at least 2m;
- be of a cut roof, king post, queen post or attic truss construction (but not W-shaped pre-fabricated construction) with no use of prefabricated trusses thereby ensuring the bat loft is clutter-free;
- have the section of the loft space in use by bats underlined with type 1F bitumen felt;
- have its ridgeboard exposed to allow roosting opportunities for brown long-eared bats at the junction of the rafters and ridgeboard;
- roof finish can be clay tiles, slate or similar;
- a plyboard dividing wall with a door can be used to partition the loft space into the area to be used by bats only (i.e. no storage of items and access only for maintenance or bat monitoring purposes);
- bat access to include 1x standard access slate close to the eaves on the south-east or south-west elevation, close to cover;
- have an access hatch of 500mm x 500mm which would permit access for people for either maintenance reasons or for a licensed person to check on the status of roosting bats

Figure 5 – Permanent replacement bat loft (in orange) for BLE located in loft above bin store

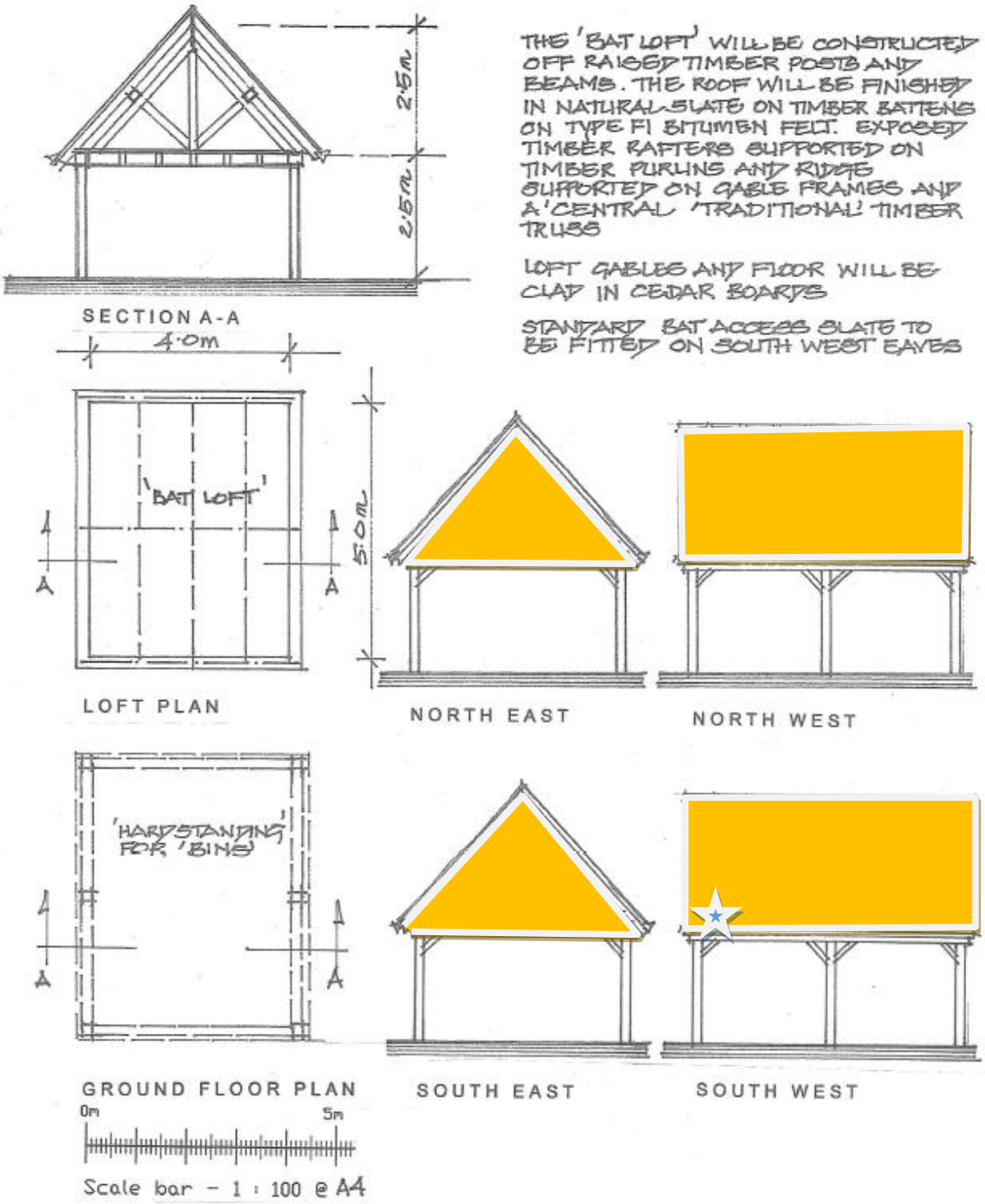


Figure 6 – Permanent replacement bat loft (in orange) for BLE located in loft above bin store with bat access indicated by blue star

5.1.2 Nesting bird check of barn

Immediately prior to any disturbing works to the barn, the building should be checked by a competent person for any evidence of nesting birds to ensure that no birds are nesting when works commence.

At commencement of disturbing works to the barn

5.1.3 Dismantling of the roof under supervision of licensed ecologist

A watching brief by a Licensed Bat Worker will be commissioned during the course of any roof stripping works to the barn. Such works will be undertaken upon the instructions of the Licensed Bat Worker until works have reached such a stage that the Bat Worker is confident that no bat presence is likely to be identified beyond that point. Any bats found during the course of this process should be taken into the care of the Bat Worker and released into the already completed bat loft in the new dwelling.

Should more bats be found than are approved on the Natural England licence, works would have to cease whilst Natural England are contacted for advice on how best to proceed. This can occasionally happen as bats do move roosts regularly and sometimes more bats are found during the roof strip than were observed on the dusk or dawn surveys.

5.1.4 Permanent exclusion of bats

The removal of the roof of the barn will not necessarily exclude all bats from the building as there is a possibility they could occasionally roost in the walls. For this reason, standard one-way bat exclusion devices will be fitted by an appropriately licensed and experienced ecologist to any such suitable roosting features that will not otherwise be exposed during the roof strip. These will be fitted one week in advance of the scheduled roof strip to encourage any bats to leave of their own accord, whilst not being able to re-enter the walls due to the one-way exclusion device. Such devices must be in place during periods of suitable weather for a consecutive period of five nights and must only be removed on the same day as the gaps behind are filled.

5.1.5 Sensitive timing of works

Timing of works are to be set out in the licence application to Natural England. It is not considered necessary to avoid works during the summer months as no maternity roost of bats was found, although the presence of stone walls provides some potential for hibernating bats which could be present November - February. Consequently, both the roof strip and the bat exclusion should be undertaken during March-October of any given year.

If there are other works to be undertaken that would not constitute disturbance to bats (seek advice from an ecologist) then these may proceed without timing restrictions, albeit they may be subject to other planning conditions.

5.1.6 Monitoring

As there is a day roost and feeding perch of brown long-eared bats in the barn, a single monitoring visit is required. This will take the form of:

- 1x daytime inspection of the bat loft above the bin store to search for brown long-eared droppings and confirm presence/absence. To be undertaken May-August in the second year following completion of the bat loft.

5.1.7 Enhancements

In line with the requirements of the NPPF to provide a net biodiversity gain where possible, a small number of bat boxes should be erected on retained, mature trees at the Site. These should include:

- 2x Schwegler 2F with double front panel (suitable for use by common pipistrelle, recorded foraging around the barn)

- 2x Vincent Pro bat box (proven as suitable for use by Natterer's, recorded nearby)
- 2x Improved Cavity Bat box (suitable for use by brown long-eared)

5.2 Birds

Evidence of nesting by a thrush or wagtail bird species was recorded during the initial bat survey and there remains a good suitability for other birds to nest in the barn in or on top of walls, on stored items or on top of the purlins. The majority of species of nesting bird are protected under the Wildlife & Countryside Act 1981 and as amended by the Countryside & Rights of Way Act 2000. The Site should therefore be surveyed for nesting birds prior to commencement of works by a person competent to do so and due vigilance also be maintained during construction to ensure that no breeding birds are disturbed during the construction process should nesting commence thereafter. Birds typically nest between March-September inclusive though some species will nest at any time of year. If evidence of nesting birds is found, no works should be undertaken that may cause disturbance until after all the chicks have fledged.

Compensation and enhancements for birds are encouraged as part of the NPPF, paragraph 118. As such, the following is recommended:

- 2x open-fronted nest boxes suitable for birds from the thrush or wagtail family should be erected on a suitable, retained mature tree within the Site prior to the commencement of any works. The boxes should be erected 3-4m off the ground in good cover and facing away from prevailing wind and rain.

6. References

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

Conservation of Habitats and Species Regulations, HMSO (2010, as amended)

Government Circular 2005: *Biodiversity and geological conservation: Statutory obligations and their impacts in the planning system.* The Stationary Office Ltd, ISBN 0 11 7539511

Mitchell-Jones, A.J, & McLeish, A.P. Ed., (2004), 3rd Edition Bat Workers' Manual, 178 pages b/w photos, softback, ISBN 1 86107 558 8

Magic Map Application 2013, *MAGIC*. [online]. Available from: http://www.magic.gov.uk/MagicMap.aspx

Mitchell-Jones, A. J. (2004) Bat Mitigation Guidelines, 1st edition, English Nature, ISBN 1 857167813

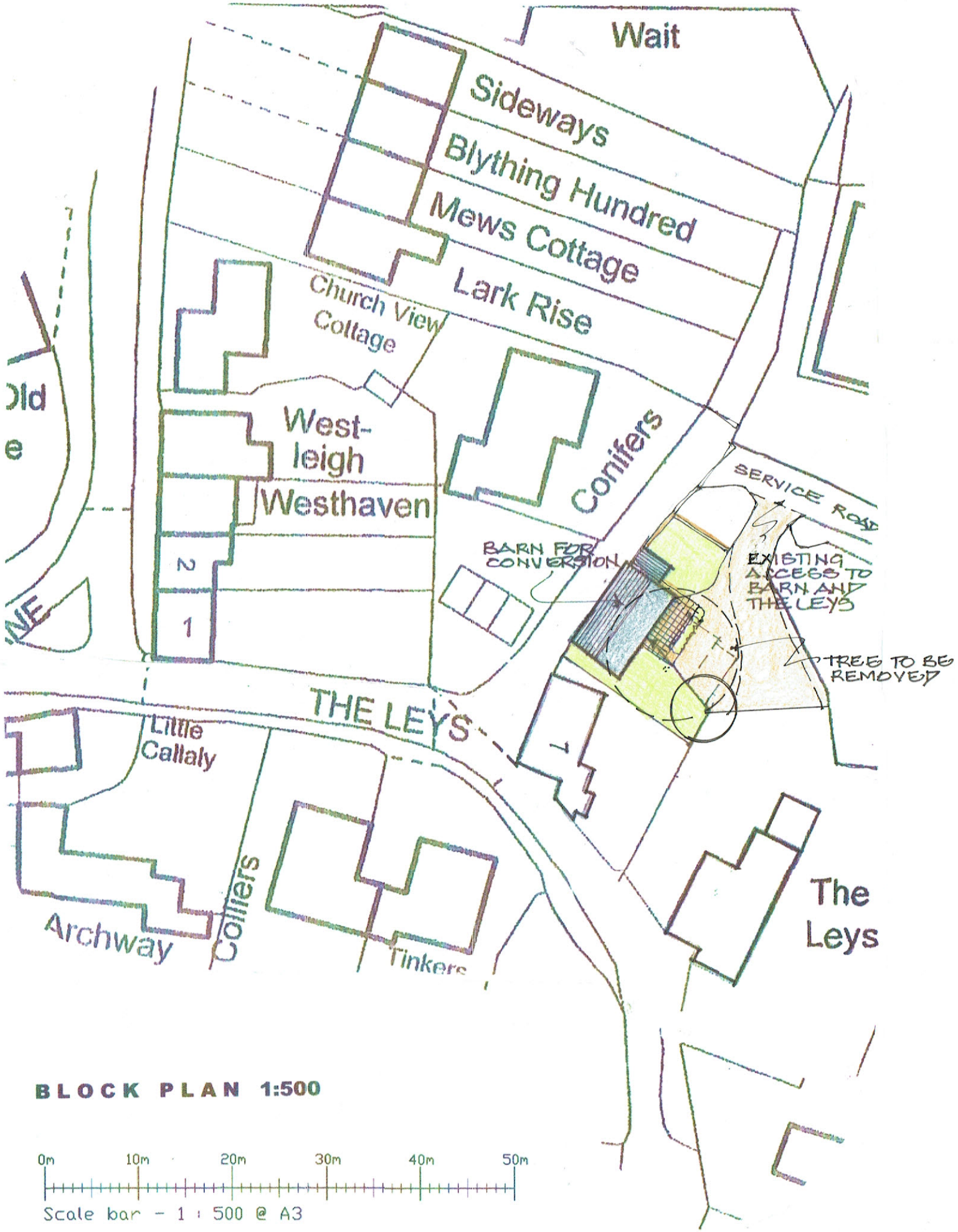
NPPF - *National Planning and Policy Framework* (as amended 2019) Available from: http://planningguidance.communities.gov.uk/

Russ, J. (2012) *British Bat Calls; A guide to species identification*. Pelagic Publication, Exeter.

Swift, S. M. (2002) *Long-eared Bats*, Poysner Natural History, ISBN – 10: 0856611085

Thames Valley Environmental Records Centre (TVERC)

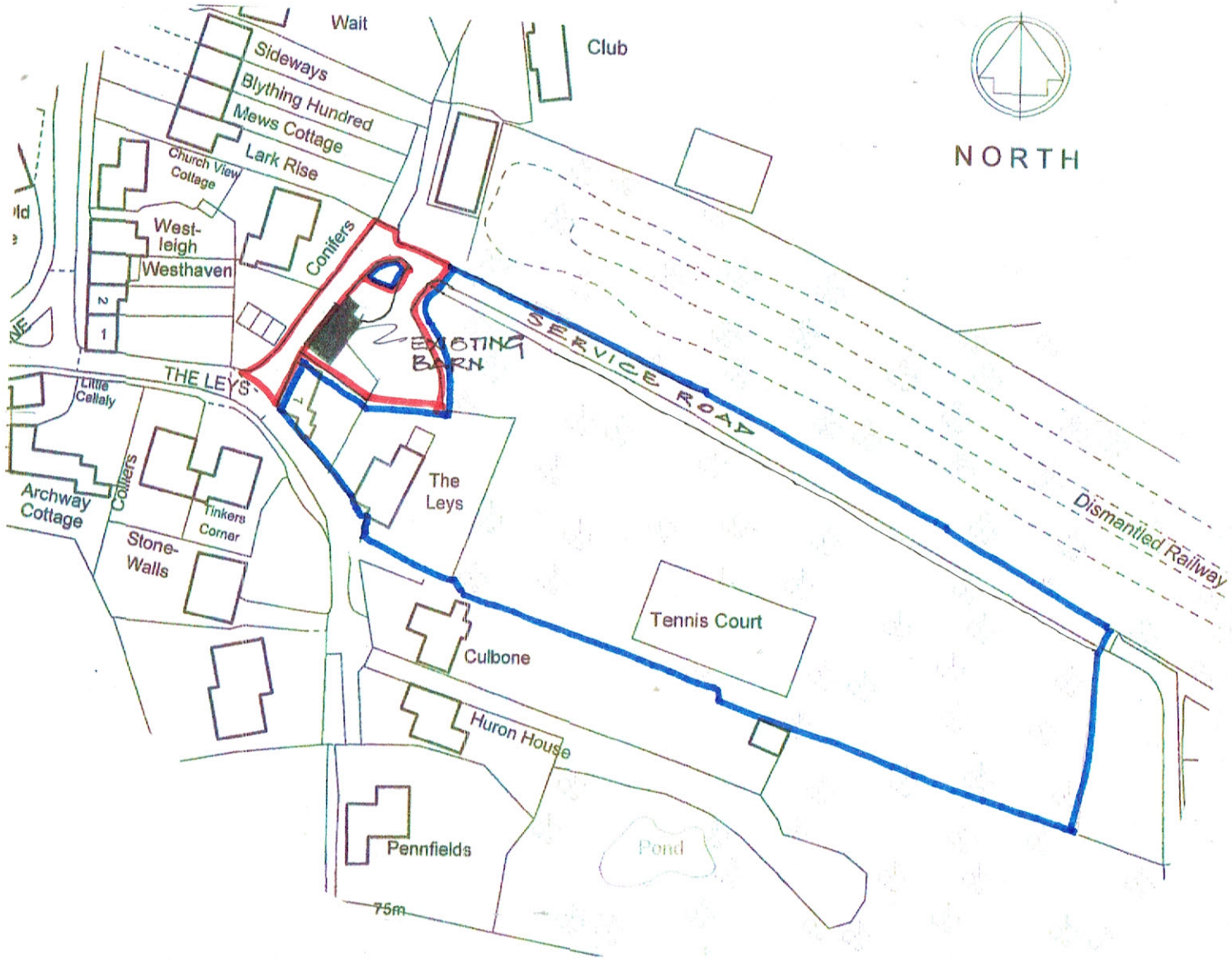
Appendix 1 – Proposed Plans (overleaf)



BLOCK PLAN 1:500

0m 10m 20m 30m 40m 50m

Scale bar - 1 : 500 @ A3



LOCATION PLAN 1:1250

0m 20m 40m 60m 80m 100m

Scale bar - 1 : 1250 @ A3

Client	*Mrs Biggam*	*Project*	**PROPOSED CONVERSION OF EXISTING BARN TO A SINGLE DWELLING AT THE LEYS, ADDERBURY**
Architect	*Nicholas D Price* *45 North Bar Street* *Banbury* *OX16 0TH* *Tel 01295 262952*	*Drawing*	**SITE LOCATION PLAN & BLOCK PLAN**
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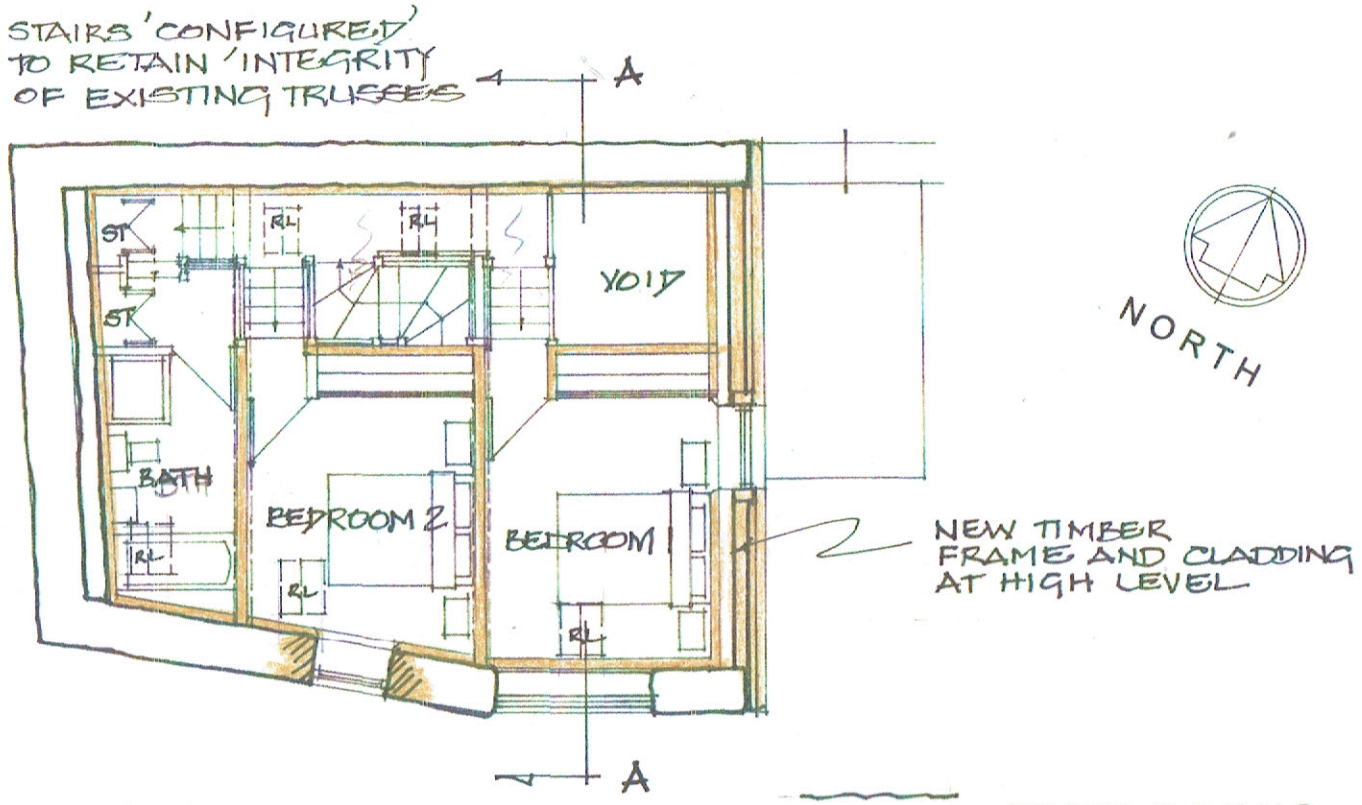
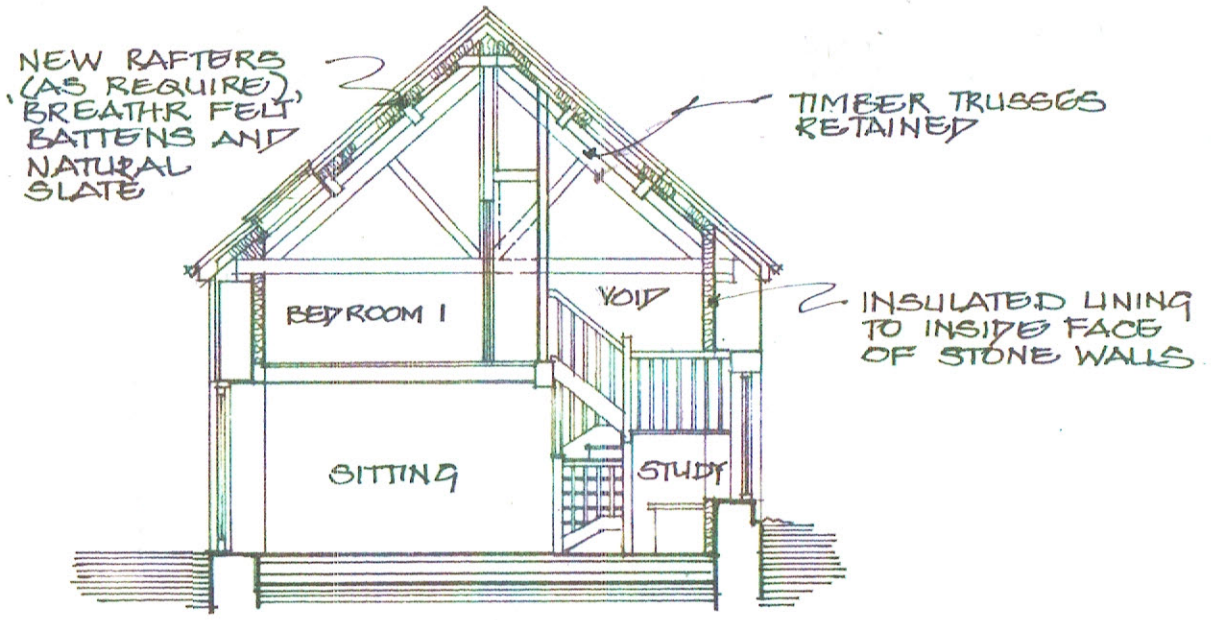
		Drawing No	**5418.01**



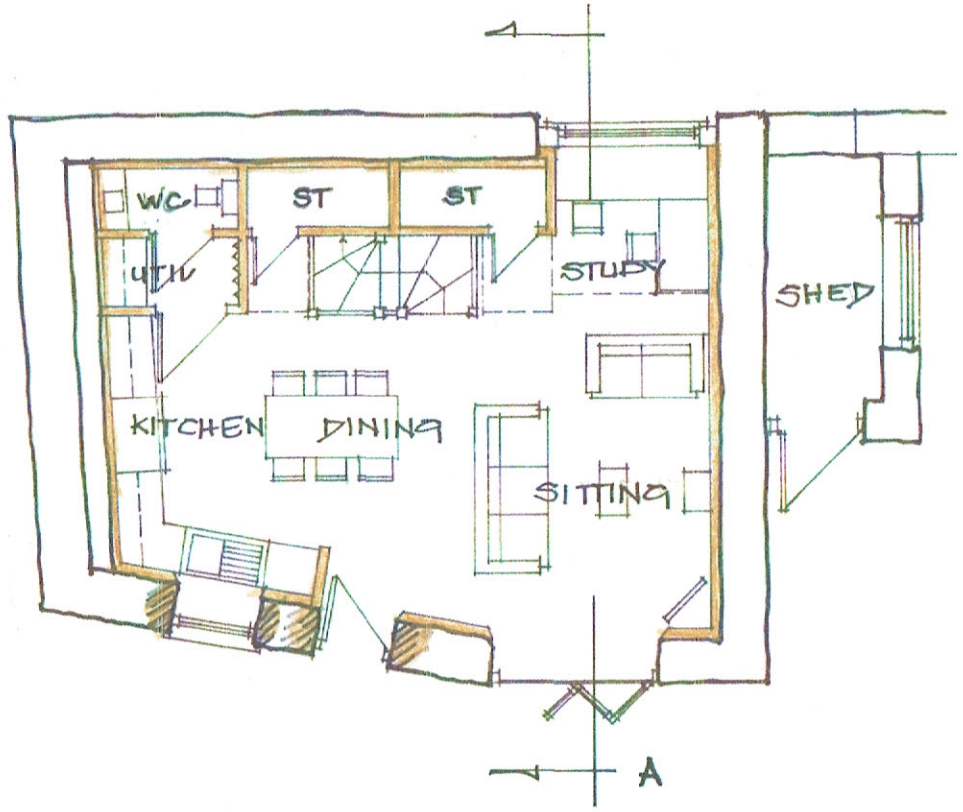
FIRST FLOOR PLAN 1:100



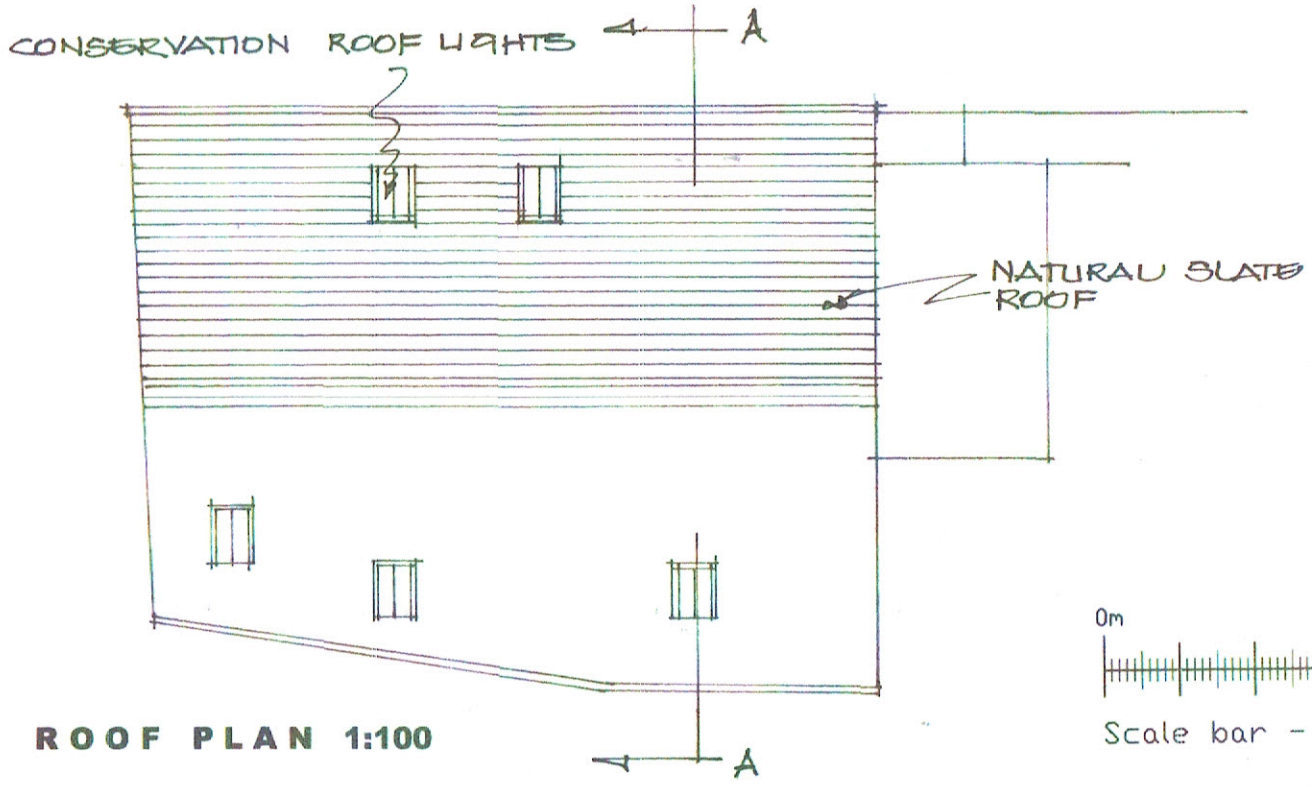
SECTION A-A 1:100

EXISTING WALLS

NEW OPENINGS IN EXISTING WALLS
NEW PARTITIONS



GROUND FLOOR PLAN 1:100



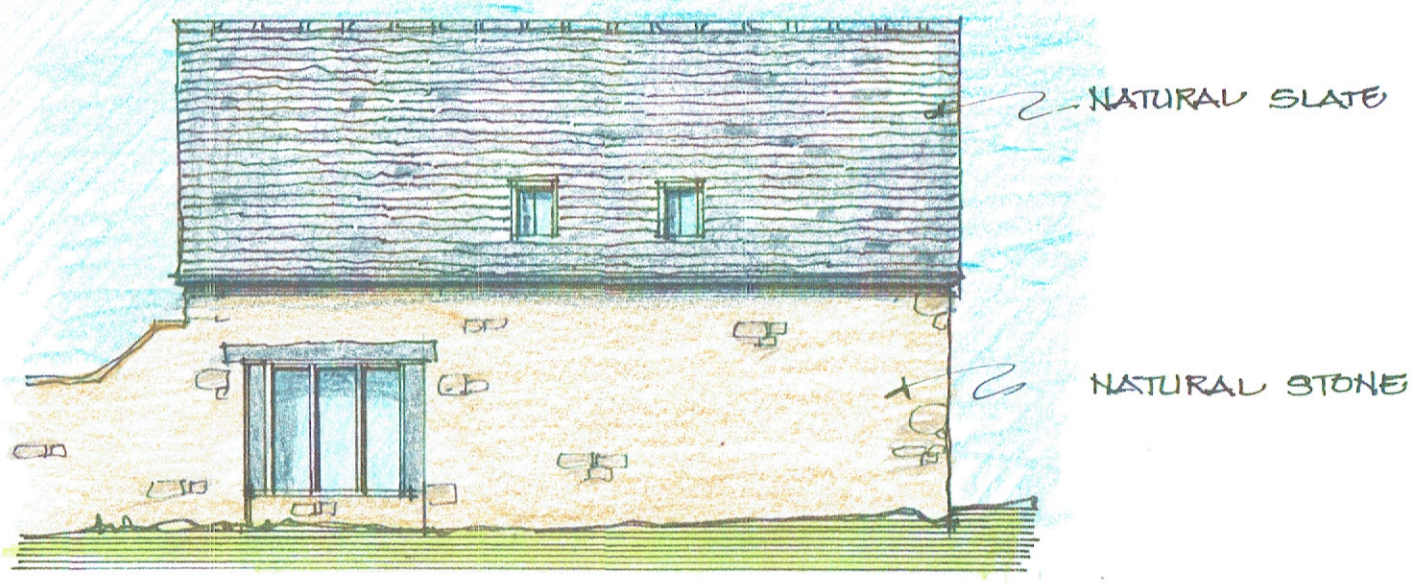
ROOF PLAN 1:100

0m 5m

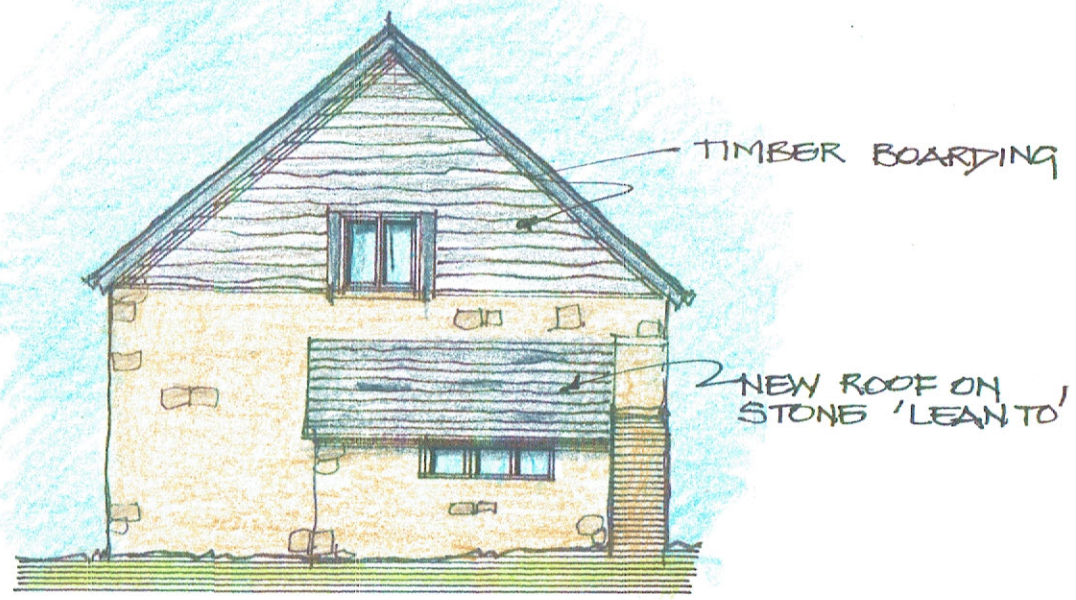
Scale bar - 1 : 100 @ A3

Client	Mrs Biggam	Project	PROPOSED CONVERSION OF EXISTING BARN TO A SINGLE DWELLING AT THE LEYS, ADDERBURY
Architect	Nicholas D Price 45 North Bar Street Banbury OX16 0TH Tel 01295 262952		

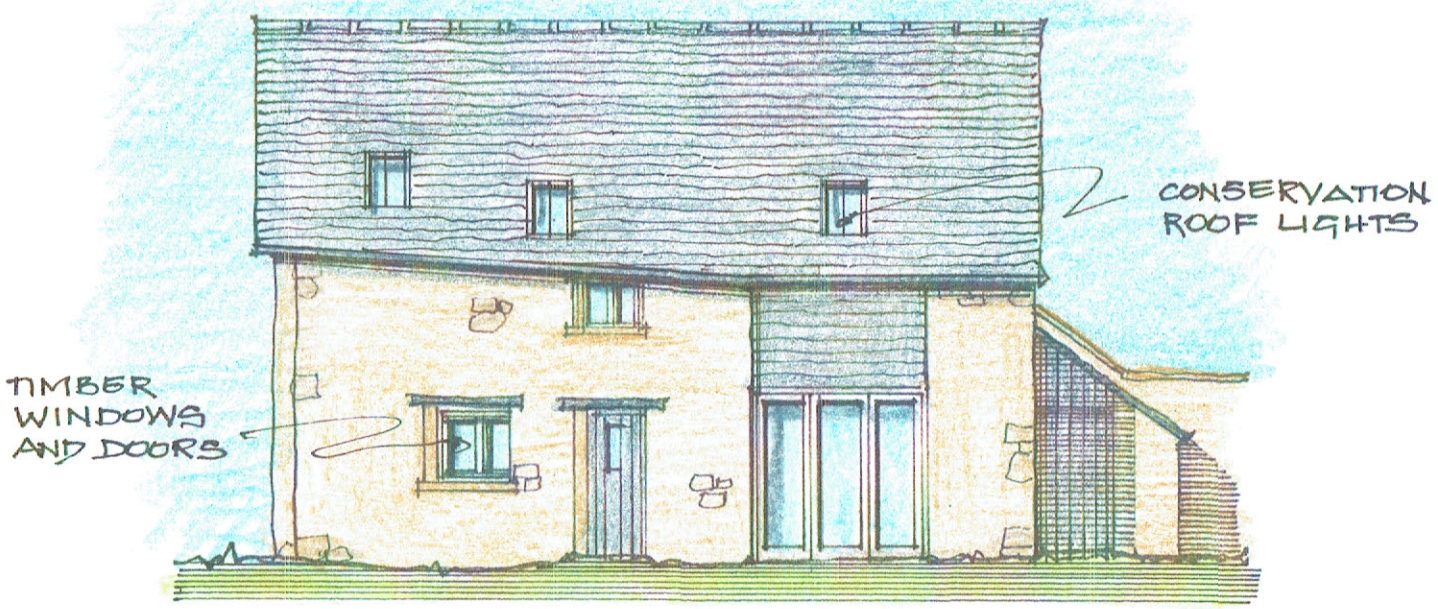
Drawing	PROPOSED PLAN AND SECTION
Scale	1:100
Date	January 2019
Drawing No	5418.04



NORTH WEST ELEVATION 1:100

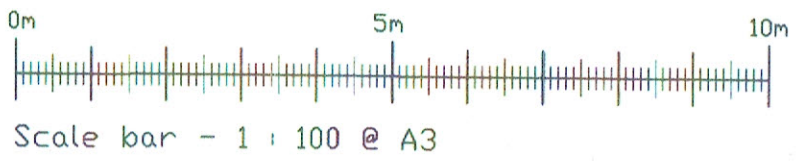


NORTH EAST ELEVATION 1:100



SOUTH EAST ELEVATION 1:100

SOUTH WEST ELEVATION 1:100



Client	Mrs Biggam	Project	PROPOSED CONVERSION OF EXISTING BARN TO A SINGLE DWELLING AT THE LEYS, ADDERBURY
Architect	Nicholas D Price 45 North Bar Street Banbury OX16 0TH Tel 01295 262952	Drawing	PROPOSED ELEVATIONS
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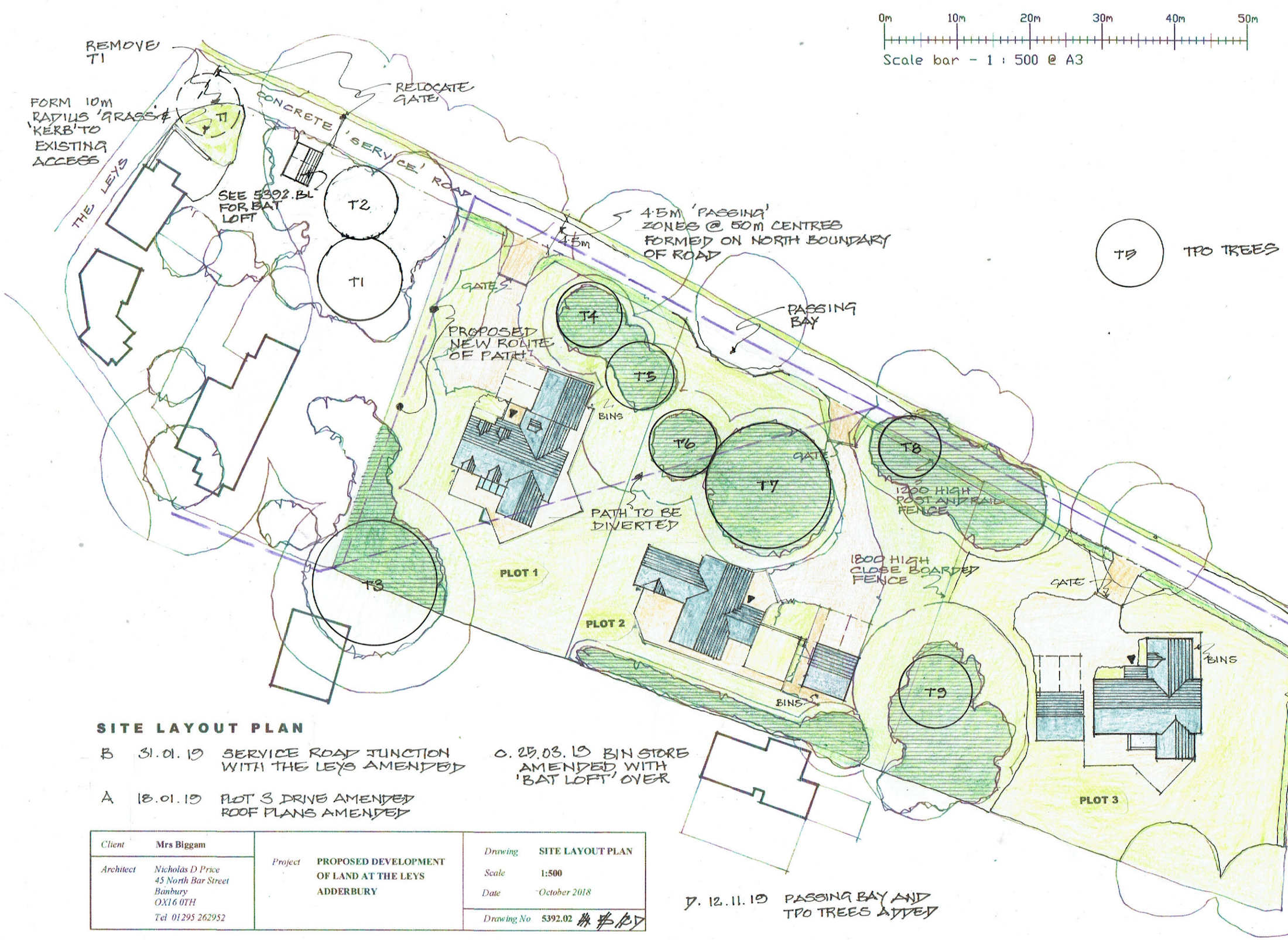
		Date	January 2019
		Drawing No	5418.05



SITE LAYOUT PLAN

B 31.01.19 SERVICE ROAD JUNCTION WITH THE LEYS AMENDED

A 18.01.19 PLOT 3 DRIVE AMENDED ROOF PLANS AMENDED

C. 25.03.19 BIN STORE AMENDED WITH 'BAT LOFT' OVER

D. 12.11.19 PASSING BAY AND TPO TREES ADDED

Client	**Mrs Biggam**	*Project*	**PROPOSED DEVELOPMENT OF LAND AT THE LEYS ADDERBURY**
Architect	*Nicholas D Price* *45 North Bar Street* *Banbury* *OX16 0TH* *Tel 01295 262952*	*Drawing*	**SITE LAYOUT PLAN**
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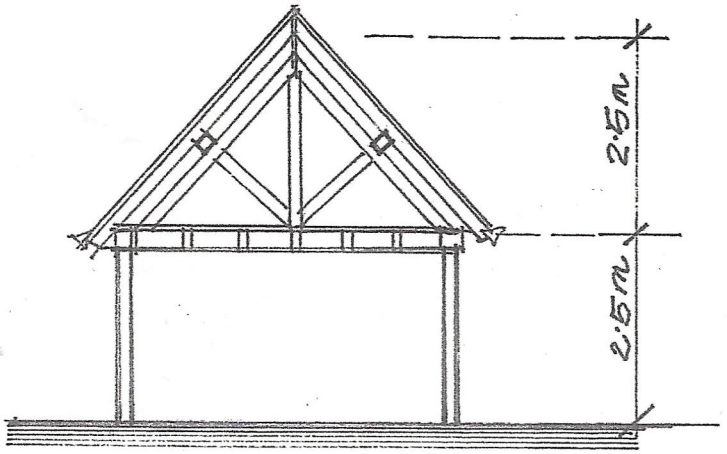
		Date	*October 2018*
		Drawing No	**5392.02 A B C D**

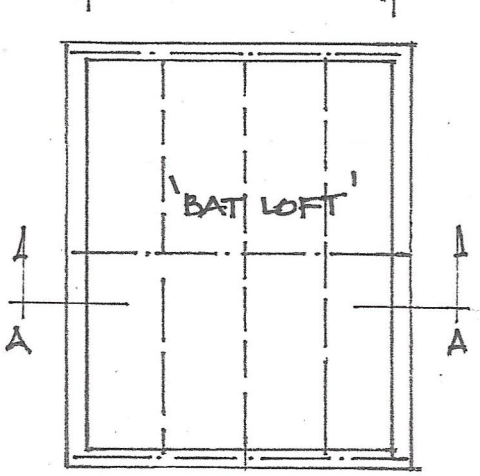


SECTION A-A

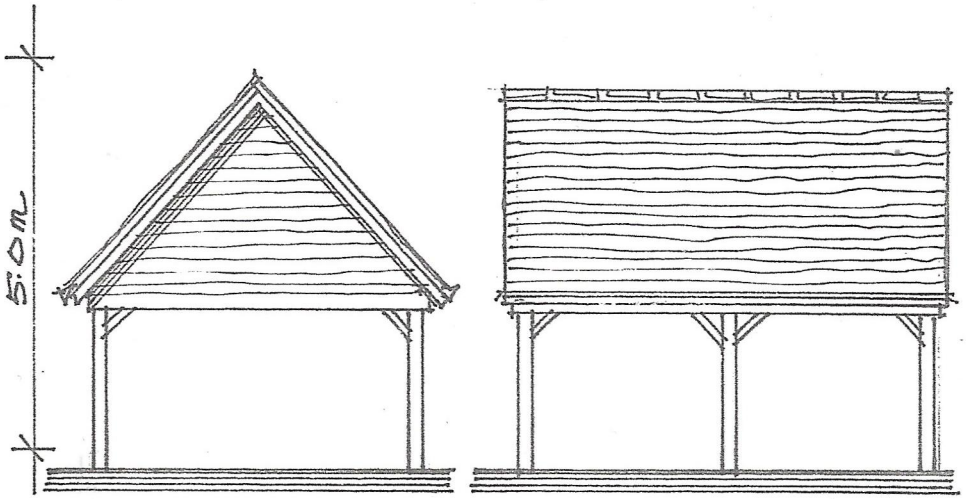
THE 'BAT LOFT' WILL BE CONSTRUCTED OFF RAISED TIMBER POSTS AND BEAMS. THE ROOF WILL BE FINISHED IN NATURAL SLATE ON TIMBER BATTENS ON TYPE F1 BITUMEN FELT. EXPOSED TIMBER RAFTERS SUPPORTED ON TIMBER PURLINS AND RIDGE SUPPORTED ON GABLE FRAMES AND A 'CENTRAL' 'TRADITIONAL' TIMBER TRUSS

LOFT GABLES AND FLOOR WILL BE CLAD IN CEDAR BOARDS

STANDARD BAT ACCESS SLATE TO BE FITTED ON SOUTH WEST EAVES

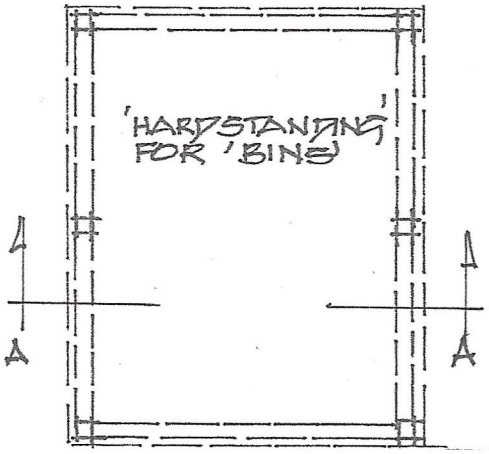


LOFT PLAN

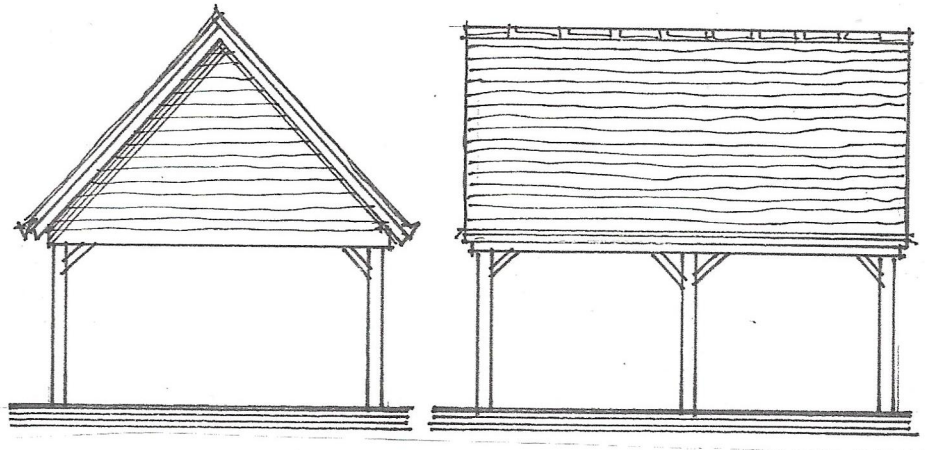


NORTH EAST

NORTH WEST



GROUND FLOOR PLAN



SOUTH EAST

SOUTH WEST

0m 5m

Scale bar – 1 : 100 @ A4

Client	**Mrs Biggam**	*Project*	**PROPOSED DEVELOPMENT OF LAND AT THE LEYS ADDERBURY**	*Drawing*	**PROPOSED BAT LOFT AND BIN STORE**
Architect	*Nicholas D Price* *45 North Bar Street* *Banbury* *OX16 0TH* *Tel 01295 262952*			*Scale*	**1:100**
				Date	*March 2019*
				Drawing No	**5392.BL**

Appendix 2 – DNA analysis (overleaf)

WARWICK
THE UNIVERSITY OF WARWICK

EcoWarwicker
Ecological Forensics

9 August 18

Re: Identification Results for Alex Robinson, Ecolocation

Job number 12280, received 17 July 2018
Sample labelled: Project: 2017-10(4) The Leys, Adderbury. Barn. 14.07.18
PCR amplification successful. DNA sequence:
ATGACCAACATTCGAAAGTCCCACCCTCTCATAAAAATTATCAATGACTCATTCATTG
ACTTACCTGCTCCCTCAAATATTTCATCATGATGAAACTTTGGATCTCTTCTAGGCATT
GCCTAGCAC

Phylogenetic analysis identification: *Plecotus auritus*

Confirmed by maximum likelihood, maximum parsimony, bootstrap 100%.

Best regards,

Professor Robin Allaby

The results and conclusions in this report are based on an investigation of mtDNA sequence analysis. The results obtained have been reported with accuracy. The interpretation represents the most probable conclusion for the DNA sequence obtained rather than the sample provided given current levels of species data. It should be borne in mind that different circumstances might produce different results. Therefore, care must be taken with interpretation of the results especially if they are used as the basis for commercial recommendations.

Professor Robin Allaby

School of Life Sciences,
Gibbet Hill Campus,
University of Warwick,
Coventry CV4 7AL
Tel: 02476575059
Fax: 02476574500
Email: r.g.allaby@warwick.ac.uk