

Dance Farm, Crane Moor

Ecological Impact Assessment

14th March 2024



Prepared by:

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Site Name Crane Moor	Location Dance Lane, Crane Moor, S35 7AW
Local Authority Barnsley Council	Grid Reference SE 30872 01349
Surveyor Robert Bell MCIEEM	Date of Survey 17/08/2023
Soilscape Slowly permeable seasonally wet acid loamy and clayey soils	Designation of Site None

UK Habitat Classification habitats on Site <u>Habitats:</u> g3c5 – Arrhenatherum neutral grassland, g4 – modified grassland, u1b5 – buildings, u1b6 – other developed land, u1c – artificial unvegetated, unsealed surface, h2b – non-native and ornamental hedgerow <u>Secondary codes:</u> 32 – scattered trees
Protected/Notable Species, Constraints on Site Roosting bats (brown long-eared bat maternity roost, common pipistrelle day roost, soprano pipistrelle day roost and whiskered bat day roost)
HPIs and SPIs under NERC Act 2006 Brown long-eared bat, soprano pipistrelle
Barnsley BAP Bats (all species)

1. Summary

- 1.1.1 This ecological impact assessment of Dance Farm was commissioned by the client Graham Turner on 17th August 2023. The survey was commissioned to inform proposals to undertake a residential re-development of the site.
- 1.1.2 The red-line boundary comprised a 0.32 ha plot of land and included the existing farmhouse and a series of barns and outbuildings, associated with the site's former agricultural use. A tarmac access road led southeast from Dance Lane to a gravel parking area to the northwest of the buildings. Hardstanding surrounded the buildings, with an area of neutral grassland along the eastern boundary. In the southern corner of the site was the garden associated with the farmhouse dwelling.
- 1.1.3 Site habitats were not considered to be of greater than site level importance. The site was considered to be of district importance to local bat populations with seven roosts present, including a brown long-eared bat maternity roost. Populations of bird and reptiles using the site may be of up to local importance. The assemblage of other species was not considered likely to be of greater than site level importance.
- 1.1.4 The likely unmitigated impacts of the development were considered to comprise:
- Loss of 0.047 ha of neutral grassland, to be largely offset by new areas of vegetated garden, including tree planting
 - The destruction of bat roosts and artificial illumination of the site.
 - Destruction of bird nests and killing/injuring amphibians and/or reptiles.
 - Potential to impede access across the site for hedgehog.
 - Damage to offsite trees
 - Biosecurity risks as a result of bringing in plants, seeds and soil for landscaping.
- 1.1.5 A bat mitigation licence will be required to permit the scheme. A detailed bat mitigation plan is set out in this report. If works are delayed past May 2024, then at least one update dusk emergence survey would be necessary to inform licensing. An ecologically friendly lighting scheme should be developed for the scheme.
- 1.1.6 In addition to the bat mitigation, the following mitigation/compensation/enhancements are recommended:
- Demolition/vegetation clearance outside nesting season (March to August) or following nesting bird check.
 - Precautionary site clearance measures for amphibians/reptiles.
 - Implementation of tree protection measures.
 - Provision of new integrated swift boxes and hedgehog holes.
 - Planting of new wildlife friendly trees, a native hedgerow, avoidance of invasive species in planting and appropriate sourcing of new plants.
- 1.1.7 The results of this survey are considered to be valid for a period of 18 months.

2. Introduction

- 2.1.1 This ecological impact assessment of Dance Farm was commissioned by the client Graham Turner on 17th August 2023.
- 2.1.2 The survey was commissioned to inform proposals to undertake a residential re-development of the site.
- 2.1.3 The purpose of this report is to present the findings of an UK Habitat Classification survey and an assessment of the site's potential to support protected and notable species. The report considers the ecological value of the site, presents an assessment of the impacts of the proposed development, and provides details of the mitigation and compensation necessary to avoid or reduce these impacts.
- 2.1.4 Key legislation relating to designated sites, protected species and habitats is detailed in Appendix 3. The implications of legislation are detailed in the body of the report where necessary.
- 2.1.5 The site is located off Dance Lane in the village Crane Moor, 5.7 km southwest of Barnsley town centre.

3. Site Description

- 3.1.1 The red-line boundary comprised a 0.32 ha plot of land and included the existing farmhouse and a series of barns and outbuildings, associated with the site's former agricultural use. A tarmac access road led southeast from Dance Lane to a gravel parking area to the northwest of the buildings. Hardstanding surrounded the buildings, with an area of neutral grassland along the eastern boundary. In the southern corner of the site was the garden associated with the farmhouse dwelling, which comprised mainly amenity grassland with two open sided buildings and several fruit trees.
- 3.1.2 The site was bordered by deciduous woodland (Cliffe Common Wood), supporting a minor stream to the east and pasture to the north, south and west.
- 3.1.3 The site falls within National Character Area (NCA) 38 - the Nottinghamshire, Derbyshire and Yorkshire Coalfield. This NCA comprises a generally low-lying area, with hills and escarpments above wide valleys, the landscape embraces major industrial towns and cities as well as villages and countryside. Over half of the NCA is currently designated as greenbelt land; this maintains some distinction between settlements and represents areas that are often under pressure for development and changes in land use. The landscape is dotted with many pockets and patches of habitat where species find refuge. This is often on land that was once worked for minerals or occupied by major industry.
- 3.1.4 Natural soils in the area comprise slowly permeable seasonally wet acid loamy and clayey soils.

Figure 1. The site location, as indicated by red outline



4. Methodology

4.1 Data Consultation

4.1.1 Barnsley Biological Records Centre (BBRC) and South Yorkshire Bat Group (SYBG) were contacted to request the following information for locations within a 1.5 km and 2 km radius of the site, respectively:

- Protected and notable species records
- The boundaries of non-statutory designated sites of nature conservation interest

4.1.2 A search of the Multi-Agency Geographical Information for the Countryside (MAGIC) website was undertaken to determine the following:

- The boundaries of statutory designated sites of nature conservation interest
- The locations of historic European Protected Species (EPS) licences granted by Natural England
- The presence of Great Crested Newt (GCN) *Triturus cristatus* records included in either the Class Survey Licence Returns or 2017-2019 Pond Surveys datasets

4.2 Field Survey

UK Habitat Classification Survey

4.2.1 The site was surveyed on 17th August 2023 using UK Habitat Classification habitat survey methodology (UK Hab Ltd., 2023) by Robert Bell (MCIEEM; Class license WML-A34-Level 4, 2016-25236-CLS-CLS)

- 4.2.2 Notable, rare or scarce plant species were highlighted if present. Evidence of protected species or species of nature conservation importance was recorded where present at the time of survey. Species recorded are included within the report as appropriate. Information is presented on the UK Habitat Classification plan, using Target Notes (TN) to identify particular features of interest, where appropriate.
- 4.2.3 Aerial photographs (Google Earth) were studied to place the site in its wider context and to look for ecological features that would not be evident on the ground during the walkover survey. This is particularly useful for identifying wildlife corridors and ponds but because the latter are often not apparent on aerial photographs, OS 1:25 000 scale maps are also used.
- 4.2.4 Site buildings which were to be impacted by the scheme were subject to internal and external visual inspections, with all buildings subject to external inspections. Accessible ponds were subject to a Habitat Suitability Indices (HSI) assessment to determine their suitability to support breeding GCN (Oldham *et al.*, 2000).
- 4.2.5 Habitats of Principal Importance (HPIs) and Species of Principal Importance (SPIs) are included on Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006 were noted together with priority species and habitats as included on the Local Biodiversity Action Plan (LBAP).

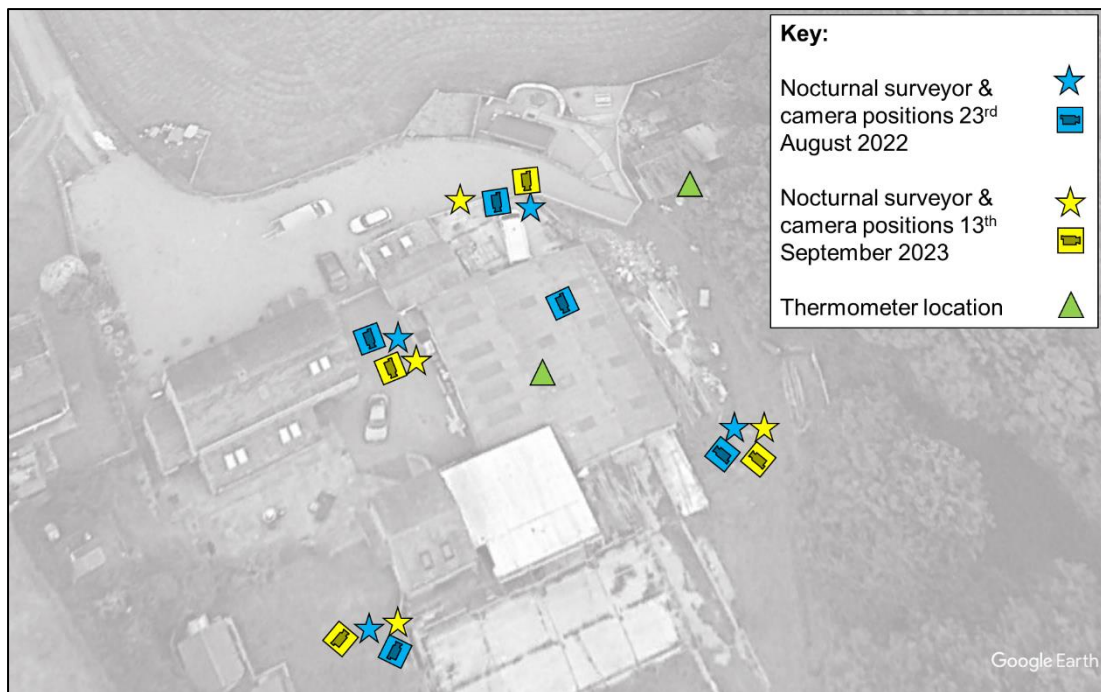
Nocturnal Surveys

- 4.2.6 The following personnel conducted the nocturnal surveys and were equipped with Wildlife Acoustics EM Touch bat detectors and iPad/iPod recorders, together with between four and five Canon XA10 or Panasonic VX980 units infra-red lit video cameras:
- Robert Bell (RB), Amanda Murphy (AM)(Qual CIEEM; Bat Survey Class licence WML-A34-Level 2, 2020-47913-CLS-CLS), Ian Wright (IW)(Bat Survey Class license WML-A34-Level 2, 2023-11218-CLS-CLS), John Pearse (JP) and Carl Dixon (CD)
- 4.2.7 The following activities were carried out in compliance with relevant Bat Survey Guidelines (Collins 2016).
- Dusk emergence survey on 23rd August 2023 – RB, AM, CD & IW
 - Dusk emergence survey on 13th September 2023 – RB, IW, JP & CD
- 4.2.8 Both dusk emergence surveyed continued from 15 minutes prior to sunset until 1.5 hours after this time. The arrangement of surveyors and cameras during the nocturnal surveys is shown in Figure 2.

Temperature Study

- 4.2.9 A temperature study of an identified bat roost location in Building B was undertaken with Tinytag temperature loggers in place from midnight on 31st August/1st September to midnight on 12th/13th September. One logger was installed adjacent to a known roost location within a hollow concrete block wall, with the second logger installed at a height of 1 m in a shaded outdoor location (Figure 2).

Figure 2. Bat survey plan



4.3 Method of Assessment

- 4.3.1 The value and sensitivity of ecological features present on site were determined based on the guidance given in 'Guidelines on Ecological Impact Assessment' (CIEEM, 2018). Individual ecological receptors (habitats and species that could be affected by the development) for the scheme were assigned levels of importance for nature conservation. The highest level is international, then decreasing in order of importance through national, regional, county, local and lastly site.

4.4 Survey Limitations

- 4.4.1 Many maternity roosts would have dispersed prior to the first nocturnal being undertaken, with maternity roosts of some species disbanding from around mid-July. Bat maternity roosts do however often leave evidence of their recent presence, such as large dropping accumulations and/or staining, particularly when roosting internally within buildings. The potential for any signs of bats, including, to have been deposited by a maternity roost of bats is considered in the discussion section of this report. Nocturnal survey timings were in accordance with accepted bat survey guidance.

5. Ecological Baseline

5.1 Designated Sites

5.1.1 Designated sites present within 2 km of the site are detailed in Table 1.

Table 1. Designated sites

Designation	Name	Interest	Distance and direction to site
Local Wildlife Site (LWS)	Mag Wood Meadows	Contains a matrix of habitats (woodland, scrub and grassland) located within a mainly agricultural matrix. Contains some unimproved neutral grassland.	810 m west
	Rockley Wood	Comprises a series of woodlands including ancient woodland. Includes a large range of native trees and other woodland plants. Also supports a bat roost of county importance used throughout the year by a range of species.	1.2 km east

5.1.3 The closest area of ancient woodland to the site comprises Ayton Wood, an area of replanted ancient woodland located 140 m west of the site.

5.2 Habitats

5.2.1 The arrangement of site habitats is shown on the UK Habitat plan in Appendix 1, whilst a full list of plant species recorded is provided in Appendix 2.

Summary

5.2.2 Site habitats were not considered to be of greater than site level importance to nature conservation.

5.2.3 A detailed description of the site and adjacent habitats and the site's potential to support protected and notable species is provided below.

g3c5 – Arrhenatherum neutral grassland

5.2.4 Areas of tall unmanaged Arrhenatherum neutral grassland were present to the east (Plate 1) and in areas at the southeast corner of the site (Plate 2). Examination of Google Earth historic images shows this vegetation has developed in recent years upon a now-disused track, much of which was bare of vegetation until 2020. Grasses present in this area included abundant Yorkshire fog *Holcus lanatus*, frequent false oat grass *Arrhenatherum elatius* and cocksfoot *Dactylis glomerata*, together with occasional perennial rye grass *Lolium perenne*. Herbs present included frequently occurring common ragwort *Jacobaea vulgaris*, creeping thistle *Cirsium arvense*, white clover *Trifolium repens*, broad leaved willowherb *Epilobium montanum* and common nettle *Urtica dioica*. Occasionally occurring herb species included rosebay willowherb *Chamerion angustifolium*, spear thistle *Cirsium vulgare*, dandelion *Taraxacum*

officinale agg., bramble *Rubus fruticosus* agg., broad-leaved plantain *Plantago major* and broad-leaved dock *Rumex obtusifolius*.

- 5.2.5 This habitat was assessed as being in poor condition based upon the Condition Assessment Criteria stated in The Statutory Biodiversity Metric (Defra, 2023). The grassland was considered a poor example of the habitat type (herb species indicative of more nutrient rich ground), the sward height was not varied, combined cover of species indicative of sub-optimal condition was more than 5 % and there were less than 10 vascular plant species per m² (5.5 species/ m² measures on average in sample plots)

Plate 1. Arrhenatherum neutral grassland to east of Building B, with visible pile of rubble adjacent to the building (TN5, Appendix 1)



Plate 2. Area of neutral grassland between two areas of hardstanding at southern end of site, with buildings D (left) and E (centre) to rear of image (behind steel frame)



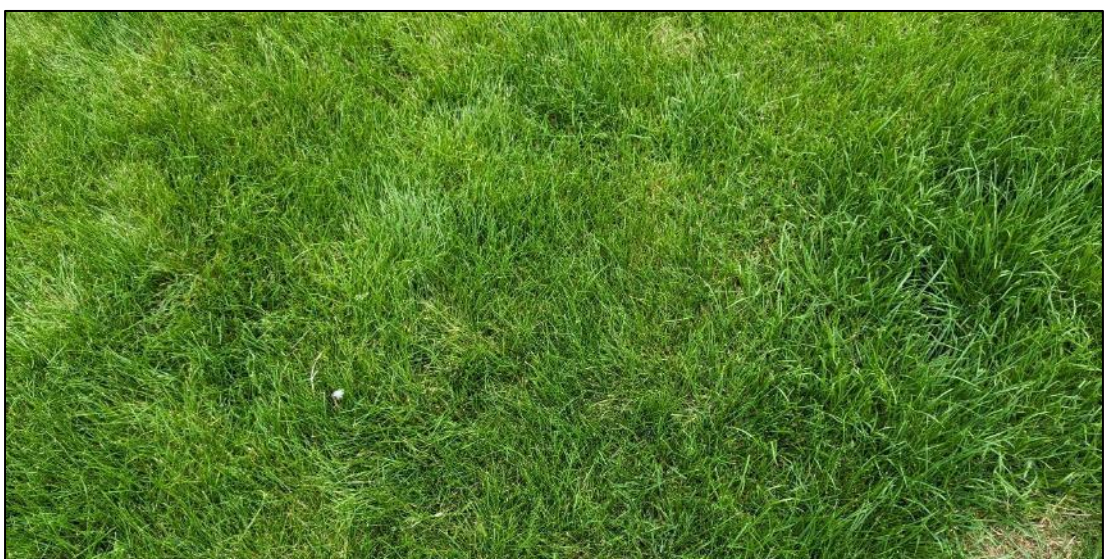
g4 – modified grassland

- 5.2.6 A recently laid/seeded lawn was present to the south of the farmhouse (Building F)(Plate 3). The lawn was dominated by grasses with species present including abundant red fescue *Festuca rubra*, frequent perennial rye grass and occasional annual meadow grass *Poa annua*. No herb species were noted from the lawn (Plate 4). At the edge of the lawn were was a small number of fruit trees including an apple *Malus domestica* and a plum *Prunus domestica* tree.
- 5.2.7 This habitat was assessed as being in poor condition based upon the Condition Assessment Criteria stated in The Statutory Biodiversity Metric (Defra, 2023). Less than 3 species per m² were recorded from the lawn restricting its categorisation to poor condition.

Plate 3. Lawn to south of farmhouse, with Building D to rear of image



Plate 4. Close view of lawn



u1b5 – buildings

- 5.2.8 Buildings on the included the recently constructed farmhouse and a range of former agricultural outbuildings of various constructions, including some of traditional construction and others of a pre-fabricated design (see Appendix 1: Plates 1-3 & 5). Two amenity structures were also present in the garden.
- 5.2.9 The potential of these buildings to support roosting bats and nesting birds is discussed in the relevant species sections and in Appendix 6.

Plate 5. Farmhouse (Building F), viewed from parking area to north.



Plate 6. Hardstanding between farmhouse and Buildings A & C (to rear of image)



u1b6 – other developed land

- 5.2.10 Hardstanding was present on both the access road from Dance Lane, between the farmhouse and outbuildings (Plate 6) in the centre of the site and bordering Buildings B and D/E to the east and south respectively (Plate 2).

u1c – artificial unvegetated; unsealed surface

- 5.2.11 A large gravel parking area was present to the north of the farmhouse (Plate 5). A small area of raised beds, was also present at the western end of the lawn.

5.3 Species and Species Groups

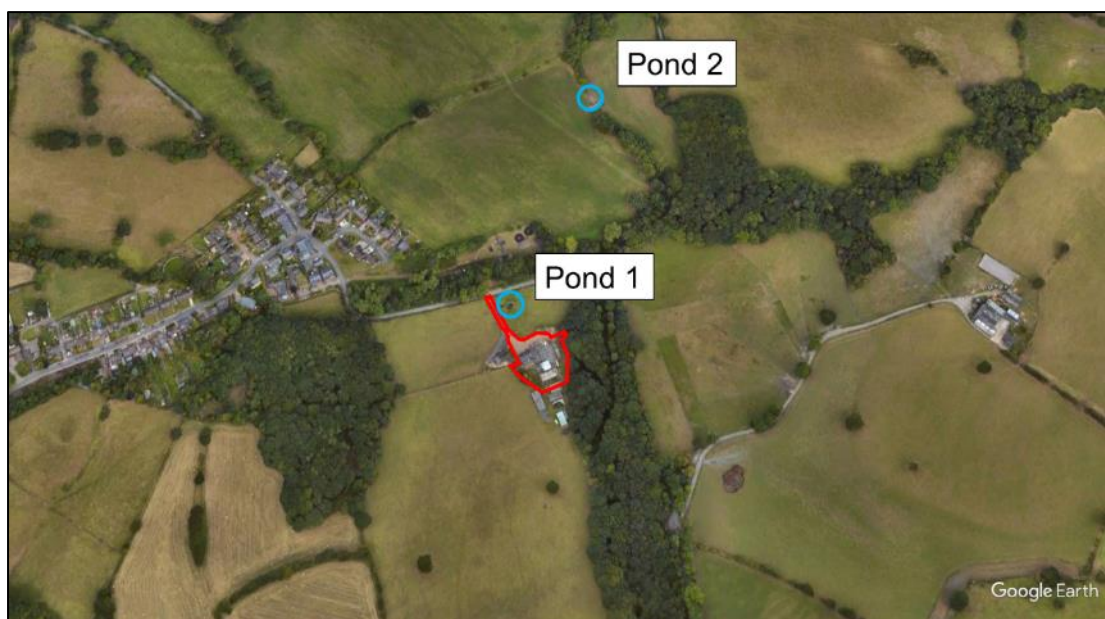
Summary

- 5.3.1 The site was considered to be of district importance to local bat populations. Populations of bird and reptiles using the site may be of up to local importance, however, the site is of little value to these species groups. The assemblage of other species which use the site was not considered likely to be of greater than site level importance to nature conservation.

Amphibians

- 5.3.2 No GCN records were provided by BBRC. No GCN presence records were included for locations within 2 km of the site on either the GCN Class Licence Returns dataset (closest record 2.1 km away), EPS mitigation licence dataset (closest licence 2.1 km away) or 2017-2019 Pond Surveys (closest licence 18.7 km away) dataset.
- 5.3.3 A total of three common frog *Rana temporaria* records were provided by BBRC. The closest common frog records were collected in 2016 from a location 0.9 km west of the site.
- 5.3.4 The pond search highlighted two ponds within a 500 m radius of the site (Figure 3).

Figure 3. Ponds within a 500 m radius of the site



- 5.3.5 Pond 1 comprised a c.35 m² duck pond surrounded by permanent grassland (Plate 7) and located 13 m east of the site access track. This pond, created between 2020 - 2022 has an artificial liner, is stream fed and seemingly lacking any aquatic vegetation being heavily disturbed by a flock of domestic geese. A HSI assessment of this pond

(see Appendix 5) showed that the pond displayed poor suitability for use by breeding GCN.

Plate 7. Pond 1



Plate 8. Pond 2



5.3.6 Pond 2 comprised a seasonal waterbody located 258 m northeast of the site. At the time of inspection in late August, following a wetter than average summer, this waterbody was found to be dry with the damp mud at the base of the pond heavily poached by sheep and an absence of aquatic macrophytes (Plate 8). This pond was

considered to lack potential for GCN breeding, as it was expected to dry annually early during the summer, before juvenile newt would have time to develop. Pond 2 was also considered to lack suitable egg laying material.

- 5.3.7 Taking into account the lack of records collected within 2 km of the site and the lack of suitable waterbodies it was considered likely that GCN would be absent from the site and this species was discounted as a receptor from the scheme.
- 5.3.8 It was considered possible that common amphibian species (notably common frog *Rana temporaria*) may use the site, however, with the exception of some piled building materials on the eastern side of the site (see Plate 1; TN5, Appendix 1), the site was considered to lack many potential resting locations. Potential foraging areas were largely limited to neutral grassland. Given the lack of suitable breeding ponds, the site was considered to unlikely to be of much value to local amphibian populations.

Badger

- 5.3.9 Two badger *Meles meles* records collected in the last 30 years were provided by BBRC for locations, however, both records related to locations more than 1 km from the site.
- 5.3.10 No signs of badger presence were noted from the site. It was however considered possible badger may use the site as part of a wider foraging area, if present locally.

Bats

Historic records

- 5.3.11 A total of 32 bat records were received from BBRC. None of the records received related to the site itself. The closest record comprised a pipistrelle *Pipistrellus* spp. maternity roost (84 bats) and noctule *Nyctalus noctula* flyover, recorded in 1992 from a location 470 m northwest of the site. Species positively identified in these records included soprano pipistrelle *Pipistrellus pygmaeus*, brown long-eared bat *Plectous auritus*, noctule and Leisler's bat *Nyctalus leisleri*, with other records attributed either to an unidentified pipistrelle species or an unidentified species of bat.
- 5.3.12 A total of 148 bat records were received from SYBG. None of the records related to the site itself. The closest record related to a grounded common pipistrelle, recorded in 2015 from a location 350 m northwest of the site. An additional local recorded comprised a 2004 count of 200 + pipistrelle bats recorded emerging from a roost location 380 m west of the site. Species positively identified in these records included common pipistrelle, soprano pipistrelle, brown long-eared bat, noctule, Daubenton's bat *Myotis daubentonii*, Natterer's bat *Myotis nattereri* and whiskered bat *Myotis mystacinus*. Other records were attributed either to an unidentified pipistrelle species, an unidentified *Myotis* bat, or an unidentified species of bat.
- 5.3.13 Three bat EPS mitigation licences have been issued for locations within 2 km of the site. The closest licence to site was issued in 2020 for a location 1.8 km northwest of site to permit destruction of common pipistrelle and brown long-eared bat resting places. Another licence, also issued in 2020, permitted damage to a brown long-eared bat breeding site and a Natterer's bat resting place in a location 1.9 km northeast of site. The final licence, issued in 2013 for a location 2 km southeast of the site, permitted destruction a whiskered bat breeding site and impacts to a soprano pipistrelle resting place.

Internal and external visual inspection

- 5.3.14 A detailed consideration of site buildings' bat roost potential is provided in Appendix 6. The buildings locations and the lettering system used are both shown in Appendix 1. Six bat droppings were recorded from the metal double doors on the northwest elevation of Building B during the visual inspection, indicating the presence of a roost somewhere in the building. In addition, a cluster of c.30 large yellow underwing *Noctua pronuba* wings and two probable brown long-eared bat droppings were recorded at the southeast end of the Building B, indicating the location of a brown long-eared bat feeding perch. Buildings A, B & D were considered to display a moderate level of bat roost suitability. Buildings C & F were considered to display a low level of bat roost suitability with Buildings E, G & H considered to display negligible bat roost suitability.

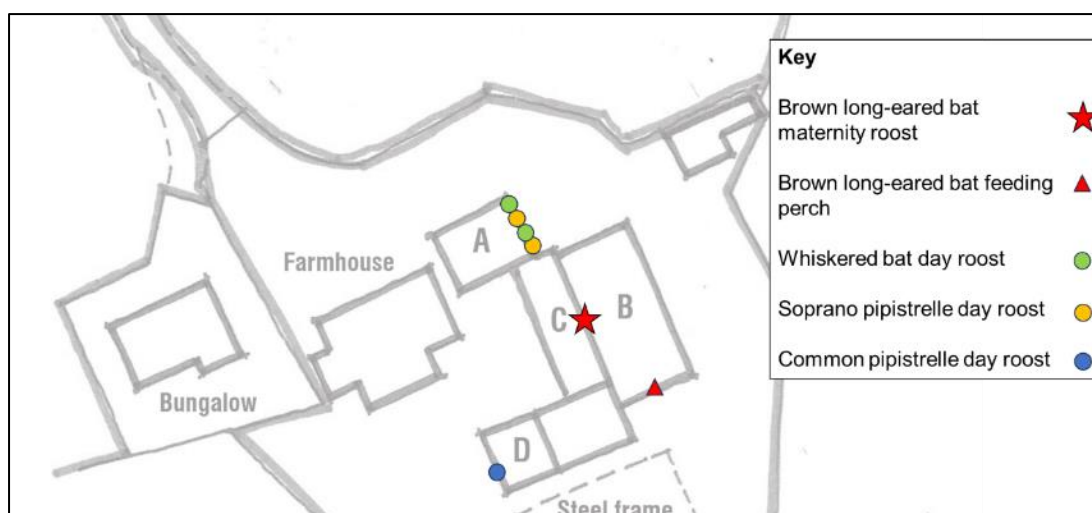
Nocturnal surveys

- 5.3.15 A detailed description of the findings of nocturnal survey works is presented in Appendix 6 together with links to example video clips and labelled images showing all recorded roost locations.
- 5.3.16 In addition to the brown long-eared bat feeding perch recorded from Building B during the internal inspection of this building the nocturnal surveys recorded an additional six bat roosts, as shown in Figure 4.
- 5.3.17 The most ecologically valuable bat roost recorded from the site comprised a brown long-eared bat maternity roost, recorded roosting within a hollow concrete block on the southwest elevation of Building B, with a maximum of 32 bats roosting in this location on 23rd August 2023.
- 5.3.18 Two soprano pipistrelle day roosts, spread across a total of three roost locations and used by a maximum count of three bats (23rd August 2023), were located in the northeast gable of Building A. In addition two whiskered bat day roosts, used by a maximum of one bat (23rd August 2023), were also recorded from the northeast gable of Building A. Finally, one common pipistrelle day roost used by a maximum count of two bats (23rd August 2023), was recorded from the southwest gable of Building D.

Temperature study

- 5.3.1 The internal temperature within the brown long-eared bat maternity roost was typically warmer than the outside temperature (on average 2.7 °C warmer) during the study period. The internal roost location temperature and external temperature were however closely correlated and typically converged during the mid-late morning, diverging to their maximum extent during the mid-late afternoon.

Figure 4. Bat roosts recorded during bat survey works undertaken



Foraging and commuting

- 5.3.2 The site lacked much high quality bat foraging habitat beyond the woodland edge (present along the eastern side of the site), which was well used by a range of bat species for foraging, including a number of light sensitive species (i.e. brown long-eared bat and at least one species of bat belonging to the *Myotis* genus).

Summary

- 5.3.3 Survey works showed the site to be of District value to roosting bats with a brown long-eared bat maternity roost recorded, together with day roosts belonging to a further three species and a brown long-eared bat feeding perch (Reason & Wray 2023).
- 5.3.4 Taking into account the overall level of site use and the buildings' construction, there is considered to be some limited potential for bat use during the hibernation season. This is largely restricted to those species known to tolerate wide temperature fluctuations within their roost locations during the hibernation season, such as pipistrelle and brown long-eared bat.

Birds

- 5.3.5 The only bird species recorded during the field survey comprised wood pigeon *Columba palumbus*, a species included on the green list of the Birds of Conservation Concern (Stanbury, 2021).
- 5.3.6 No bird records were provided by BBRC in relation to the site with the closest record to site comprising great tit *Parus major*, jay *Garrulus glandarius*, blackbird *Turdus merula* and goldcrest *Regulus regulus*, all recorded approximately 60 m northeast of the site between 2011-2015. In total 717 records relating to 79 bird species were provided by BBRC.
- 5.3.7 Woodland bordering the site's eastern edge (Cliffe Common Wood) has potential to support a range of specialist woodland bird species. This woodland is located in a valley with woodland adjacent to the site growing on a downward slope, which leads

towards a stream at the base of the valley. The site is however unlikely to experience extensive use by specialist woodland bird species.

- 5.3.8 Grassland, hedgerow, trees and buildings on the site were expected to be used for nesting by a range of common and widespread bird species. Garden habitats will be used by feeding birds but given the ubiquitous nature of the habitats present, the tidy and heavily managed nature of the garden and the low proportion of the site covered by trees and shrubs; the site offer little potential for habitat specialists and/or rarer bird species.
- 5.3.9 Bird populations using the area may be of Local value, however, as explained the site was not considered to be of particular value to these populations.

Hedgehog

- 5.3.10 Three hedgehog *Erinaceus europaeus* records were received from BBRC, all collected in 1980 with the closest record located 370 m south of the site.
- 5.3.11 The site was considered to display potential for hedgehog feeding and resting, however, the site displayed no more potential than adjacent habitats.

Invasive species

- 5.3.12 No historic records of plant species included on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) were provided for locations within 2 km of the site.
- 5.3.13 No invasive species, included on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended), were recorded during the field survey.

Invertebrates

- 5.3.14 The site supports a range of ubiquitous habitats of very limited extent and consequently rarely occurring invertebrate species are unlikely to be present.

Plants

- 5.3.15 The habitats present do not include long-established unimproved grasslands, ancient woodlands, species rich hedgerows or other diverse botanical communities. Therefore, protected or priority plants are unlikely to be present.

Reptiles

- 5.3.16 A single reptile record was provided by BBRC. A single grass snake *Natrix helvetica* was recorded in 2015 from a location 880 m north of the site.
- 5.3.17 The site lacks waterbodies or other habitats with much potential to support reptiles. Grass snake are however known to range widely across habitats within their range being recorded from varied locations locally, often away from higher quality foraging opportunities (i.e. the graveyard of Holy Trinity Church Thurgoland (2 km west of site), the chapel in Wentworth Castle Gardens (2.2 km northeast of site) etc.). As a result, it possible that grass snake sometimes use the site as part of a much wider home range.
- 5.3.18 Populations of reptiles (notably grass snake) in the surrounding area may be of up to

Local importance, however, the habitats present within the site would only be likely to be used occasionally by transiting individuals.

Table 2. Ecological importance of each habitat, species or species group on site and adjacent

Habitat, Species or Species Group	Ecological value
g3c5 – Arrhenatherum neutral grassland	Site
g4 – modified grassland	Site
u1b5 - buildings	Site
u1b6 – other developed land	Site
u1c – artificial unvegetated, unsealed surface	Site
Amphibians	Site (GCN not considered receptor)
Badger	Site (if present)
Bats	District
Birds	Local
Hedgehog	Site (if present)
Invasive species	N/A
Invertebrates	Site
Plants	Site
Reptiles	Local (if present)

6. Assessment

6.1 Proposals

- 6.1.1 The proposals are shown in Appendix 7. These comprise demolition of Building A to facilitate construction of a garage for the existing farmhouse (Building F), with the farmhouse to be retained unaltered. Two new dwellings will be constructed across approximately footprints of Buildings B to E, with parts of Buildings C, B & D renovated and Building E demolished. Two new detached garages will be constructed in association with Plots 1 & 2, with the Plot 2 garage, constructed in the southwest corner of the site, to contain a bat loft.
- 6.1.2 An access track will continue from the existing driveway down the eastern edge of the site. The remainder of the development area will comprise a mix of hardstanding parking areas, terraces and sections of vegetated garden. The proposals include the planting of 11 new trees on the site, together with a new length of species-rich native hedgerow along the eastern boundary. The garden associated with the farmhouse (Building F) will be retained unaltered.

6.2 Assessment of Impacts

Designated sites

- 6.2.1 Given the distance from local designated sites and the nature and scale of the proposed development, no impacts upon these sites are foreseen.

Habitats

- 6.2.2 Loss of all existing areas of g3c5 – Arrhenatherum neutral grassland is expected, to be replaced by a mix of new vegetated gardens, an access drive, parking areas and new buildings.
- 6.2.3 The development has potential to result in damage to the root systems and possibly also the canopies of trees in off-site locations which border the site.
- 6.2.4 As with any new development that includes elements of habitat creation, the development has intrinsic biosecurity risks associated with the bringing in plants, seeds and soil for landscaping.

Amphibians and Reptiles

- 6.2.5 Whilst not of particular appeal to amphibians and reptiles, they may make use of piled sleepers and rubble at TN5 (Appendix 1) for resting and long grass for foraging. Clearance of the site has potential to kill or injure individual animals.

Bats

- 6.2.6 The development will result in the destruction of seven bat roosts (one brown long-eared bat maternity roost, one brown long-eared bat feeding perch, two whiskered bat day roosts, two soprano pipistrelle day roosts and one common pipistrelle day roost). Without mitigation the development would risk killing or injuring individual bats and

would result in up to District level impacts in relation to roosting bats. Bats are subject to extensive legal protections, as detailed in Appendix 3.

- 6.2.7 The minor loss of habitat required as a result of the proposed scheme is expected to have no more than a negligible negative impact on foraging bats. The scheme does however have potential to result in additional lighting, which without mitigation could further reduce the appeal of the site and surrounding habitat to bats.

Birds

- 6.2.8 If building and/or vegetation clearance is to be undertaken during the main bird nesting period (March to September inclusive), this could result in the destruction of active nests. Birds are legally protected whilst actively nesting (Appendix 3). This would be anticipated to result in a negative effect on the local bird populations significant at no more than a site level.

Hedgehog

- 6.2.9 New drystone walls are to be constructed to segregate different dwellings and areas of the site. In places these walls would restrict movement of hedgehogs, if present, across the site, preventing access to some potential foraging areas. This would be anticipated to result in a negative effect on the local hedgehog population significant at no more than a site level.

Invasive species

- 6.2.10 No invasive species were recorded during the site survey, however, there is a risk of such species being incorporated into site planting, from where they could spread into adjacent woodland.

Other species

- 6.2.11 The proposed scheme effects on other species are considered to be significant at less than a site level.

6.3 Further Survey, Mitigation and Enhancement

Habitats

- 6.3.1 New site trees should comprise either specimens of a native species (i.e. silver birch *Betula pendula*, rowan *Sorbus aucuparia* or wild cherry *Prunus avium*), or fruit trees (i.e. domestic apple *Malus domestica*, crab apple *Malus sylvestris*, plum *Prunus domestica* or pear *Pyrus communis*), with UK grown specimens to be sought.
- 6.3.2 The new species-rich native hedgerow, to be planted along the eastern site boundary at the edge of Cliffe Common Wood (Figure 5) will comprise a mix of more than five woody species. UK grown hedge plants should be sought and a mix such as the Habitat Aid Native Hedge Mix For Gardens would be ideal.

Figure 5. Location of new species-rich native hedgerow



- 6.3.3 The new development is in an ecologically sensitive location, adjacent to woodland. Particular care will be taken to avoid planting any invasive plant species listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended), notably including variegated yellow archangel *Lamium galeobdolon subsp. argentatum*. In addition, planting of Spanish bluebell *Hyacinthoides hispanica* should be avoided and the use of native species in any new garden planting is strongly encouraged. There are many sellers of native plants from which stock can be sourced, with one example being Naturescape (<https://www.naturescape.co.uk/>). All stock used in planting should be sourced from reputable nurseries (preferably UK based) and suppliers.
- 6.3.4 British Standard 5837 (2012): Trees in relation to design, demolition and construction, should be followed in relation to both the retained hedge and offsite trees. Root Protection Zones (RPZ's) should be calculated and implemented to prevent harm to trees near the boundary. This should also apply to any trees out-with the site, up to 5 m from the boundary.

Amphibians and Reptiles

- 6.3.5 As a precaution to avoid killing or injuring amphibians and reptiles, the pile of sleepers and building waste at TN5 should be taken apart by hand. If common amphibians (i.e. frogs, toads, smooth and/or palmate newts) are encountered they can be moved in a bucket to a safe place. Site grassland should also first be cut to c. 150 mm, prior clearance to dissuade such species from using the area at the time of site clearance. These works would preferably be undertaken during the active season (April to September).

Bats

Bat licensing

- 6.3.6 A bat mitigation licence of some form will be required to permit the proposed development works. A bat mitigation licence cannot be applied for until all required consents have been granted and any nature conservation related planning conditions have been discharged. Depending upon the type of licence, Natural England would require between 15 - 30 working days to determine mitigation licence applications.
- 6.3.7 If works are delayed past May 2024, then at least one update dusk emergence survey would be necessary.

Works timings

- 6.3.8 Due to the confirmed presence of a maternity roost, works to Building B may not commence during the maternity roosting period (in this instance considered to be May to mid-September, with brown long-eared bat often late to vacate their maternity roost sites). Although the suitability of the site for use by hibernating bats is low, hibernating bats are particularly susceptible to disturbance at that time of year as there are almost no opportunities for them to feed and replenish their energy reserves. Therefore, as a precaution, licensable works should also not commence during the peak bat hibernation period (December to February). It is advised that an ecologist is consulted when works timetables are being developed.

Avoidance of killing or injuring bats during construction

- 6.3.9 In order to avoid killing or injuring roosting bats during construction a toolbox talk would be delivered to development staff. All works to known or suspected bat roost locations would need to be overseen by a licensed bat ecologist, in accordance with the terms of the mitigation licence. Where necessary, the bat ecologist should assist with the supervision of any removal of roof materials and should exclude bats from roosts within walls, which cannot be safely stripped. Any bats captured during works should be subject to a health check before being placed in a release box, which could be attached to either a tree within the off-site woodland (assuming landowner agreement) or a retained site building.

Long-term roost mitigation

- 6.3.10 Long-term roost mitigation for the scheme is proposed to include a bat loft, primarily intended to accommodate a brown long-eared bat maternity roost and six integrated bat boxes across site buildings. Across all new slated roofs a bat friendly underfelt or sarking board should be used. Such options comprise either a hessian backed Type 1F bituminous felt (strictly required for use in the bat loft), TLX BatSafe, SIGA Majcoat 200 SOB Diffusion or wooden sarking boards. The arrangement of the new bat loft and integrated bat boxes is shown in Figure 6.
- 6.3.11 The bat loft will be 2 m high from the ceiling to top of the ridge beam, with a width of 5.8 m and a length of 10 m; it will have a cut-and-pitch construction with a blue slate roof covering, lined with Type 1F felt and suspended on a ridge beam, purlins, rafters and battens. If metal beams are required for the ridge or purlins these will be wrapped in timber. To provide bat access two lead bat access slates will be fitted (with one each on southeast and northwest pitches), together with a wooden louvre in the northeast

gable. Roost space within the bat loft will be created through the incorporation of hollow blocks along the top of gable walls and two wooden baffle boxes, to be attached to the inner face of the northeast gable. Human access into the bat loft will be via a small (500 mm x 500 mm loft hatch). These design details are shown in Figure 7.

- 6.3.12 Integrated bat boxes to be used across the development may comprise any of a range of designs, with a suggested product the PRO UK Build-in WoodStone Bat Box.

Figure 6. Bat loft and integrated bat box locations

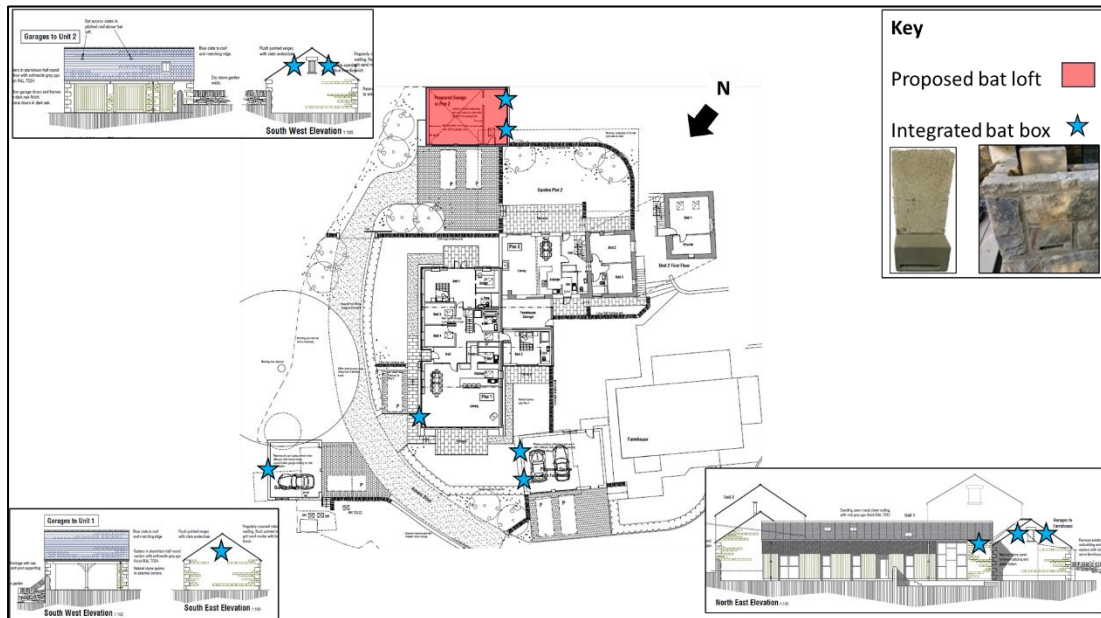
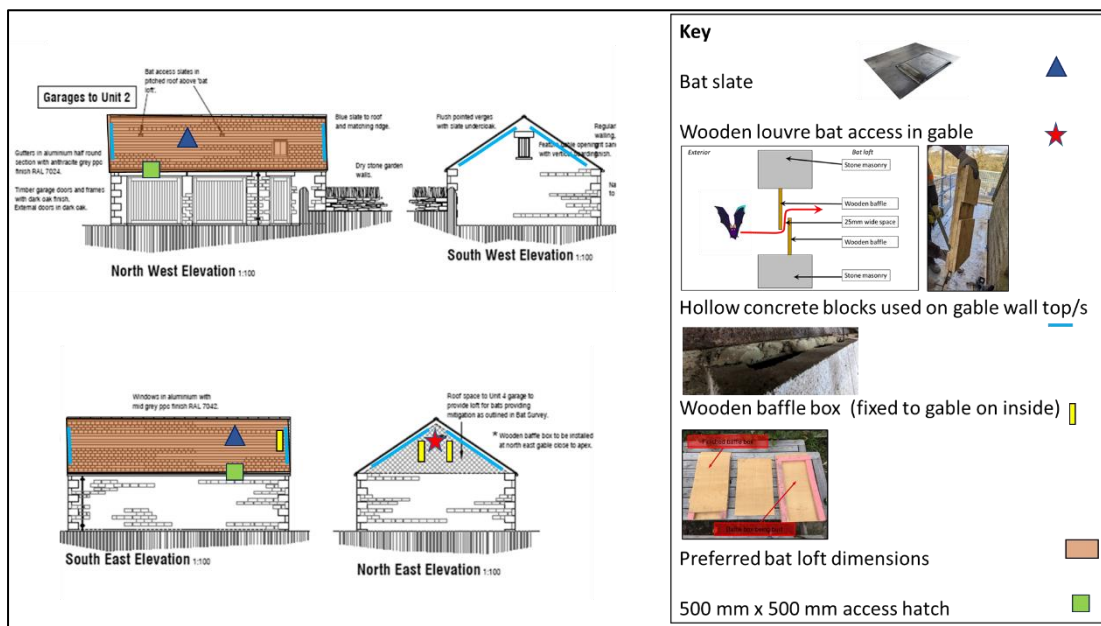


Figure 7. Bat loft design



Lighting

- 6.3.13 An ecologically sensitive lighting plan will need to be developed for the site. Brown long-eared bats and bats of the *Myotis* genus are noted as being very sensitive to artificial lighting. It is advised that new external lighting around site buildings should be avoided where possible. In particular, there should be no light spill on either the bat loft or new integrated bat boxes, with a totally dark corridor between the bat loft and woodland.
- 6.3.14 Where lighting is necessary it should be subject to passive infra-red sensor activation only on a relatively short timer, in order to reduce the times of operation. New lighting must be designed such that it does not illuminate adjacent vegetation, notably comprising the woodland edge on the eastern boundary. It is advised that any new lighting be low height, low output, directional and of a warm colour tone (ILP, 2023).

Monitoring surveys

In accordance with guidance, the new bat loft will need to be monitored in Year 1 (the first activity season post-development) and Year 3.

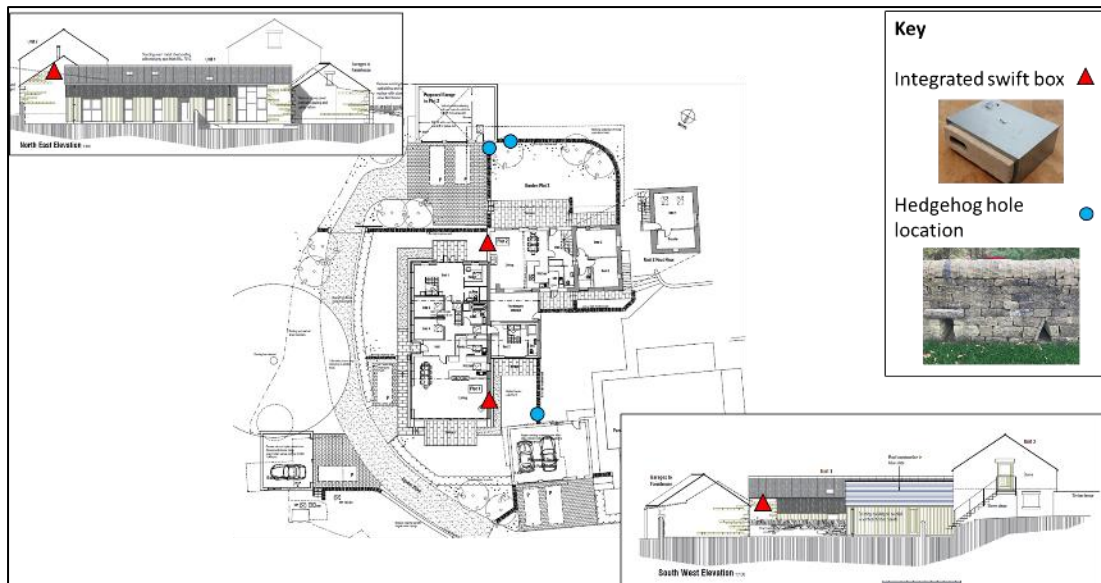
Birds

- 6.3.15 It is recommended that vegetation clearance and building demolition takes place at a time outside the main bird nesting period (outside March to August). If this is not possible then a nesting bird check of site vegetation and buildings should be undertaken by an ecologist prior to demolition and/or clearance works proceeding.
- 6.3.16 Two new integrated swift brick, such as the S Brick should be installed on site (see Figure 8). These bricks should be fitted close to wall top height, to afford the maximum drop from nest locations for birds emerging from these units. Studies have shown that swift *Apus apus* boxes are used by the full range of nesting birds that utilise buildings; consequently, these boxes will also provide potential nesting space for house sparrow *Passer domesticus* and starlings *Sturnus vulgaris*.

Hedgehog

- 6.3.17 In order to ensure that hedgehogs continue to be able to freely access the site, 13 cm x 13 cm hedgehog holes should be created at the base of dry stone walls in the locations indicated in Figure 8. Eco Hedgehog Hole Fence Plates should be fitted around these holes as a reminder not to block these holes.

Figure 8. Proposed swift box and hedgehog hole locations



6.4 Conclusion

- 6.4.1 The scheme will result in loss a small area of poor condition neutral grassland to be largely offset through the planting of new trees and the new boundary hedgerow, together with the creation of new vegetated garden areas.
- 6.4.2 The main ecological constraint on site comprises the presence of roosting bats of District level importance to nature conservation. A mitigation licence will be needed to permit the scheme. If mitigation measures proposed in this document in relation to roosting bats are adopted then it is considered that the favourable conservation status of local bat populations can be expected to be maintained.
- 6.4.3 Additional mitigation and enhancement measures proposed in relation to other species groups should be adopted.
- 6.4.4 The results of this survey are considered to be valid for a period of 18 months. After this time Middleton Bell Ecology should be contacted to determine the need for update survey.

7. References

BCT (2022) Interim Guidance Note: Use of Night Vision Aids for Bat Emergence Surveys And Further Comment On Dawn Surveys. The Bat Conservation Trust.

Collins J. (ed.) (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines. The Bat Conservation Trust.

CIEEM (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal and Marine. Chartered Institute of Ecology and Environmental Management, Winchester.

CIEEM (2017) Guidelines for Preliminary Ecological Appraisal, 2nd edition. Chartered Institute of Ecology and Environmental Management, Winchester.

Defra (2023) The Statutory Biodiversity Metric User Guide (draft). Defra.

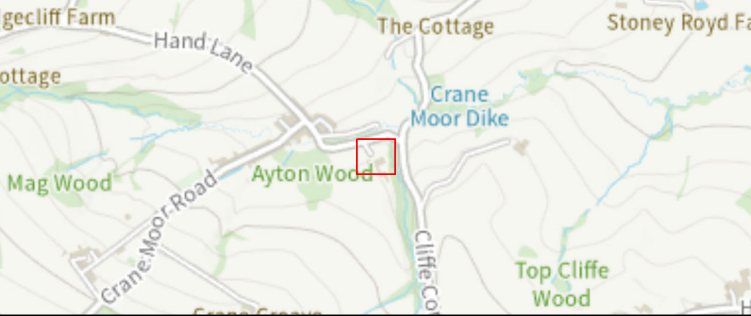
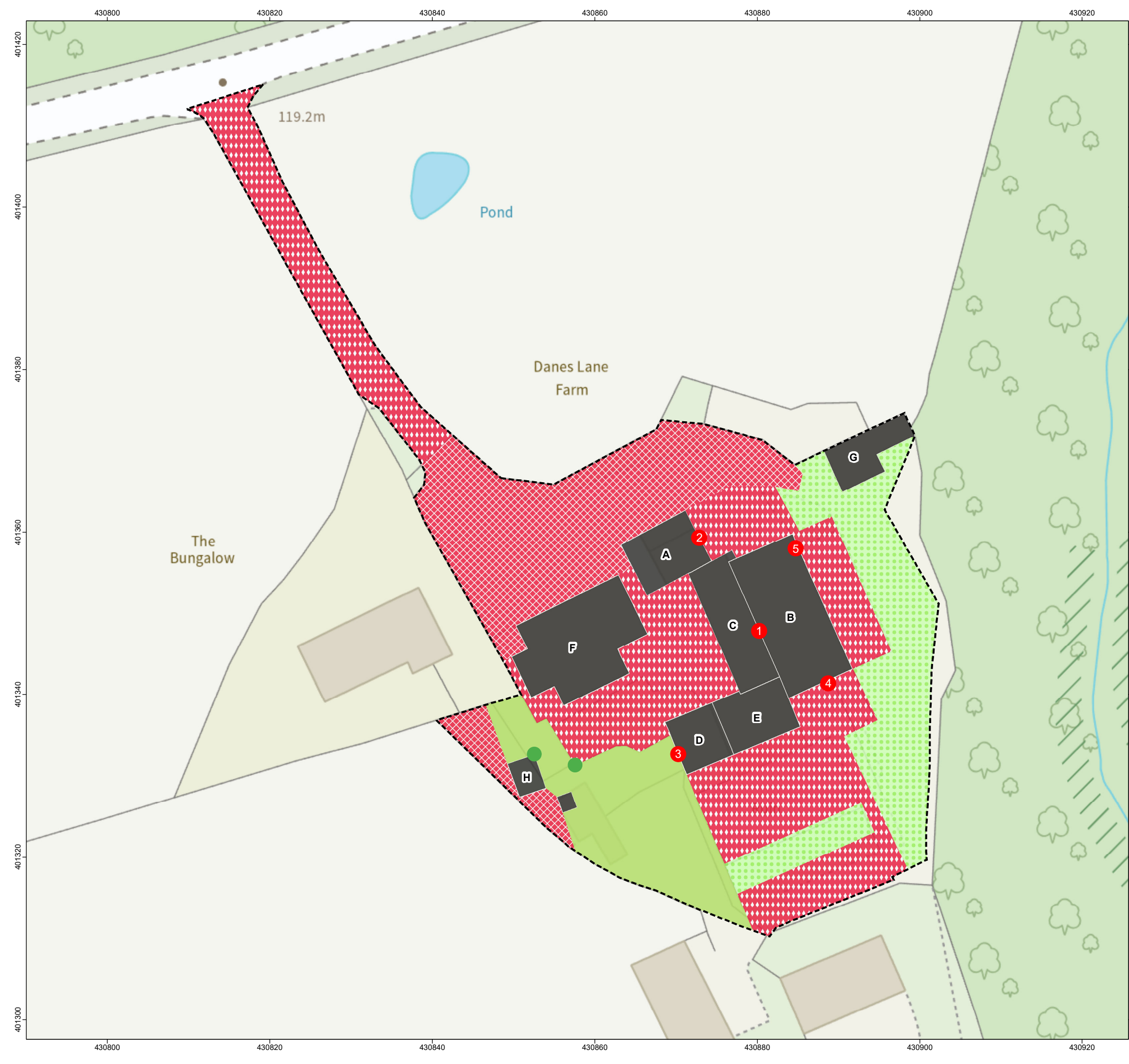
Oldham R.S., Keeble J., Swan M.J.S. & Jeffcote M. (2000). Evaluating the suitability of habitat for the Great Crested Newt (*Triturus cristatus*). Herpetological Journal 10(4), 143-155.

Reason, P. and Wray, S. (2023) UK Bat Mitigation Guidelines: a guide to impact assessment, mitigation and compensation for developments affecting bats. Chartered Institute of Ecology and Environmental Management.

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

UKHab Ltd (2023) UK Habitat Classification Version 2.0 (at <https://www.ukhab.org>)

Appendix 1. UK Habitat Classification Plan



Survey Information	
	Site boundary (3,220.7m ²)
UK Habitat Survey (Primary Habitats)	
	g3c5 - Arrhenatherum neutral grassland (466.0m ²)
	g4 - Modified grassland (354.2m ²)
	u1b5 - Buildings (635.6m ²)
	u1b6 - Other developed land (1,108.5m ²)
	u1c - Artificial unvegetated, unsealed surface (656.4m ²)
	32 - Scattered trees
	Target note

Target notes:

1 - Brown long-eared bat maternity roost – peak count 32 bats
2 - Soprano pipistrelle and whiskered bat day roosts – peak counts 3 and 1 bat respectively
3 - Common pipistrelle day roost – peak count 2 bats
4 – Brown long-eared bat feeding perch
5 – Pile of sleepers and building rubble (block, stone and brick)

Source:
Ordnance Survey © Crown copyright 2024, All rights reserved. License Number 100049837.

 0 2.5 5 10
Metres

PROJECT TITLE

DANCE FARM, CRANE MOOR

DRAWING TITLE

Figure 1. UK Habitat Survey Plan

VER	DATE	REMARKS	Drawn	Checked
1.2	01/03/24	UKHab	MP	RB

DRAWING NUMBER:

MIDDLETONBELLECOLOGY/DanceFarm/UKHab

SCALE	1:450	PLOT SIZE	A3	DATUM	OSGB	PROJECTION	BNG
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Appendix 2. Plant Species Recorded on Site

D = Dominant, **A** = Abundant, **F** = Frequent, **O** = Occasional, **R** = Rare

Common name	Latin name	g3c5 – Arrhenatherum neutral grassland	g4 - modified grassland	32 -Scattered trees
Red fescue	<i>Festuca rubra</i>	A		
Yorkshire fog	<i>Holcus lanatus</i>	A		
Broad leaved willowherb	<i>Epilobium montanum</i>	F		
Cocksfoot	<i>Dactylis glomerata</i>	F		
Common nettle	<i>Urtica dioica</i>	F		
Common ragwort	<i>Jacobaea vulgaris</i>	F		
Creeping thistle	<i>Cirsium arvense</i>	F		
False oat grass	<i>Arrhenatherum elatius</i>	F		
White clover	<i>Trifolium repens</i>	F		
Perennial Rye-grass	<i>Lolium perenne</i>	O	F	
Annual meadow grass	<i>Poa annua</i>	O		
Bramble	<i>Rubus fruticosus</i> agg.	O		
Broad leaved dock	<i>Rumex obtusifolius</i>	O		
Broad leaved plantain	<i>Plantago major</i>	O		
Dandelion	<i>Taraxacum officinale</i> agg.	O		
Rosebay willowherb	<i>Chamerion angustifolium</i>	O		
Spear thistle	<i>Cirsium vulgare</i>	O		
Smooth sow thistle	<i>Sonchus oleraceus</i>	R		
Apple	<i>Malus domestica</i>			O
Plum	<i>Prunus domestica</i>			O

Appendix 3. Relevant Legislation and Planning Policy

Wildlife legislation relating to statutory designated sites and species is summarised in Table A1 and A2 below. This legal information is intended for summary only, and the original legal documents should be consulted if a detailed understanding is required.

Table A1. Legislation relating to designated sites and habitats

Designated Site	Legal Status
Local Wildlife Site (LWS)	While they have no direct legal status, Local Wildlife Sites are considered important enough to receive recognition within the planning system. National planning policy requires local authorities to identify Local Wildlife Sites and provide for their protection through local policy.

Table A2. Legislation relating to species

Species	Legal Status
European protection	
European Protected Species (EPS) (including bats, Great Crested Newt (GCN), otter and hazel dormouse)	These animal species and their breeding sites or resting places are protected under the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019, which makes it illegal to: • Intentionally or deliberately capture, injure or kill any such animal or to deliberately take or destroy their eggs. • Deliberately disturb such an animal. • Damage or destroy a breeding site or resting place of such an animal. European Protected Species (EPS) licences can be granted by Natural England in respect of development to permit activities that would otherwise be unlawful under the Conservation Regulations, providing that the following 3 tests (set out in the EC Habitats Directive) are passed: • The development is for reasons of overriding public interest. • There is no satisfactory alternative; and • The favourable conservation status of the species concerned will be maintained and/or enhanced. Under Regulation 9(5) of the Conservation Regulations, Planning Authorities have a legal duty to 'have regard to the requirements of the EC Habitats Directive in the exercise of their functions'. This means that they must consider the above 3 tests when determining whether Planning Permission should be granted for developments likely to cause an offence under the Conservation Regulations. As a consequence, Planning Applications for such developments must demonstrate that the 3 tests will be passed. Natural England also allow sites to be registered on the Bat Low Impact Class Licence to permit activities that would otherwise be unlawful under the Conservation Regulations where the 3 tests can be passed and the bat roosts to be impacted are of low conservation status.

Species	Legal Status
National protection	
European Protected Species and other species including water vole and white clawed crayfish	These animals receive full protection under the Wildlife and Countryside Act 1981 (as amended by the Countryside and Rights of Way Act 2000), which makes it illegal (subject to exceptions) to: • Intentionally kill, injure or take any such animal. • Intentionally or recklessly damage, destroy or obstruct any place used for shelter or protection by any such animal; and • Intentionally or recklessly disturb such animals while they occupy a place used for shelter or protection.
Reptiles	These animals receive limited protection under The Wildlife and Countryside Act 1981 (as amended by the Countryside and Rights of Way Act 2000), which makes it illegal to intentionally kill or injure any such animal.
Badger	The Protection of Badgers Act 1992 makes it illegal to wilfully kill or injure a Badger or attempt to do so and also make it illegal to intentionally or recklessly interfere with a Badger sett. This includes damaging or destroying a sett, obstructing access to a sett and disturbing a Badger while it is occupying a sett. Licences can be granted by Natural England to permit sett closure and/or disturbance between July and November inclusive.
Schedule 1 birds	Special penalties relate to offences concerning birds listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended). In addition to the offences detailed above relating to all wild birds, it is illegal to intentionally or recklessly disturb any Schedule 1 bird or their dependent young while nesting.
All bird species	All wild birds are protected under the Wildlife and Countryside Act 1981 (as amended by the Countryside and Rights of Way Act 2000), which makes it illegal (subject to exceptions) to: • Intentionally kill, injure or take any wild bird. • Take, damage or destroy the nest (whilst being built or in use) or eggs of any wild bird.
Invasive species	The Wildlife and Countryside Act 1981 (as amended) contains measures for preventing the establishment of non-native species which may be detrimental to native wildlife, prohibiting the release of animals and planting of plants listed in Schedule 9 of the Act. In relation to Schedule 9 plants, it is an offence to plant or otherwise cause these plant species to grow in the wild.

Species and Habitats of Principal Importance

Planning authorities have a duty under Section 40 of the NERC Act 2006 to have regard to priority species and habitats in exercising their functions including development control and planning. In compliance with Section 41 of the NERC Act, the Secretary of State has published a list of species and habitats considered to be of principal importance for conserving biodiversity in England under the UK Post-2010 Biodiversity Framework. This is known as the list of Habitats and Species of Principal Importance (HPI/SPI). The HPI/SPI list is used to guide planning authorities in implementing their duty under the NERC Act.

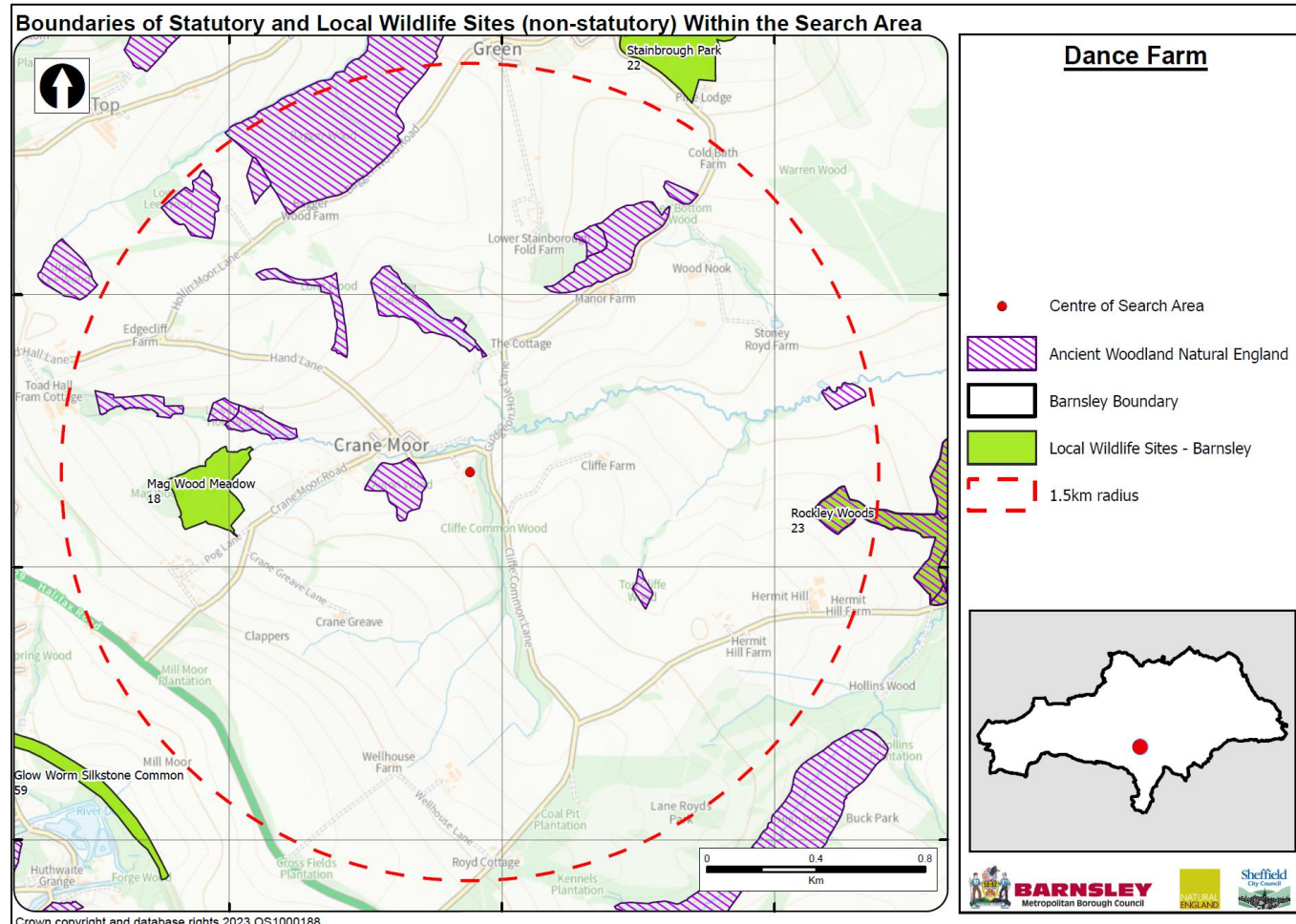
National Planning Policy Framework

The National Planning Policy Framework for England was revised in 2021. This document states that plans should 'promote the conservation, restoration and re-creation of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity'. It also puts an emphasis on refusing development which would result in the 'loss or deterioration of irreplaceable habitats (such as ancient woodland)' unless there are 'wholly exceptional reasons and a suitable mitigation strategy exists'.

Local Biodiversity Action Plans

The HPI/SPI list included on Section 41 of the NERC Act 2006 is supported by a series of Local Biodiversity Action Plans (LBAPs), usually set up on a local authority local authority administrative boundary basis. Each LBAP identifies those habitats and species considered to be most important in that area (usually referred to as priority habitats and species). Commonly, an LBAP will identify a number of habitats and species for which "action plans" have been prepared.

Appendix 4. Designated Site Location Plan



Appendix 5. HSI Scores for Neighbouring Ponds

Pond Number	Location	Pond Area	Pond Drying	Water Quality	Shade	Fowl	Fish	Ponds	Terrestrial Habitat	Macrophytes	HSI	Suitability
1	Zone A	<50 m2	Never Dries	Moderate	0-60%	Major	Absent	1	Moderate	1-5%	0.355	Poor
2	Dry on 30/08/2023 with no aquatic macrophytes											

Appendix 6. Bat Survey Results

Internal and External Visual Inspection

Building A

General description and external bat roost opportunities

- 7.1.1 Building A comprised a single-storey brick outbuilding with a dual-pitched Welsh slate covered roof with clay ridge tiles and a skylight. A lean-to with a concrete-asbestos corrugated sheet covered roof was present on the northwest elevation. Building A was rendered with the exception of the northeast gable, which comprised white-washed brickwork. Deep wooden eaves were present on the southwest gable with a metal louvre also present above the window in the northeast gable.
- 7.1.2 Potential bat access points in the exterior of Building A were mainly associated with the northeast gable where they took the form of potential flight access to the interior, via the louvre panel and missing verge mortar. In addition, slipped slates were also present on the roof.

Internal inspection

- 7.1.3 The roof of Building A was unlined and suspended on a ridge beam, purlins, rafters and battens. A 1.2 m high void was present which lacked insulation. The void was light and dusty with no signs of bats recorded.
- 7.1.4 Building A was considered to display a moderate level of bat roost suitability.

Plate A6.1. West corner of Building A



Plate A6.2. Northwest gable of Building A



Plate A6.3. Roof void in Building A



Building B

General description and external bat roost opportunities

- 7.1.5 Building B comprised a single-storey concrete block built outbuilding with a dual-pitched corrugated asbestos-cement sheet covered roof with an asbestos-cement verge capping a ridge covering (including vent tiles). The upper sections of gable and side elevations also comprised corrugated asbestos-cement sheet cladding, with double metal doors present in the northwest elevation.
- 7.1.6 Potential bat roost locations on the exterior of the barn comprised a gap behind verge capping on the northwest gable and multiple holes present leading into the hollow concrete blocks of the wall. Bats may also roost between overlapping corrugated roof sheeting. Bat access to the interior of the building was possible either via gaps between corrugated sheet cladding and concrete wall blocks, in locations where corrugated sheeting was broken, via vent tiles in the ridge or over the double doors.
- 7.1.7 A cluster of six bat droppings were recorded from the northwest door, considered to be associated with either a bat roost beneath the verge capping (not present during the inspection) or bats accessing the interior of the building over the double doors.

Internal inspection

- 7.1.8 The roof of Building B was open to the underside of roof sheeting and suspended on a metal frame. Walls comprised a mix of solid and hollow concrete blocks.
- 7.1.9 A cluster of 30 large yellow underwing wings and two probable brown long-eared bat droppings was recorded at the south end of the building (TN 4; Appendix 1), indicating the location of a brown long-eared bat feeding perch.
- 7.1.10 Building B was considered to display a moderate level of bat roost suitability.

Plate A6.4. Northern corner of Building B



Plate A6.5. Southeast elevation of Building B (right), Building E (centre) and Building D (left)



Plate A6.6. Interior of Building B



Plate A6.7. Brown long-eared bat feeding remains (TN 4, Appendix 1)



Building C

General description and external bat roost opportunities

- 7.1.11 Building C comprised a single-storey concrete-block built lean-to with a single-pitch corrugated asbestos-cement sheet roof. Wooden doors were present in the southwest elevation. The building had a wooden fascia and plastic gutters.
- 7.1.12 On the exterior of Building C bats could potentially access the wall top.

Internal inspection

- 7.1.13 Internally the roof of Building C was unlined with the interior of the building used as a workshop/storage area.
- 7.1.14 Building C was considered to display a low level of bat roosting suitability.

Plate A6.8. Southwest elevation of Building C



Building D

General description and external bat roost opportunities

- 7.1.15 Building D comprised a recently (post 2000) converted two-storey outbuilding with a dual-pitched Welsh slate covered roof with clay ridge tiles and skylights. The building had mortar filled verges and c.5 cm wide circular ventilation holes in the gables leading into the roof void. Guttering was aluminium and windows were double glazed and plastic framed. A stone staircase led to a door at first floor level in the southwest gable.
- 7.1.16 On the exterior of Building D bats could potentially access the wall top or the interior of the building via the circular ventilation holes in the gables. Small openings were also present between the verge mortar and the roof slates.

Internal inspection

7.1.17 The roof of Building D was lined with a breathable roof membrane and suspended on a steel ridge beam, rafters and battens. The roof void was 0.5 m high and lined with solid insulation on the ceiling. No signs of bats were recorded from the void.

7.1.18 Building D was considered to display a moderate level of bat roosting suitability.

Plate A6.9. South corner of Building D



Plate A 6.10. Roof void of Building D



Building E

General description, external bat roost opportunities and internal inspection

- 7.1.19 Building E comprised an open-fronted outbuilding with a steel and timber frame and mixed stone/concrete-block walls. A single-pitched corrugated metal-sheet roof was present.
- 7.1.20 The roof was unlined and no signs of bats were recorded from any location.

Building E was considered to display a negligible level of bat roosting suitability.

Plate A6.11. Interior of Building E



Building F

General description and external bat roost opportunities

- 7.1.21 Building F comprised a two-storey stone faced dwelling constructed in 2010 with a dual-pitched Welsh slate covered roof with clay ridge tiles and skylights. Mortar verges were present. A single storey extension was present on the southwest gable with a timber-framed conservatory on the southeast elevation. Windows were plastic framed and double-glazed.
- 7.1.22 Potential roost locations on the exterior of the dwelling comprised potential bat access to wall tops and a gap in the verge on the northeast gable.

Internal inspection

- 7.1.23 The roof appeared vaulted but the interior of the dwelling was not inspected due to the lack of impacts anticipated in relation to this building.

Building F was considered to display a low level of bat roost suitability.

Plate A6.12. Building F



Building G

General description, external bat roost opportunities and internal inspection

- 7.1.24 Building G comprised a timber framed outbuilding with a single pitch asbestos-cement corrugated sheet roof and a mix of pitch asbestos-cement corrugated sheet and timber walls, part of which was open-sided. A metal silo was located adjacent to this structure.
- 7.1.25 No bat roosting locations were recorded from the exterior or from the interior, with the roof unlined and no void present.
- 7.1.26 Building G was considered to display a negligible level of bat roost suitability.

Plate A6.13. Building G



Building H

General description, external bat roost opportunities and internal inspection

- 7.1.27 Building H comprised two recently constructed open sided amenity structures in the garden of Building F. The main structure which supported a pizza oven had a dual-

pitched clay tile roof and a chimney, with a gently sloping roof over the adjacent structure.

- 7.1.28 No bat roosting locations were recorded from the exterior or from interior of the structures and Building H was considered to display a negligible level of bat roost suitability.

Nocturnal Surveys

- 7.1.29 All bat roosting activity recorded during nocturnal surveys is summarised in Figure A6.1 and detailed below.

23rd August 2023 – Dusk emergence survey

- 7.1.30 The temperature at the beginning of monitoring was 18 °C, with a light air (Beaufort Scale Force 1), full cloud cover, and no rain. The temperature dropped to 16 °C by the end of the survey with the other conditions remaining the same. Sunset was at 20:18.
- 7.1.31 Between 20:16 and 21:08 a total of 32 brown long-eared bats were recorded emerging from a roost within a hollow block on the southwest elevation of Building B into the interior of the building (Plates A6.14 & A6.15; see clip of two of these emerging bats here: <https://youtu.be/QSEe-R2EBi0> (clip is unlisted on YouTube so not available without this link)). These bats flew internally before exiting the building via a broken section of wall cladding on the northeast elevation, with the first bat exiting the building at 20:34.
- 7.1.32 The first bat recorded emerging comprised a soprano pipistrelle which emerged from a gap in the verge on the northeast gable of Building A at 20:15 (Plate A6.16). A second soprano pipistrelle emerged from the same roost location at 20:46, with a third soprano pipistrelle emerging from a roost below the ridge tile on the northeast gable of Building A at 20:45 (see clip: <https://youtu.be/FqD7VXzeOx0>).
- 7.1.33 At 20:36 the first of two emerging common pipistrelle were recorded emerging from the southwest gable of Building D (Plate A6.17), with the first bat emerging near the base of the low southeast corner of the roof. The second common pipistrelle emerged from the verge of Building Ds southwest gable at 20:37. Both emerging bats can be seen here: https://youtu.be/H_-8qmPBtec .
- 7.1.34 At 20:51 the a single *Myotis* bat was recorded emerging from the gable verge on the northeast gable of Building A. Based upon the roost location, time of emergence (17 minutes after sunset) and echolocation call characteristics (Plate A6.18) this bat was considered to be a whiskered bat.
- 7.1.35 The first bat activity recorded during the survey comprised the emerging soprano pipistrelle at 20:15. The first common pipistrelle activity was recorded at 20:30. Thereafter regular common pipistrelle activity was recorded together with occasional soprano pipistrelle activity. The first noctule activity was heard at 20:32, with six further passes from a bat/s of this species recorded. Brown long-eared bat activity was recorded from 20:34 exclusively by the surveyor to the northeast of Building B, with the first bat recorded comprising the emerging bat.

Plate A6.14. Brown long-eared bat maternity roost location in Building B

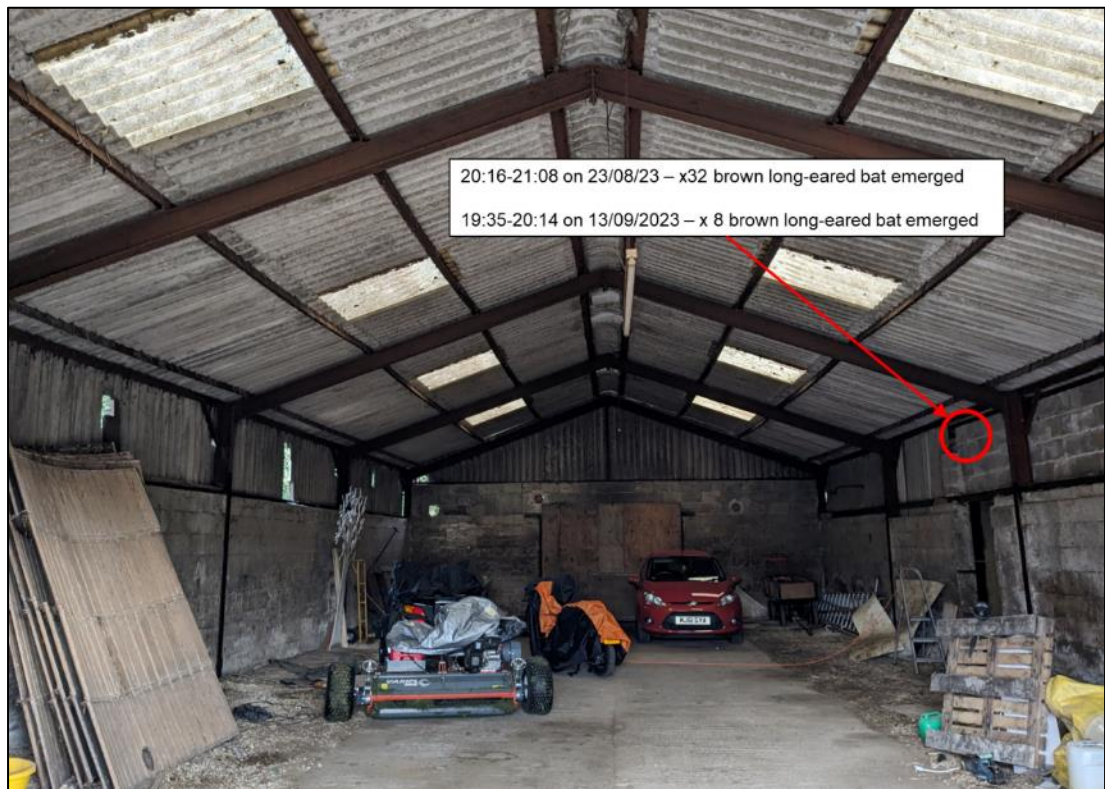


Plate A6.15. Brown long-eared bat maternity roost location in Building B



Plate A6.15. Bat roost locations on northeast gable of Building A



Plate A6.17. Bat roost locations in southwest gable of Building D



Plate A6.18. Echolocation call of emerging *Myotis* bat at 20:51 on 23rd August 2023

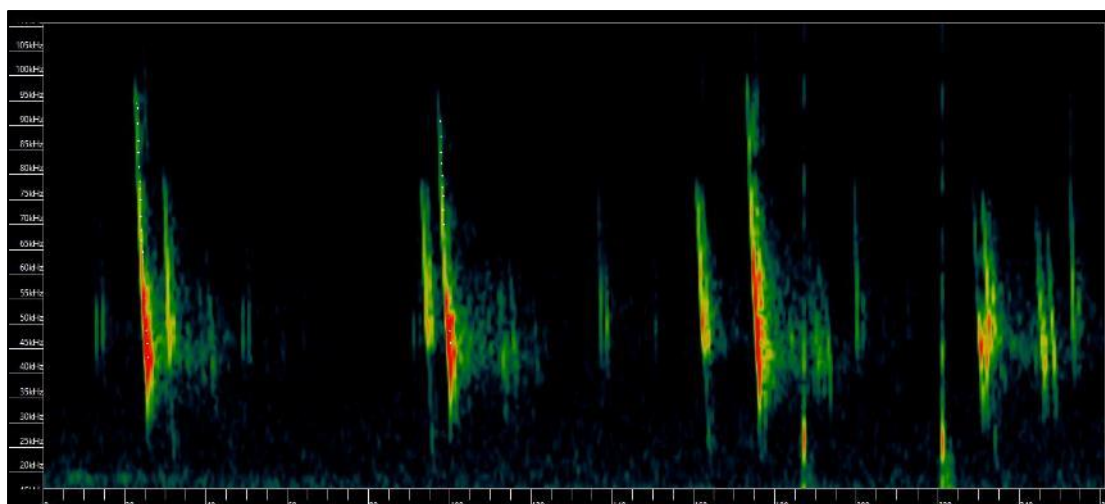
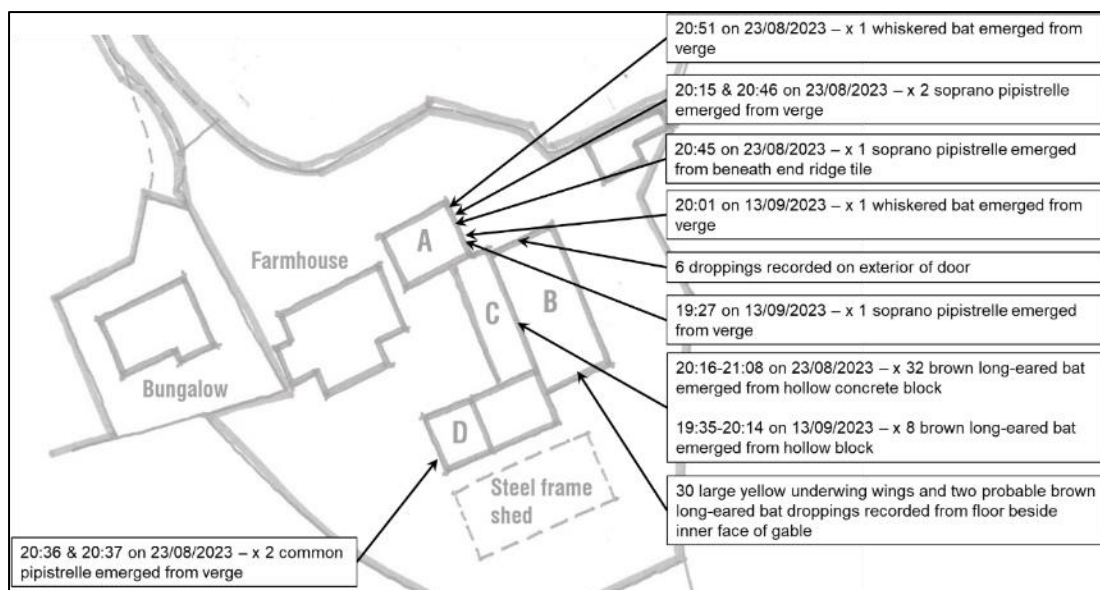


Figure A6.1. Bat roosting activity plan



13th September 2023 – Dusk emergence survey

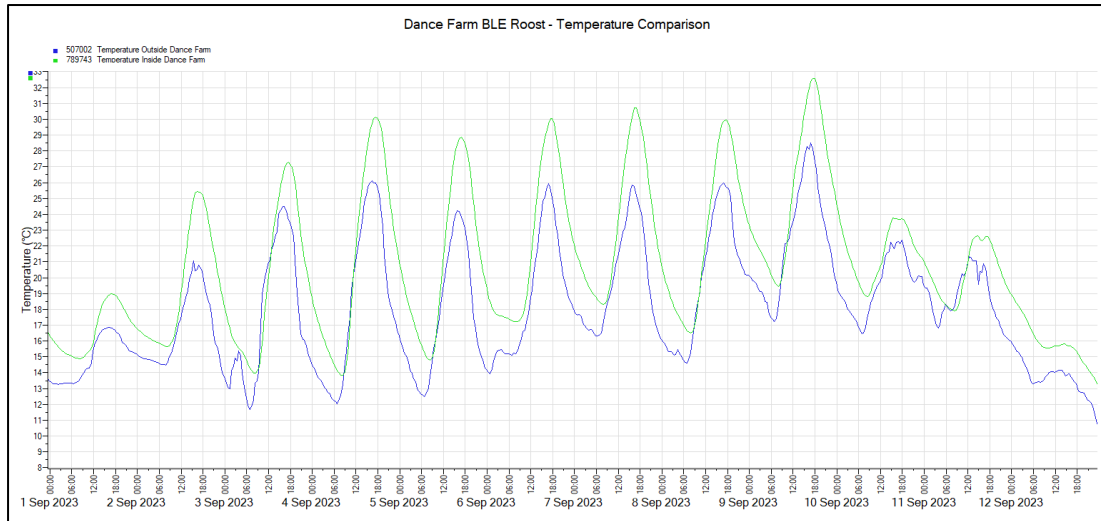
- 7.1.36 The temperature at the beginning of monitoring was 15 °C, with a light air (Beaufort Scale Force 1), 60 % cloud cover, and no rain. The temperature dropped to 13 °C by the end of the survey with the other conditions remaining the same. Sunset was at 19:28.
- 7.1.37 Between 19:35-20:14 a total of eight bats were recorded emerging from the brown long-eared bat maternity roost in the hollow block wall in the southwest elevation of Building B into the interior of the building (Plate A6.14). The first of these bats left the building via the missing cladding panel on the northeast elevation of the building at 19:47.
- 7.1.38 At 19:45 a single soprano pipistrelle emerged from the northeast gable of Building A (see: <https://youtu.be/PLaAhDgLxzs>), with a probable whiskered bat emerging from the same location at 20:01 (Plate A6.15; see <https://youtu.be/fF7SXDyiwLM>).
- 7.1.39 The first bat recorded comprised a soprano pipistrelle commuting from a location west of the survey area at 19:32. The first common pipistrelle was recorded at 19:47. Thereafter intermittent common and soprano pipistrelle bat activity was recorded. At 20:11 a noctule pass was recorded. The first brown long-eared bat activity recorded comprised the first bat recorded leaving Building B at 19:47, with this species recorded intermittently thereafter. The first activity recorded from a bat of a *Myotis* bat comprised the bat recorded emerging at 20:01, with two further passes by a bat of this genus recorded before the end of the survey.

Temperature Study

- 7.1.40 The results of the temperature study are shown in Figure A6.2. It was found that the brown long-eared bat maternity roost was typically warmer (mean 2.7 °C warmer) than the external air temperature but tracked it quickly closely often with parity in the mid-late morning with the highest discrepancy in the mid-late afternoon. The maximum

increase in the internal temperature relative to the external temperature was 7 °C with a peak native difference (interior colder than external temperature) of -2.7 °C.

Figure A6.2. Temperature comparison of brown long-eared bat maternity roost and exterior. The internal temperature is shown in green with the external temperature in blue



Appendix 7. Proposed Site Plan

