Wells Farm Outbuildings
Northaw Road East
Cuffley
Hertfordshire EN6 4RD

Bat Report

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Survey and Report by

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This report has been prepared by Jones and Sons Environmental Sciences Ltd., Company Registration Number 5573246, on behalf of King & Co (Wells) Ltd, Marquis House, 68 Great North Road, Hatfield Hertfordshire EN64RD in connection with development proposals for Wells Farm, Northaw Road East, Cuffley, Hertfordshire EN6 4RD. The report takes into account their particular instructions and requirements. It is not intended for and should not be relied on by any third party and no responsibility is undertaken to any third party.

Further, Jones and Sons Environmental Sciences Ltd accepts no duty or responsibility (including in negligence) to any party other than King & Co Ltd and disclaims all liability of any nature whatsoever to any such party in respect of this report.

Report quality management and constraints

This report has been compiled by Dr Jennifer Jones MCIEEM of Jones and Sons Environmental Sciences Ltd. The report format follows standard guidance produced by the British Standards Institute (2013), Chartered Institute of Ecology and Environmental Management (2017) and Bat Conservation Trust (Collins 2016).

To achieve the study objectives the conclusions are based on the best information available at the time of the surveys and within the limits prescribed by our client within the agreement contract.

It should generally be recognised that bat requirements change throughout the year. Roosts can be of a transient nature and bats may move from roost to roost. A single bat may use a large number and wide variety of roosts during a year. The survey therefore represents a 'snap shots' in time.

Contents

A Executive Summary

This 2021 report documents the results of bat surveys at Wells Farm, Northaw Road East, Cuffley, Hertfordshire EN64RD. The surveys focussed on outbuildings situated at central Ordnance Survey Grid Reference TL30000202.

A planning application (6/2020/3451/MAJ) has been submitted to Welwyn Hatfield Borough Council for the demolition of outbuildings at Wells Farm to enable the erection of 14 residential dwellings. A Preliminary Ecological Assessment undertaken by Babec Ltd Ecological Consultants recommended that further surveys be undertaken of the outbuildings to determine any presence of bats.

At the request of King & Co (Wells) Ltd, ecologists (holders of Natural England bat Survey licences) from Jones and Sons Environmental Sciences Ltd undertook follow up bat emergence surveys of five outbuildings and a built structure at Wells Farm between the 26th May 2021 and 19th July 2021 (8 survey visits).

The flight surveys identified roosting sites for three species of bat and roosting sites in three of the outbuildings. These include: small numbers of common pipistrelle bats *Pipistrellus pipistrellus* and a soprano pipistrelle bat *Pipistrellus pygmaeus* roosting in the offices building and a brown long-eared bat *Plecotus auritus* roosting in the storage area of the former stables. A pipistrelle bat had previously been identified roosting behind the weatherboarding of the warehouse in March 2021. Noctule bats *Nyctalus noctula* were also recorded flying through the area.

Demolition of the outbuildings will destroy bat roosting sites and require a bat mitigation licence to be granted prior to demolition. No maternity roost was identified. The loss of bat roosting sites used by small numbers of bats will have a minor negative impact at a local level but in a wider context the negative impact will be negligible.

Mitigation proposals designed to safeguard bats includes: timing the demolition to avoid the winter (also taking account of nesting birds potentially present during the spring/summer) and, prior to demolition, a tool box talk to the contractors, bat inspection and supervision by the bat ecologist of the dismantling of the roost/potential roost areas mainly the weatherboarding and roof of the office building.

Compensation for the loss of the brown long-eared bat roosting site includes: the provision of a bat loft in the new build and the erection of a Schwegler Type 2FN bat box to immediately accommodate any displaced long-eared bats. Compensation for the loss of pipistrelle bat roosting sites include the erection of a range of external bat boxes suitable for the species. To provide enhanced roosting opportunities, bat boxes above that required for compensation will be erected and roosting opportunities will also be incorporated with the walls of the new buildings. The habitats will be managed sympathetically for bats and any external lighting will be designed to avoid any impact on bat roosts and flight paths.

B Introduction

Bat surveys were carried out at Wells Farm, Northaw Road East, Cuffley, Hertfordshire EN64RD.The survey focussed on the outbuildings to the west of the main house situated at central Ordnance Survey Grid Reference TL30000202.

Jones and Sons Environmental Sciences Ltd undertook the bat surveys at the request of King & Co (Wells) Ltd of Marquis House, 68 Great North Road, Hatfield Hertfordshire EN64RD. A planning application (6/2020/3451/MAJ) has been submitted to Welwyn Hatfield Borough Council for the demolition of outbuildings at Wells Farm to enable the erection of 14 residential dwellings.

A Preliminary Ecological Assessment of the site, undertaken by Babec Ltd Ecological Consultants, identified the outbuildings to support potential for roosting bats including confirmation of a pipistrelle bat roosting in the Warehouse. The Assessment recommended that further surveys be undertaken of the outbuildings to determine any presence of bats.

Bats are species protected under the Conservation of Habitats and Species Regulations 2017 (as amended). Since the presence of protected species is a material consideration in the planning process (National Planning Policy Framework 2019) bat surveys are required to provide information to the Local Planning Authority on any impact the proposals may have on any bats within the area. Any impact identified on bats will need mitigation to be put forward to Welwyn Hatfield Council to satisfy them that the development will safeguard any roosting bats present and ensure that the bats species populations are maintained at a favourable conservation status and the legislation is complied with.

The main objectives of the surveys in 2021 were to:

- Survey the outbuildings to identify any presence of roosting bats including species and likely significance of the roosting site;
- Determine any potential impact of the proposals on the bat populations within the local area;
- If any potential impact is identified provide recommendations including a mitigation strategy to ensure that bat populations are maintained at a favourable status within the local area and the building works comply with the legislation protecting bats.

The report includes: the qualifications and experience of the surveyors, methodology used, background information for the area, results of the surveys and evaluation of the findings with a mitigation strategy. The relevant legislation, plans and tabulated evening weather and bat survey results are included within the Appendix

C Survey Methodology

Surveyors and experience

Ecologists from Jones and Sons Environmental Sciences Ltd undertook the bat surveys. The main personnel included:

Dr Jennifer Jones BSc PhD - a full member of the Chartered Institute of Ecology and Environmental Management (MCIEEM), holder of Natural England Bat Survey Licences for 30 years and has held numerous standard EPS Mitigation Licences for several species of bat and is also a Registered Ecological Consultant with Natural England for Low Impact WML-CL21 Licences). For 10 years Dr Jones worked as a county ecologist advising Local Planning Authorities on protected species

Mr Adam Jones BSc MMedSci -an affiliate member of the Chartered Institute of Ecology and Environmental Management (CIEEM) and holder of Natural England Bat Survey Licences. Adam has considerable experience of bat surveys and has held a bat survey licence for 15 years.

The above licensed bat workers were assisted by three additional observers training with Jones and Sons Environmental Sciences Ltd that included: ecologist Miss Sarah Callow BSc MSc (2 years' experience of bat survey work), Ms Jessica Leslie (2 years' experience of bat survey) and Ms Anna Coraolis (1 year experience of bat survey work).

Field Survey Techniques

The surveys followed the Good Practice Guidelines published by the Bat Conservation (Collins, J. 2016).

Daytime surveys

A walk over of the site was undertaken to provide a broad-brush habitat survey of the area to assess the potential of the habitats to support a range of insects suitable for foraging bats and to identify features on the site that could be important as flyways for bats.

Photographs were taken of the buildings and habitats to aid visual interpretation.

A daytime inspection of the buildings was undertaken. Bats may roost in a variety of situations including within roof voids, behind weatherboarding, within the joints of wooden beams or under roof tiles. Bat signs searched for included bat droppings on the floor, walls and the detailed inspection of timbers. Where suitable gaps were located (enabling bat access) the holes were examined in detail for any signs of oil staining from the bats fur, urine streaks or accumulation of droppings. The floor area of the buildings including lofts (where present) were systematically searched for any bat

droppings or insect wings. All bats are insectivorous and parts of bitten insects such as moth wings are frequently found below where a bat has been feeding.

In addition to searching for bat signs, the buildings were examined externally and internally, to assess the potential of the building to provide roosting sites for bats. Suitability criteria for the building include the following: construction details, stability of the temperature regime, protection from the elements, light levels, cobwebs, level of disturbance, potential/confirmed roosting locations and potential/confirmed bat access points. Places searched for potential bat access points and roosting opportunities included through: gaps under the roof tiles, gaps under the fascia timbers, gaps under the weatherboarding, gaps in timber joints and holes in the wall.

The previous bat assessment of the outbuildings had divided the suitability of the buildings for bats following the BCT Good Practice Guidelines (2016) and this was followed as a guide to the number of evening surveys required for each outbuilding during the 2021 surveys unless a judgement was made during the surveys that less or more surveys were required. A buildings suitability for roosting bats is divided into:

- Confirmed bat roost.
- High roosting suitability - a building with one or more suitable potential roosts sites that are obviously suitable for use by roosting bats with the potential to be used by large numbers of bats.
- Moderate roosting suitability -a building with suitable potential roost sites that could be used by bats but are unlikely to support a roost of high conservation significance.
- Low roosting suitability -a building with one or more potential roost sites that could be used by individual bats opportunistically but are unlikely to be used on a regular basis or be suitable for a maternity site i.e. the presence of bats cannot be discounted.
- Negligible roosting suitability- while presence cannot be completely discounted, negligible/limited number of features likely to be used by roosting bats and any bat presence is considered unlikely.

Equipment used during the daytime survey included binoculars and powerful torches (using red filters where appropriate).

<u>Dusk Emergence surveys</u>

Dusk emergence surveys during the year 2021 were undertaken on the 26th May (focussing on the warehouse but observations of the neighbouring buildings- stables and office), 27th May 20 (focussing on the office), 3rd June (focussing on the workshop but observations of the neighbouring buildings), 10th June (focussing on the stables but observations of the workshop), 15th June (focussing on the mower shed and Lynchgate and general observations of the warehouse/office) 28th June (focussing on the warehouse and observations of the office) 15th July (focussing on the office and observations of the warehouse and stables) 19th July (focussing on the stables but observations of the workshop and warehouse)

The dusk surveys were designed to watch for any bats emerging from the buildings, to determine the species using the site and also to assess the general bat activity in the area.

Three models of detectors were used - a time expansion Petterssen D240, EM3 (frequency division and time expansion) and Echo Metre Touch 2Pro (3 detectors). In addition to the hand held detectors, additional detectors were placed in key locations within the site. A bat detector was also placed inside the buildings during some of the surveys to detect any bat activity inside.

Recordings of the bat sounds were made to allow subsequent computer analysis and critical identification of the bat species using Kaleidoscope, Bat Sound and Song Scope.

Number of surveyors varied from two to four depending on the complexity of the building and numbers of buildings surveyed in one night. Observers were positioned around the buildings to watch for bat emergence, with the assistance of hand-free radios that were used by the observers to communicate bat movements during the survey. In some circumstances one observer walked around the site to monitor general bat activity around the outbuildings. Key observer locations are shown within the summarised bat activity map. Observations usually began 10-20 minutes before sunset and continued for 80-90 minutes post sunset when it was considered that any bats present would have emerged. Bat activity was also monitored inside the buildings by an observer using a deep red torch to search for bats and a bat detector placed inside some of the buildings.

An electronic weather data logger was used for recording weather conditions during the evening survey and light levels were monitored using a data logging light meter to measure lux levels.

Constraints/Limitations

No major constraints were encountered since full access to the buildings was available. A minor constraint was that for the first stable survey, full access was not possible due to blockage of the middle storage area by a Trailor. For the second survey the trailer was removed enabling access that revealed signs of a brown long-eared bat roost. The evening surveys took place during suitable weather conditions in the summer months (May to July) when bats are fully active and also would enable any presence of a nursery colony to be identified. It is considered that sufficient surveys have been undertaken to establish the roost status of the outbuildings during the summer of 2021.

It should however generally be recognised that bat requirements change throughout the year. Roosts can be of a transient nature and bats may move from roost to roost. A single bat may use a large number and wide variety of roosts during a year. The survey/s therefore represents ‘snap shots’ in time.

D Survey Findings

D1: Status of bat species within the area

The records from the Herts and Middlesex Bat Group provided to the Hertfordshire Environmental Records Centre (HERC) identified six species of bat within 1 km of the development site. These include: common pipistrelle bat *Pipistrellus pipistrellus*, soprano pipistrelle bat *Pipistrellus pygmaeus*, Nathusius pipistrelle *Pipistrellus nathusii*, brown long-eared bat *Plecotus auritus*, Noctule bat *Nyctalus noctula* and Daubenton's bat *Myotis daubentoniid.* Additional bat species within 2 km include: Natterer's bat *Myotis nattereri* and possible whiskered bat *Myotis mystacinus*.

Common pipistrelle bats, brown long-eared and noctule bats have been recorded within 200 metres to the west of Wells Farm.

Eight species of bat is a relatively high diversity of bat species within the local area.

D2 Daytime Inspection

D2i Habitats

The outbuildings at Wells Farm are situated to the west of the main house and north of the roadside cottage at central Ordnance Survey grid reference TL30000202.

Photograph 1: courtyard view northeast

The outbuildings are located around a central courtyard of hardstanding.

To the south of the courtyard is the driveway from the road with recreational and arable fields beyond.

To the southwest between the courtyard and road is a group of broadleaf trees that connect to the roadside hedgerow.

To the east of the courtyard is a garden with lawns of amenity grassland, shrubs, scattered trees and ponds with arable fields beyond.

To the north is a field of semi-improved grassland with hedgerow and arable fields beyond.

Photograph 2: garden pond by office

Photograph 3: garden by outbuildings

Photograph 4 field view east to courtyard

Photograph 5: roadside hedgerow

Photograph 6: field pond

Photograph 7: hedgerow by stable block

To the west is a field of semi-improved grassland with bordering hedgerows and trees. The roadside hedgerow and field hedgerow provides flight connectivity from the outbuildings to a tree lined brook (Hempshill brook) that provides further linking bat flight habitat from Wells Farm to the wider countryside. In the southwest corner of the field near the road is a large pond with an island of scrub and tall ruderal habitats around its margins.

The courtyard of hardstanding and surrounding arable fields have limited suitability for foraging bats but the areas of tall semi-improved rough grassland, ruderals, scrub, trees and ponds are more favourable. Structurally diverse semi-natural habitats with scrub, mature trees and water are capable of supporting high concentrations of flying insects of benefit to a variety of bat species.

D2 ii Outbuildings

The outbuildings surveyed are described below using the same letter reference applied by Babec Ecological Consultants in their Preliminary Ecological Appraisal (March 2021 report). The main house, associated garages and roadside cottage were not surveyed since they are not part of the development. The survey outbuildings are illustrated in Plan 1.

Offices (Building ref B)

The office is a one-two storey building situated in the southeast corner of the courtyard at Ordnance Survey Grid Reference TL30020201 adjacent to the driveway, garden lawn and pond.

Photograph 8: office southwest elevation

Photograph 9: office northeast elevation

Photograph 10: office northwest elevation

The building has brick/block walls clad with weatherboarded and supports a pitched roof clad with interlocking red clay tiles. Gables project to the southeast and northwest with a taller central section supporting a shallow pitched roof with gables projecting to the northeast and southwest.

The building is in good condition but a few potential bat access points to suitable roosting sites were identified.

There are some raised areas of weatherboarding providing opportunities for bats to roost behind the boarding, openings under the fascia/soffits and gaps beneath the pitch and ridge tiles providing opportunities for bat to roost under the pitch tiles and within the channel of the ridge cap.

Internally there are three timber-framed roof voids with the roof tiles lined internally by traditional 1F bitumastic felt. Pipistrelle bats will typically roost within the crevices between the tiles and roof linings.

Photograph 11-12: office southeast loft structure

Photograph 13: northwest loft

Photograph 14: central void

The two side lofts have a height from the loft floor to the ridge of 2.18 metres. The southeast loft provides suitable conditions for roosting bats but the northwest loft is less favourable mainly due to the presence of a window. The window would create light internal conditions during the daytime less suitable for void dwelling bats. In such conditions bats would need to seek warm dark crevices in which to roost such as the crevices between the roof and felt lining.

The central loft has a height of just 0.56 metres to the ridge and there is a beam across the hatchway preventing access. The inspection from the ladder found the loft to be of limited suitability for roosting bats due to the sealed roof and cluttered nature of the void.

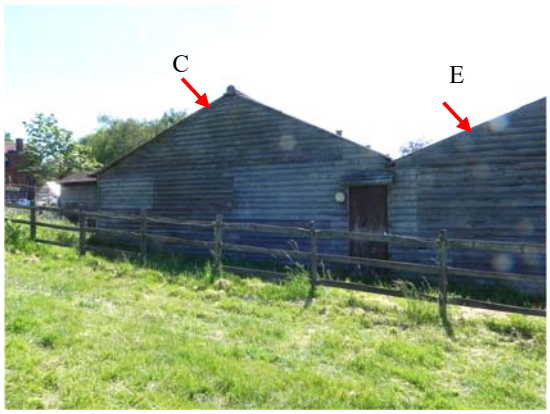
Mice droppings were identified during the search of the lofts but no bats or any signs of bat use (such as bat droppings or feeding remains) were identified. However, in the event of bats roosting in the exterior crevices between the tiles and roof lining there may be no bat droppings found on the loft floor.

The office is assessed as supporting high potential for roosting bats.

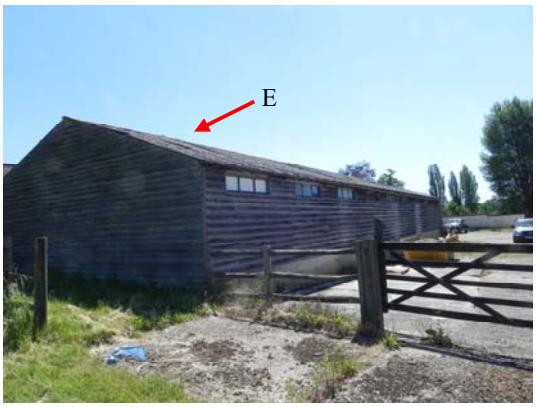
Warehouse (Building ref C/E)

The warehouse is a large double ridged building situated on the north side of the courtyard adjacent to the north field at Ordnance Survey Grid Reference TL29990203. The east side of the Warehouse (section C) is adjacent to an open hardstanding storage area and the west side (section E) is adjacent to the stable block.

Photograph 15: warehouse NW elevation



Photograph 16: NW/SW elevation



Photograph 17: SW/SE elevation

Photograph 18: SE/NE elevation

The building has a timber frame construction with weatherboarded walls on a brick/breezeblock rendered base and supports a shallow pitched roof clad with corrugated asbestos with gables to the southeast (front) and northwest (rear). There are doors along the front elevation and small windows along the sides.

The asbestos roof of section C is unlined but the asbestos roof covering section E is lined with plywood. The walls are either lined with plywood or white Tyvek.

Photograph 19: warehouse (C) interior

Photograph 20: warehouse (E) interior

The weatherboarding is deteriorating and there are several areas with raised timbers providing opportunities for bats to roost behind the weatherboarding. The previous survey in March by babec confirmed the weatherboarding on the west elevation as a pipistrelle bat roosting site (bat observed behind the cladding). There are also gaps suitable for roosting bats behind the fascia boards at the gable ends.

During the internal inspection a single old long-eared bat dropping was identified at the north end of section E. Pipistrelle bat droppings were also identified externally below the weatherboarding of the west elevation. The Warehouse is a confirmed bat roost

<u>Distribution Shed (Building ref D)</u>

The single storey workshop is a timber framed rectangular building situated in the southwest corner of the courtyard at Ordnance Survey Grid Reference TL29990199. The building is adjacent to the driveway with the field to the west.

Photograph 21: workshop NE/NW elevation

Photograph 22: SW elevation

Photograph 23: SE/NE elevation

The shed has breezeblock rendered walls with timber weatherboarding above and a very shallow pitched roof clad with corrugated asbestos with gables to the southeast (front) and northwest (rear).

The roof is boarded internally with a small (inaccessible) roof void above.

Externally, there are gaps beneath: the weatherboarding, fascia and corrugated asbestos. The weatherboarding is deteriorating and there are several areas with raised timbers providing opportunities for bats to roost behind the weatherboarding.

The construction of the distribution shed is assessed as supporting moderate suitability for roosting bats.

Former stable block (Building ref F)

The single storey timber-framed stable block is situated on the northwest side of the courtyard at Ordnance Survey Grid Reference TL29980201.

Photograph 24: stable block SW/SE elevation

The building includes 4 connected stables units at the south end with a middle storage section divided into three units and extending to the west and an end storage unit with windows.

The stable block has breezeblock and brick walls with exterior timber weatherboarding.

Along the front elevation of the stables there is a single pitched timber asphalt covered roof that overhangs the stables. The roof timber boards are lined with bitumastic felt.

The roofs of the storage areas are flat. The middle section supports dark internal conditions but the north storage section has windows creating relatively light internal conditions less suitable for bats. The timber walls in the north storage area are lined internally with breathable Tyvek membrane.

Photograph 25: storage units/stables

Photograph 26: end storage unit

Gaps are present behind the weatherboarding providing potential for bats to roost in the exterior crevices.

Openings into the stables/storage units enabling bats to enter are present along the eaves and there are also horizontal louvre openings above the stable doors

Photograph 27-28: stables interior

Photograph 29: disused swallow nest

The windows in the stables render light internal conditions less suitable for roosting bats but there are solid timber beams and potential crevices within the roof structure. Holes in the bitumastic felt enable bats to retreat to the crevices between the timbers and felt.

Disused swallow nests were observed during the inspection

The timber-framed middle storage area provides potential roosting opportunities in the internal brick wall and also in the timber crevices of the beams. There is a ceiling over

the middle storage area projecting to the west that has a small void that would enable bats to fly from the open area to a more enclosed void.

Photograph 30-31: brown long-eared bat roosting area

Photograph 32-33: long-eared bat droppings below roosting areas

During the original inspection, storage items by the door prevented full access to the middle section but for the survey on the 19th July 2021, the blockage was removed and long-eared bat droppings (estimate 100-200 droppings) were identified inside. Two clusters of approximately 50 droppings each were observed below a large timber beam in the northeast corner and near a hole in the bitumastic felt suggesting that a brown long-eared bat is roosting below the beam and also in the crevices between the roof timber boards and bitumastic felt lining.

A line of long-eared bat droppings was also observed where the open area links to the west roof void.

No significant accumulations of bat droppings were observed to suggest any past presence of a nursery colony.

The internal inspection confirmed the stable as a bat roost.

Machine Shed (Building ref G)

The single storey timber-framed machine shed is situated in the garden of the main house to the east of the warehouse at Ordnance Survey Grid Reference TL30020203.

Photograph 34: garden barn

The building has timber walls on a concrete base with weatherboarding and a pitched roof clad with interlocking red clay tiles. Gable ends project to the southeast and northwest. Internally the building has a height from the floor to the ridge of 3.4 metres and provides dark warm conditions suitable for bats. The timbers are modern with no suitable joints for roosting bats. The roof and walls are lined by traditional bitumastic felt.

The building is in good condition and the inspection found the exterior to be well sealed. The ridge cap is closely cemented with no gaps and the pitch tiles fit tightly together. There are some potential gaps behind the fascias at the gables but the weatherboarding is tight. The building therefore offers limited opportunities for bats to access the inside.

The machine shed is assessed as supporting low potential for roosting bats since the presence of bats could not be completely discounted.

Lychgate

Photograph 35: Lychgate south of garden barn

A small Lychgate is situated on the east side of the site between the garden barn and office at Ordnance Survey Grid Reference TL30020202.

The open nature of the structure is of negligible suitability for roosting bats but it does support a pitched tiled roof with tiles lined by timber boards.

The original ecological appraisal assessed this structure as being of low suitability for bats requiring 1 survey to discount any presence of roosting bats.

D3 Evening bat emergence surveys

Eight evening bat surveys were undertaken of the outbuildings to watch for any bat emergence and determine bat activity across the site. The surveys focussed on different buildings or groups of buildings to ensure that buildings of high potential had three spaced out surveys, those of moderate potential had two spaced out surveys and buildings of low potential one survey. Dusk emergence surveys during the year 2021 were undertaken on the 26th May, 27th May, 3rd June, 10th June, 15th June 28th June 15th July and 19th July. The results of the eight evening surveys including weather conditions are summarised below with further details given in the appendix.

D3(i) Bat Survey 26th May 2021

Four observers focussed on any emergence from the warehouse but parts of the office, stable, machine shed and Lynchgate were also in view

Table 1: Dusk survey timings and weather conditions on the 26th May 2021

Timings (hours)	Temperature	Wind speed	Light (lux)	Comment
Start time 20:42 Sunset time 21:01 End time 22:27	Start 12.5 ºC Sunset 11.2 ºC End 8.1 ºC	Range 0 –0.5 mph Beaufort Scale 1	Start 744 Sunset 223 End 2.0	No rain

Table 2: Summarised dusk survey bat activity on the 26th May 2021

Bat Emergence	No bat emergence was observed from the Warehouse but possible emergence of common pipistrelle bats was recorded from other buildings. 2 common pipistrelle bats flew from the direction of office at 22 minutes and 28 minutes post sunset. At 29 minutes post sunset possible emergence also from the west elevation of the stables (storage section). An unidentified bat (probable brown long-eared) was observed flying from the storage area of the stable at 40 minutes post sunset.
Common pipistrelle bat activity	The first bat was recorded at 20 minutes post sunset flying from the garden soon followed by the bats flying from the office. Two bats regularly observed flying around warehouse, across the courtyard and over the grass by the stables.
Soprano pipistrelle bat activity	Recorded on 2 occasions during the evening. The first bat was recorded at 63 minutes post sunset
brown long-eared	No further activity observed during survey
Noctule activity	The first bat was recorded at 36 minutes post sunset

D3(ii) Bat Survey 27th May 2021

The survey focussed on any emergence from the office but south end of Warehouse was also visible

Table 3: Dusk survey timings and weather conditions on the 27th May 2021

Timings (hours)	Temperature	Wind speed	Light (lux)	Comment
Start time 20:43 Sunset time 21:03 End time 22:23	Start 14.4 ºC Sunset 13.8 ºC End 12.6 ºC	0 – 1.7mph Beaufort Scale 1	Start 460 Sunset 88 End 1	No rain

Table 4: Summarised dusk survey bat activity on the 27th May 2021

Bat Emergence	Common pipistrelle - 2 bats emerged from roof southwest elevation 1 bat at 20 minutes post sunset and the second at 22 minutes post sunset (near to gaps beneath ridge tile) Soprano pipistrelle– 1 bat emerged from central gable area weatherboarding at 64 minutes post sunset
Common pipistrelle bat activity	The first bat was recorded at 16 minutes post sunset flying in the garden soon followed by the bats emerging from the office. 1-2 bats regularly observed flying around office, over garden pond and around warehouse.
Soprano pipistrelle bat activity	No further bats recorded after bat emergence
Noctule activity	Recorded on four occasions The first bat recorded at 31 minutes post sunset

D3(iii) Bat Survey 3rd June 2021

Surveys focussed on any emergence from the distribution shed but could also see field side of stables and front of office

Table 5: Dusk survey timings and weather conditions on the 3rd June 2021

Timings (hours)	Temperature	Wind speed	Light (lux)	Comment
Start time 20:52 Sunset time 21:12 End time 22:27	Start 18.7 ºC Sunset17.9 ºC End 17 ºC	Range 0 – 2.3mph Beaufort Scale 1	Start 422 Sunset 134 0 lux at 21:52 End 1	No rain

Table 6: Summarised dusk survey bat activity on the 3rd June 2021

Bat Emergence	No bat emergence was observed from the distribution shed but 2 common pipistrelle bats flew across the courtyard potentially from the office at 21 minutes post sunset and 26 minutes post sunset.
Common pipistrelle bat activity	The bats flying from the office area were the first bats detected. At least 2 bats regularly observed flying and feeding over grass near distribution shed and stables and by trees at south end by distribution shed.
Noctule activity	A noctule was recorded on 5 occasions (mainly detected field area). The first bat was recorded at 26 minutes post sunset

D3 (iv) Bat Survey 10th June 2021

Surveys focussed on any emergence from the stables but parts of the distribution shed were also in view

Table 7: Dusk survey timings and weather conditions on the 10th June 2021

Timings (hours)	Temperature	Wind speed	Light (lux)	Comment
Start time 20:53 Sunset time 21:18 End time 22:35	Start 19.7 ºC Sunset 19.6 ºC End 18.2 ºC	Range 0 – 2.2 mph Beaufort Scale 1	Start 969 Sunset 200 0 lux at 22:03 End 1	No rain

Table 8: Summarised dusk survey bat activity on the 10th June 2021

Bat Emergence	Probable emergence of brown long-eared bat from storage area of stables at 68 minutes post sunset.
Brown long-eared bat activity	Bat observed flying up and down beneath the overhanging roof along front of the stables.
Common pipistrelle bat activity	The first bat was recorded near stables at 31 minutes post sunset. During the evening 2 bats observed regularly feeding along grass adjacent to stables and circling over roof of stables (storage area). Occasionally flying in courtyard and flying between stables and distribution shed
Noctule activity	Recorded on 5 occasions. The first bat was recorded at 19 minutes post sunset

D3 (v) Bat Survey 15th June 2021

Surveys focussed on any emergence from the machine shed but the east elevation of the warehouse was also in view.

Table 9: Dusk survey timings and weather conditions on the 15th June2021

Timings (hours)	Temperature	Wind speed	Light (lux)	Comment
Start time 21:11 Sunset time 21:21 End time 22:31	Start 17.3 ºC Sunset16.6 ºC End 15.2 ºC	Range 0 – 1.5mph Beaufort Scale 1	Start 484 Sunset 257 End 0	No rain

Table 10: Summarised dusk survey bat activity on the 15th June 2021

Bat Emergence	No bat emergence was observed from the machine shed
Common pipistrelle bat activity	The first bat was recorded at 33 minutes post sunset flying into the garden from the courtyard. Bat activity in the area around the machine shed was low with only the occasional bat activity
Soprano pipistrelle	1 bat was recorded at 43 minutes post sunset to the south of the machine shed (pond area)
Noctule activity	The first bat was recorded at 12 minutes post sunset
Comment	The machine shed was reassessed as supporting negligible suitability for roosting bats due to the sealed nature of the building.

D3 (vi) Bat Survey 28th June 2021

Survey focussed on any emergence from the warehouse including monitoring the inside. The office, stables and distribution shed were also in view. On occasions, one person walked around the site to monitor bat activity

Table 11: Dusk survey timings and weather conditions on the 28th June 2021

Timings (hours)	Temperature	Wind speed	Light (lux)	Comment
Start time 21:13 Sunset time 21:23 End time 22:33	Start 16.4 ºC Sunset15.9 ºC End 15.1 ºC	Range 0 –1.6 mph Beaufort Scale 1	Start 54 Sunset 21 0 lux at 21:53 End 1	No rain

Table 12: Summarised dusk survey bat activity on the 28th June 2021

Bat Emergence	No bat emergence was observed from the Warehouse but 1 common pipistrelle appeared to emerge from office at 19 minutes post sunset.
Common pipistrelle bat activity	Following emergence from office, one bat was observed flying and feeding around south side of warehouse and along grass adjacent to distribution shed and stables. Only 1 bat was observed at any one time.
Noctule activity	A noctule was recorded on two occasions. The first bat was recorded at 32 minutes post sunset

D3 (vii) Bat Survey 15th July 2021

Observations focussed on any emergence from the office, the warehouse was also in view and one observer monitored the stable area later in the evening.

Table 13: Dusk survey timings and weather conditions on the 15th July 2021

Timings (hours)	Temperature	Wind speed	Light (lux)	Comment
Start time 20:53 Sunset time 21:13 End time 22:33	Start 16.3 ºC Sunset 14.4 ºC End 13.4 ºC	Range 0 – 1.2mph Beaufort Scale 1	Start 970 Sunset 231 End 1	No rain

Table 14: Summarised dusk survey bat activity on the 15th July 2021

Bat Emergence	1 common pipistrelle bat emerged from office building rear NE gable (weatherboarding at apex) at 38 minutes post sunset
Common pipistrelle bat activity	The first bat was recorded at 9 minutes post sunset flying in the garden (house area). Following emergence from office 2 bats observed feeding over pond. Bat activity recorded along south elevation of warehouse, occasionally circling around office roof. Bat activity also observed on field side of distribution shed and stables.
Noctule activity	The first bat was recorded at 48 minutes post sunset

D3 (viii) Bat Survey 19th July 2021

Observations focussed on any emergence from the stables but parts of the distribution shed and warehouse were also in view.

Table 15: Dusk survey timings and weather conditions on the 19th July 2021

Timings (hours)	Temperature	Wind speed	Light (lux)	Comment
Start time 20:54 Sunset time 21:09 End time 22:31	Start 24.1 ºC Sunset 22.9 ºC End 19.7 ºC	Range 0 – 1.8 mph Beaufort Scale 1	Start 462 Sunset 151 0 lux at 22:09 End 2	No rain

Table16: Summarised dusk survey bat activity on the 19th July 2021

Bat Emergence	A brown long-eared bat emerged inside the middle stable storage area at 43 minutes post sunset. Flew out 1 minute later and flew into stable.
Brown long-eared	No further observations following emergence
Common pipistrelle bat activity	The first bat was recorded at 26 minutes post sunset flying across the courtyard towards the stable block. Most bat activity was on the field side of the stable block. Bats also flew in and out of stables
Soprano pipistrelle bat activity	One soprano pipistrelle bat was recorded late in evening at 83 minutes post sunset
Noctule activity	A noctule bat was recorded on two occasions the first at 20 minutes post sunset

D3 (ix) Summarised Bat Activity

Table 17 Summarised bat activity at Wells Farm during the summer 2021

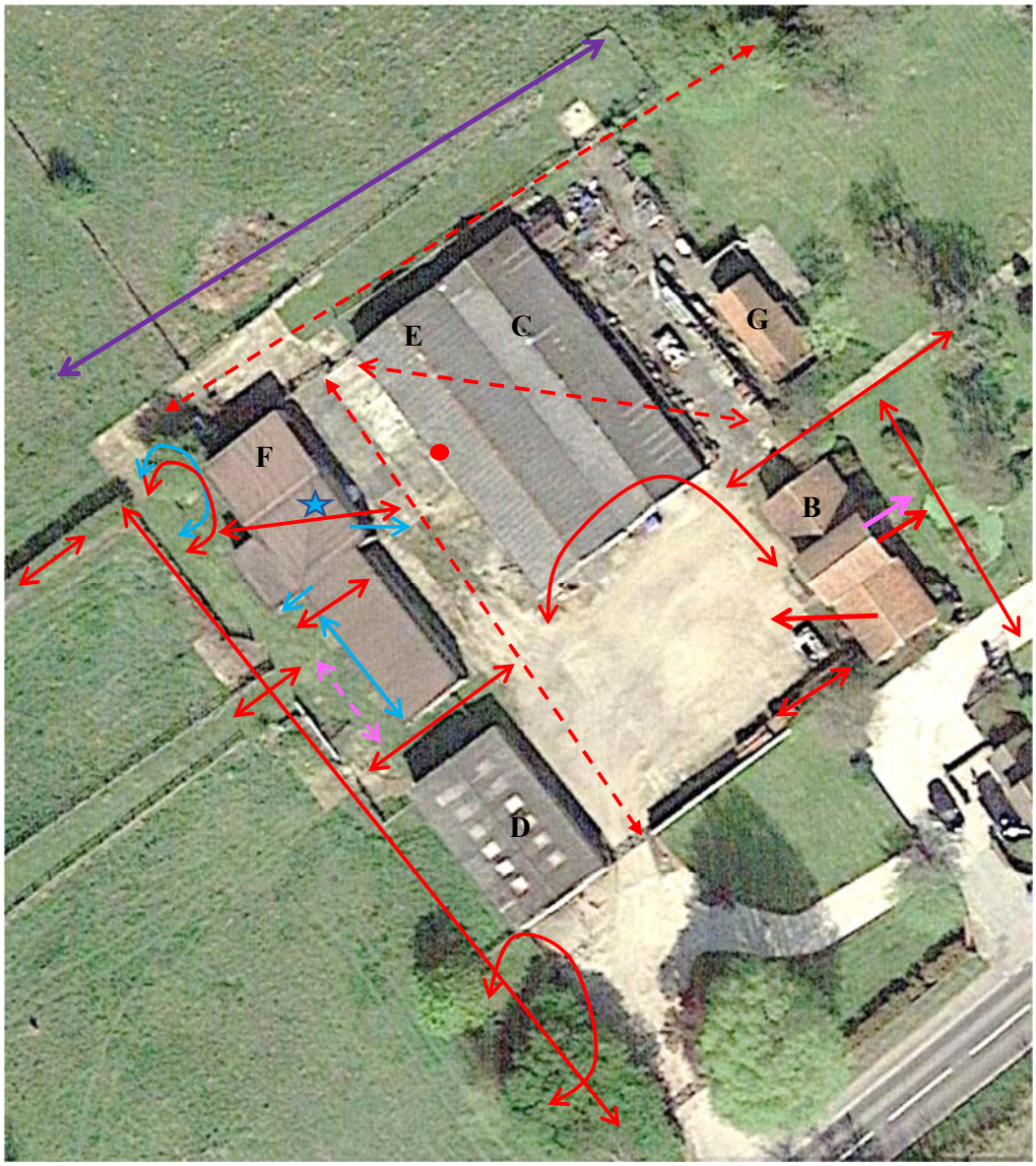
Date and Buildings surveyed/ in view	Bat Species			
	Common pipistrelle	**Soprano pipistrelle**	**Brown long--eared**	**Noctule**
26/05/2021 Warehouse Stable east side Lynchgate	2 bats emerged from office *a.	Recorded in flight	1 bat emerged from stable *b	Recorded in flight
27/05/2021 Office	2 bats emerged from office.	1 bat emerged from office	Not recorded *stables not observed*	Recorded in flight
03/06/2021 Distribution shed Part of stable	2 bats emerged from office *a.	Not recorded	Not recorded	Recorded in flight
10/06/2021 Stables distribution shed in view	Recorded in flight Observed flying in and out of stables *Office not observed*	Not recorded	1 bat emerged from stable	Recorded in flight
15/06/2021 Machine shed	Recorded in flight *Office not observed*	Recorded in flight	Not recorded	Recorded in flight
28/06/2021 Warehouse Stable east side	1 bat emerged from office *a.	Not recorded	Not recorded *stables front not observed*	Recorded in flight
15/07/2021 Office Warehouse	1 bat emerged from office	Not recorded	Not recorded	Recorded in flight
19/07/2021 Stables Warehouse west side distribution shed	Recorded in flight Also observed flying in and out of stables *Office not observed*	Recorded in flight	1 bat emerged from stable	Recorded in flight

*a= since bats had been confirmed roosting in the office when observed flying across the courtyard in the early evening from the office building it was assumed that it was most likely they had emerged.

*b= originally not identified, observed to emerge east side of stables middle storage area. Not echolocating so most likely to be a brown long-eared bat (confirmed later)

A hibernating pipistrelle bat was also identified on the 11th March 2021 behind weatherboarding confirming the warehouse as a transient/hibernation site used by a small number of bats.

D3(x) Plan 1: summarised 2021 bat activity at Wells Farm



Pipistrelle bat roost behind weatherboarding

Brown long-eared bat roosting site

Common Pipistrelle emergence

Soprano Pipistrelle emergence

Brown long-eared emergence

Common Pipistrelle high activity

Common Pipistrelle occasional activity

Soprano Pipistrelle activity

Brown long-eared flight observations

E Impact and Bat Mitigation Licence requirement

The demolition of the outbuildings at Wells Farm will cause the destruction of roosts used by three species of bat. These are:

- A pipistrelle transient/hibernation site behind the weatherboarding of the warehouse.
- A day roosting site used by two common pipistrelle bats roosting in the roof crevices of the office building
- An occasionally used day roosting site used by one soprano pipistrelle bat roosting behind the weatherboarding of the office building
- A brown long-eared bat day roosting site in the storage area of the stable block.

Common pipistrelle bats and soprano pipistrelle bats are regarded as abundant and widespread species at a local, district, county and national level. Both species have been recorded within 1km distance of Wells Farm. The loss of the day pipistrelle bat roosting sites and a roosting site used by a small number of pipistrelle bats during the cooler winter months will have a minor negative impact at a Local level but in a wider context the negative impact will be negligible.

Brown long-eared bats are regarded as less abundant although considered to be a fairly widespread species at a: local district, county and national level. The loss of the day bat roosting sites will have a minor negative impact at a Local level but in a wider context the negative impact will be negligible.

Demolition is necessary to enable the construction of residential dwellings within the site (site reference HS30 proposed for development in the Draft Local Plan Submission consultation documentation August 2016). Without mitigation and compensation, demolition of the outbuildings has the potential to harm bats roosting in the crevices of the roof structure and behind the weatherboarding of the buildings and will result in the permanent loss of bat roosting sites within the local area. Since roosting sites will be lost, compensation is required to ensure no net loss of bat roosting sites.

Bats and their roosting sites are protected under the Conservation of Habitats and Species Regulations 2017 (as amended) and prior to demolition of the roost buildings, a Bat Mitigation licence must have been granted by Natural England to derogate from the protection afforded to bats and comply with the legislation. The Local Planning Authority will also require a copy of the licence to be supplied prior to demolition.

Natural England can only grant a licence once planning permission has been granted and any conditions relating to wildlife have been cleared. Further details of the legislation and Mitigation Licences are given in the appendix of this report.

F Mitigation Hierarchy (Strategy)

National and Local planning policy requires that, within developments a mitigation hierarchy be followed to limit adverse impacts on ecology and biodiversity and achieved a biodiversity net gain. The stages to be followed include:

Avoidance- within the design of the development to limit adverse impacts. Bats are roosting in three outbuildings within the development area. To enable the construction of the dwellings as proposed, the roost buildings will need to be demolished and loss of the bat roosting sites cannot be avoided.

Mitigation- since the loss of the bat roosting sites cannot be avoided, working methods will need to be applied to minimise the adverse effects for example by timing of demolition to avoid vulnerable periods and applying working methods to ensure no bats are harmed.

Compensation- since the development will result in loss of bat roosting sites, suitable replacement roosting sites will be required to ensure that the favourable status of the bat populations are maintained within the local area.

Enhancement- Additional measures, above that required for compensation, will be needed to ensure biodiversity net gain is achieved.

No maternity site was identified and the bat roosting sites at Wells Farm are regarded as being of relatively low significance. However, three species of bat were recorded roosting within the site and suitable roost provision for each species will be required.

F1 Working Methods to avoid harm to bats

F1(i) Timing of works

No maternity site was identified and therefore demolition can be undertaken during the spring, summer and autumn with a preference for spring and autumn to avoid any presence of besting birds.

Demolition during the winter months should also be avoided particularly since a pipistrelle bat had been identified in March suggesting that bat could be roosting behind the weatherboarding during the winter months. It is also possible that the brown long-eared bat could remain in the stable block all year round. Winter is a period when few insects (bat prey) are around and bats go into torpor/hibernation to save energy and cannot easily fly away from danger. Any disturbance during the winter months is likely to cause them to use up their fat store energy supplies at a time of year when their stores cannot easily be replenished due to lack of insects. It is therefore preferable for any bat disturbance to avoid the peak hibernation period between December and February. Licence conditions require that any bat exclusion required only takes place in suitable

weather conditions for example when night temperatures are over 6 ºC when insects are more likely to be flying.

In addition to bats, consideration will also need to be given to any presence of nesting birds that could be present in the outbuildings. In the event of demolition being undertaken during the bird breeding season (generally between February to September) an inspected should be undertaken for any evidence of bird breeding activity (i.e., commencement of nest building through to fledging). If nesting activity is identified, to avoid contravention of the legislation relating to nesting birds, works within the area around the nest will need to be delayed until the young birds have flown the nest.

F1(ii) Tool Box Talk

Before commencement of demolition of the outbuildings, the demolition contractors will need to be made aware of: the presence of bats, the protection afforded them and the methods of working required to avoid harm to bats. The builders will be shown how to recognise a bat and identify bat droppings; where they are likely to be found and what to do if a bat is observed. It is usual for the bat ecologist named on the licence or their accredited agent to give a tool box talk to the demolition contractors. The provision of a toolbox talk will be a condition of the licence approved by Natural England and can be given by the bat ecologist at the same time as undertaking bat checks and dismantling works.

F1 (iii) Bat Inspection and Exclusion

Bat Inspection

Prior to bat exclusion by soft demolition, a check will be undertaken of the buildings for any obvious presence of bats. Where the licensed bat ecologist considers it appropriate the bat roosting sites behind the weatherboarding will be checked using a videoprobe endoscope and also, if considered appropriate, one-way exclusion apparatus will be fitted similar to the apparatus described by A.J. Mitchell-Jones and A.P. McLeish (1999).

Supervised works- destructive search by soft demolition

Works by the demolition contractors that will require supervision by the bat ecologist include:

- The dismantling of the bat roost areas/potential bat roost areas (roof tiles and weatherboarding) in the office building warehouse and stables.
- As a precaution it is also recommended that the removal of other areas of weatherboarding are dismantled under the supervision of the bat ecologist since there is a risk that bats may move between the outbuildings within the property.

In the event of a bat being found during the dismantling works, if the bat is accessible, the bat will be caught by gloved hand by the bat ecologist, given a health check and then placed inside a draw-string calico cloth holding bag or similar for transport. If their weight and condition is favourable, they will be relocated to a replacement bat roosting site (bat box). To ensure that bats are not left without a roosting site prior to any bat exclusion it will be necessary to erect a bat box within the close proximity.

Should any bats captured be found to be in a torpid condition or very underweight and their survival is therefore thought to be at risk (due to inability to fly and therefore feed), they will be taken into captivity by the licensed bat ecologist (who also experience of bat care) and fed on mealworms for a few days to ensure they are capable of flight on release (as directed by the Bat Workers Manual, s.7.3, pp.64-66; 3rd ed, 2004).

In the event of bats being discovered at any unsupervised times on the site, works will cease immediately and the bat ecologist named on the licence or their agent will be contacted for advice.

F2 Compensation

No maternity site was identified and the bat roosting sites at Wells Farm are regarded as being of relatively low significance. However, three species of bat were recorded roosting within the site and suitable roost provision for each species will be required to ensure that the favourable status of the bat populations are maintained within the local area.

Plans showing the location of the replacement bat roosting sites are illustrated in the appendix.

F2(i) Bat loft compensation for brown long-eared bats

Brown long-eared bats are void dwelling bats and require a suitable void to be provided as compensation in the long term. To compensate for the brown long-eared bat roosting site in the former stable block, it is proposed that a bat loft is incorporated within plot HO4 as illustrated in Plan 3 and 4 within the appendix. This is in the same location as the original brown long-eared bat roosting site and is close to the existing hedgerow extending west across the field. The bat loft will have a length of 7.6 metres, internal width of 4.8 metres and height from the floor to the ridge of 2.025 metres. These are suitable dimensions for a replacement roost for a day roosting site used by individual brown long-eared bats.

The construction of the loft will need to ensure that bats can fly, unobstructed, along the length of the ridge. Typical trussed rafter construction (‘fink truss design) must not be used. Suitable construction methods are purlin and rafter (‘cut and pitch’) with ceiling ties. Attic or ‘V’ shaped truss design is acceptable but king post construction is less suitable.

The slate roof will be lined internally with traditional 1F bitumastic felt to provide crevices between the tiles and felt suitable for roosting bats. Breathable membranes must not be used in bat roosts since the material can cause mortality in bats from entanglement in the fibres that may deteriorate over time (Waring, S et al 2013). Natural England will not grant a licence if unsuitable materials such as breathable membranes are used as a roof membrane. Dark coloured rough roof linings help to produce the high temperatures favoured by roosting bats. The felt will need to be laid behind the roof timbers to give more exposure of timber surfaces for bats within the loft.

Bat access to the loft will be provided by the use of pitch bat access tiles located just below the ridge.

F2(ii) Provision of range of Bat Boxes

Since the construction of a long-term replacement roosting site for brown long-eared bats will take time, to immediately accommodate displaced brown long-eared bats, prior to demolition, a Schwegler Type 2FN bat box (round domed bat box) or other similar box suitable for brown long-eared bats will be erected near to the bat roosting site. In the event of Schwegler bat boxes not being available the large multi chamber woodstone box can be used. Boxes will also need to be erected for pipistrelle bats.

Schwegler woodcrete bat boxes are thought to have the highest rate of occupancy although research is ongoing. Woodcrete bat boxes are made of wood sawdust, concrete and clay and are generally preferable to timber boxes since they are: relatively maintenance free, longer lasting and maintain a stable temperature favoured by bats.

The bat boxes erected prior to demolition will be erected either on a suitable mature tree or building. The suitability of their position on the tree or building will need to be checked by the bat ecologist from Jones & Sons.

Common pipistrelle and soprano pipistrelle bats are crevice dwelling bats, currently roosting in the crevices between the roof tiles and roof lining and behind the weatherboarding. Day roosting sites used by a small number of individual bats were identified for common pipistrelle bats and soprano pipistrelle bats in the office building with a transient/hibernation roost in the warehouse. A bat box will need to be provided for each roosting site lost prior to demolition to ensure a roost is immediately available for displaced bats.

Bat boxes provide suitable roosting opportunities for pipistrelle bats and can act as immediate replacement roosts prior to demolition and also as compensation long-term roost replacement.

External bat boxes suitable for pipistrelle bats include the woodcrete Schwegler Type 3FF or Type 1FF. In the event of Schwegler bat boxes not being available the large multi chamber woodstone box can be used. It is recommended that 2 of Type 3FF and 1 of the large multi- chamber woodstone box is erected as compensation.

Since a pipistrelle bat also roosts behind the weatherboarding of the warehouse during the cooler months, a box suitable for hibernating bats is required. It is therefore also recommended that a Schwegler bat box (Type 1WI) be erected just below the west apex of property H04 enabling bats to fly. This box is designed for all year round occupation and can be incorporated within the wall of the house flush with the surface.

Any additional bat roosting opportunities provided within the development will act as an enhancement (see section F3).

F2 (iii) Total bat boxes required as compensation

The following bat boxes (or similar) are required to provide compensation.

- 2x Schwegler Type 3FF
- 1x large multi chamber woodstone box
- 1x Schwegler Type 2FN
- 1x Schwegler Type 1WI

Natural England requires that bat boxes provided as compensation and included in the licence conditions remain in place for a minimum period of five years. This is to allow bats time to find the boxes and use them. It should be noted that any bat box that is used by bats is legally protected under the legislation.

Details of the types of bat boxes recommended are included within the Appendix.

F3 Bat Roost Enhancement

To promote net gains in biodiversity as required by the National Planning Policy Framework (2019), the erection of additional bat boxes (above the number required as compensation) within the grounds of Wells Farm is recommended.

Additional external bat boxes provided should include at least one of each of the following: Schwegler Type 2FN, Schwegler type 3FF, large multichamber woodstone bat box plus a Schwegler type 2FS. The Type 2FS is a large bat box suitable for summer and winter use by species such noctules, brown long-eared and pipistrelle bat (species recorded flying with the site). It is recommended that these are erected on trees (or telegraph pole within area of scrub/trees if no suitable trees are present) preferably around the pond in the southwest corner of the site.

Taking account of the boxes required for compensation and enhancement, the total number of external bat boxes required will include: Schwegler type Type 2FN (quantity 2) Type 3FF (quantity 3) Schwegler type 1FS bat box (quantity 1) and woodstone muti-chamber box (quantity 2)

Incorporated roosting opportunities are also recommended within the structure of the new houses. Low bat activity was recorded within the house garden with most bat activity recorded by the group of trees near the road and along the field to the west of the outbuildings. Locating new bat roost provision on the field side of the development would therefore be preferrable

In addition to the bat loft and incorporated 1WI box provided within property H04, to provide enhancements it is also recommended that incorporated crevice bat boxes (tubes) are provided just below the gable apex of property H01 (west side of gable near trees) and just below gable apex of property H02. Incorporated bat roost provision can be achieved by either installing woodcrete Schwegler Type 1FR bat tubes that fit flush with the wall or the Habibat Bat Box made from concrete and brick similarly that can be fitted flush with the wall surface.

F4 Habitat considerations

Bats prefer to fly along connecting tall sheltered hedgerows. The hedgerows from the development area extending west (field and roadside hedgerow) will need to be managed sympathetically for bats to ensure that a suitable bat flight corridor be retained for the species currently flying through the site and also to maximise the uptake of the new roost provision incorporated within the new buildings adjacent to the field. It is therefore recommended that the field and roadside hedgerows are maintained as tall hedgerows with a height of over 2 metres.

Bat activity was recorded in the area of trees by the entrance driveway. It is therefore important that the mature trees to the south of the development are protected and managed appropriately for bats.

The planting of new hedgerows around the site would be an enhancement of benefit to bats flying through the area helping to retain connectivity to the wider countryside. To ensure benefit to biodiversity any newly planted hedgerows should be planted using native species suitable for the local area.

F5 Lighting considerations

High light levels can disrupt bat flight paths (Jones, J 2000; Bat Conservation Trust 2014). Brown long-eared bats (present within the development area) are bat species particularly sensitive to white light. It is therefore important that there is no light spillage that would impact on the new bat roost locations and bat flight paths through the area. The development design will need to ensure that the lighting scheme maintains dark flight corridors along the hedgerows and there is no light spillage across to the retained trees.

Any lighting scheme should ensure lighting is only used when considered absolutely necessary with directional downward orientated lights focussing on the ground and

minimising any upward light spill. LED lights that do not emit ultra violet light are preferable with a reduced blue component. LED lights with a yellow/orange colour has less impact on bats. Security lighting should use lights with motion sensors (PIR light) and short timers to control lighting

Further information on designing lighting schemes to ensure minimal impact on bats is given in the Bat Conservation Trust and Institute of Lighting Professionals (2018) Guidance Note 08/18.

F6 Monitoring

The roost is currently assessed as being of relatively low significance and therefore no monitoring post development flight bat surveys are required

A post development compliance check of the bat roost provision will be required on completion of the works to ensure that the bat roost provision remains suitable for bats and the planning and licence conditions have been complied with.

The bat ecologist named on the bat mitigation licence will need to sign off the different phases of the development regarding bats as the work progresses.

Each stage to be signed off to include:

- Stage 1 - Completed provision of external bat boxes within the grounds of Wells Farm to immediately accommodate displaced brown long-eared bats and provide compensation for common and soprano pipistrelle bats.

- Stage 2- Completed bat inspection and toolbox talk to contractors prior to dismantling any bat roost/potential bat roost areas.

- Stage 3- Completed supervised stripping of the roof and weatherboarding (bat roost locations) prior to complete demolition

- Stage 4 –Site visits during the installation of the bat loft and incorporated roost provision to ensure the construction works are suitable for roosting bats with remedial measures applied if necessary.

- Stage 5- Post development check of all the bat roost provision in the development to ensure suitability and check of the surrounding habitats to ensure the area remains suitable for bats flying through the area.

The mitigation measures proposed should ensure that the development at Wells Farm will not be detrimental to the maintenance of the bat species populations at a favourable conservation status in their natural range with opportunities for enhancement

G References

Babec Ltd (March 2021) Wells Farm Cuffley Preliminary Ecological Appraisal

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Chartered Institute of Ecology and Environmental Management (2017) Guidelines for ecology report writing.

Collins, J (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd Edn). The Bat Conservation Trust, London.

Department for Communities & Local Government (Feb 2019) National Planning Policy Framework.

HMSO (1981 as amended) The Wildlife and Countryside Act 1981. The Stationary Office Ltd, Norwich.

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Waring, S.D., Essah, E.A., Gunnell, K. & Bonser, R.H.C. (2013) Double Jeopardy: the potential for problems when bats interact with breathable roofing membranes in the UK. Architecture & Environment.

Welwyn and Hatfield Draft Local Plan Submission Document (August 2016)

H Appendix

H1 Legislation and Policy Relevant to Bats

Legislation and Licences

All bats and their roost sites are protected by the Wildlife and Countryside Act 1981 (as amended) and through inclusion in Schedule 2 of the Conservation of Habitats and Species Regulations 2017 (2019 as amended for EI exit). Amendments to the legislation means that legal protection for bats falls mostly under the Habitats and Species Regulations.

In England the legislation makes it illegal to:

- Deliberately capture, injure or kill a bat;
- Deliberately disturb a bat which is likely to impair their ability to survive, breed, rear young or hibernate or significantly affect their local distribution or abundance,
- Incidentally or deliberately damage or destroy a breeding site or resting place of a bat.
- Possess, control, transport, sell, exchange or offer for sale or exchange, any live or dead bat or any part of a bat.

Resting places used by bats are known as bat roosts. Because bats tend to reuse the same roosts, the roost is protected whether or not bats are present at the time. Deliberately is interpreted as someone who, although not intending for example to harm a bat, performs the relevant action being sufficiently aware of the possible presence of bats. The Wildlife and Countryside Act (1981) additionally makes it an offence to:

- Intentionally or recklessly disturb a bat at a roost
- Intentionally or recklessly obstruct access to a roost.

Building works that would contravene the protection afforded to bats under the Conservation of Habitats and Species Regulations 2017 require a Mitigation Licence prior to the commencement of works. Natural England, under powers conferred by the Secretary of State, has authority to issue licences but only for certain purposes.

1 That the action is “in the interests of public health and public safety, or for other imperative reasons of overriding public interest, including those of social or economic nature and beneficial consequences of primary importance for the environment” (Regulation 53(2)(e)).

2 That there is no satisfactory alternative (Regulation 53(9)(a)) to the ‘do nothing’ option.

3 That the action authorised will not be detrimental to the maintenance of the population of the species at a favourable conservation status in their natural range (Regulation 53(9) (b)).

A clearly documented mitigation strategy is required to satisfy this regulation.

To fully inform any future licence application, Natural England will require that nocturnal bat surveys be undertaken as advised by the BCT (Collins 2016) Bat Survey Guidelines. Licences usually require three emergence surveys to have been undertaken within the active season (May to September) prior to the licence application.

Appropriate mitigation measures will be required to avoid harm to bats and, in the event of roosting sites being damaged/lost, compensation roosting sites provided to ensure that the bat populations are maintained at a favourable conservation status within the local area.

In instances where Local Authority planning approval is required, full permission must be in place (including the clearance of any conditions relating to bats) before submitting a licence application.

In addition to providing documentation to satisfy the above three tests, Natural England will require a detailed timetable of the proposed works including the month when the start of the works is proposed.

According to the significance of the roosting site either a standard EPS mitigation licence needs to be applied for, or in the event of the site fulfilling the criteria of a low significance roost, a Bat Low Impact licence could be applied for.

For the buildings at Wells Farm, a standard licence will need to be applied for.

Standard licences require detailed documentation including: application form, justification for the actions (documentation to satisfy above tests 1 and 2, a method statement detailing the surveys, mitigation proposed and compensation roosting sites, scaled plans and detailed timetable of the proposed works. The Works Schedule will need to give the timings for all categories of work including: the month when the start of the works is proposed, any bat mitigation to be implemented prior to the start, the main period of the building works and any post development monitoring. For a standard mitigation licence, Natural England will require at least 30 working days (in practice often more) to assess the application.

When the mitigation section of the Licence Application is approved by Natural England it becomes a condition of the licence and is a legal document. Any breach of the mitigation documented constitutes a possible offence and a person found guilty of non-compliance with any condition of a licence is liable on conviction to imprisonment or to a fine or both.

Policy

The National Planning Policy Framework (NPPF) revised in February 2019 has a presumption in favour of sustainable development that in an environmental context means developments should contribute to protecting and enhancing our natural, built and historic environment.

When determining planning applications, local planning authorities should aim to conserve and enhance biodiversity. If significant harm resulting from a development cannot be avoided, adequately mitigated or, as a last resort, compensated for, then planning permission should be refused.

In addition, the Natural Environment and Rural Communities Act (NERC) 2006 places a duty on all public bodies to promote and enhance biodiversity in all its functions. Section 40 of the Act states "Every public authority must, in exercising its functions, have regard, as far as is consistent with the proper exercise of these functions, to the purpose of conserving biodiversity". Special attention is paid to species included on the Government's list of species of principal importance that includes bat species.

H2 Appendix Data Tables

Appendix Table 1 summarised Bat Activity 26th May 2021

Survey focussed on warehouse but could observe east and north side of stables, north side of office also machine barn and Lynchgate. 4 observers

Time hours	Bat Species	Notes
20:44		Start of survey
21:02		Sunset
21:22	Common pipistrelle	Flew from house garden over gate and back to garden
21:24-21:26	Common pipistrelle	Bat detected area of office (potentially emerged from office flew from direction of office into courtyard flew around end of warehouse over gate to garden
21:29	Common pipistrelle	Bat detected to the west (potentially flying in field)
21:30	Common pipistrelle	Bat potentially emerged from office flew north and circled over roof of warehouse flew west
21:31	Common pipistrelle	2 bats observed- 1 bat flew east to west across courtyard in front of warehouse and 1 bat flew north to south following edge of stables possible emergence from stable (storage area)
21:32-21:34	Common pipistrelle	Bats detected west side of courtyard (possible flying in field by stables/distribution shed not seen.
21:38	Common pipistrelle	Bat detected west side courtyard field area
21:38	Noctule	Bat flew overhead north side of outbuildings
21:40	Common pipistrelle	Bat detected west side of courtyard (area of field)
21:41	Common pipistrelle	Bat observed flying east over ridge of warehouse
21:42	Unidentified bat	Bat observed to drop down from east elevation of stable (mid-section storage area). Sound not detected – possible brown long-eared
21:43	Common pipistrelle	Bat detected west side of barns field
21:44-21:48		No bat activity in area of observations
21:49	Common pipistrelle	Bat flew from field west side, flew eastwards across courtyard to garden
21:50	Common pipistrelle	Bat flew north to south along garden and over roof of office
21:52	Common pipistrelle	Bat flew around courtyard east side of distribution shed and through opening between distribution shed and stable to field
21:55-21:59	Common pipistrelle	2 bats chasing each other in courtyard swooping up to eaves of warehouse and observed flying along roof valley of warehouse Activity close to roof
22:01-22:02	Common pipistrelle	2 bats chasing each other circling over grass west side of stables/ distribution shed and up and down in courtyard between stables and distribution shed. Flying close to ground.
22:03	Common pipistrelle	Bat observed flying west to east across courtyard to garden
22:05-22:06	Soprano pipistrelle	Bat flew into courtyard south to north flew up to eaves of warehouse and back.
22:06	Common pipistrelle	Bat flew from east gable of warehouse towards garden
22:07-22:12	Common pipistrelle	2 bats flying together around courtyard west side and flying up and down east elevation of stables and flew south
22:13	Common pipistrelle	1 bat (potentially third bat) flying between stables and warehouse
22:15	Soprano pipistrelle	Bat flying west field side

22:14-22:25	Common pipistrelle	Bat regularly flying up and down courtyard between stables and warehouse and in field by stables and distribution shed
22:27		End of survey.

Appendix Table 2 weather 26th May 2021

26th May 2021	Lux	Wind Speer	Temperature	Relative Humidity
Sunset 21:01		mph	°C	%
20:42	744	0	12.5	73.3
20:47	609	0	11.7	78.2
20:52	487	0	11.5	78.2
20:57	347	0	11.5	77.8
21:02	223	0	11.2	78.9
21:07	126	0	10.9	80.4
21:12	69	0	10.8	80
21:17	38	0	10.7	80.7
21:22	22	0	10.6	81.1
21:27	13	0	10.4	81.3
21:32	8	0.5	10.1	82.8
21:37	5	0	10	82.8
21:42	3	0	10	82.4
21:47	2	0	9.5	83.8
21:52	2	0	9.5	83.8
21:57	2	0	9.2	85.5
22:02	1	0	9	86.1
22:07	2	0	8.6	87
22:12	2	0	8.4	87.4
22:17	2	0	8.3	87.3
22:22	2	0	8.1	87.8
22:27	2	0	8.1	87.8

Appendix Table 3: Wells Farm summarised Bat Activity 27th May 2021

Survey focussed on office but activity could also be observed south end of Warehouse. 3 observers

Time hours	Bat Species	Notes
20:50		Start of survey
21:03		Sunset
21:19-21:20	Common pipistrelle	Bat detected house garden driveway not seen high up
21:23	Common pipistrelle	Bat emerged from SW-facing roof (south end of office), flew south across courtyard
21:25	Common pipistrelle	Bat emerged from ridge area (SW facing) south end of office, flew south to nearby tree by driveway
21:26-21:29	Common pipistrelle	Bat detected flying lawn/pond area north of office, then flew south over NW gable of office to courtyard and flew back to lawn area
21:32-21:34	Common pipistrelle	Bat flew from driveway to courtyard then flew over gate to garden. Circling feeding around lawn/pond in front of office
21:34	Noctule	Bat flying overhead detected north side of office
21:35	Common pipistrelle	Bat feeding up and down east side of office, over lawn and pond
21:37-21:38	Common pipistrelle	Bat flying between driveway and lawn/pond area north of office
21:39	Common pipistrelle	Bat flew SE along SW elevation of office flying in courtyard
21:40-21:42	Common pipistrelle	Bat feeding over lawn/pond by office building
21:45	Common pipistrelle	Bat flew NW from driveway, feeding up and down NE elevation of office building, over lawn
21:46	Common pipistrelle	Bat detected flying area in front of warehouse
21:48-21:49	Common pipistrelle	2 bats flying and feeding between driveway and lawn/pond area by office, 1 bat also flying area of warehouse (3 bats in total).
21:50	Noctule	Bat detected north and SW of office overhead
21:51	Common pipistrelle	Bat detected driveway and courtyard area
21:54	Common pipistrelle	Bat detected briefly to SW of office building in courtyard
21:56	Common pipistrelle	Bat flying up and down in front of warehouses and across to lawn/pond area
21:58	Noctule	Bat detected high up over courtyard
21:59-22:00	Common pipistrelle	Bat detected garden lawn and then courtyard area, flew around courtyard & then over roof of office building to driveway
22:03-22:09	Common pipistrelle	Bat (1 bat) regularly observed and detected flying around courtyard, occasionally in garden north side of office and driveway
22:07-22:09	Soprano pipistrelle	Bat emerged from roof of office central gable area then flew around courtyard.
22:19	Noctule	Flying overhead
22:11-22:25	Common pipistrelle	Bat regularly recorded flying between driveway and courtyard and in garden/pond area
22:25		End of survey.

Appendix Table 4 weather 27th May 2021

27th May 2021	Lux	Wind Speed	Temperature	Relative Humidity
Sunset 21:03		mph	°C	%
20:43	460	1.7	14.4	72
20:48	347	0	14.6	71.7
20:53	234	0	14.6	71.1
20:58	142	0	14.5	71.4
21:03	88	0	13.8	73.1
21:08	55	0	13.9	74
21:13	28	0	14.1	73.3
21:18	16	0	13.8	74.4
21:23	9	0	14.1	74.7
21:28	5	0	13.8	73.8
21:33	4	0	13.4	75.1
21:38	2	0	13.2	75.8
21:43	2	0	13	76.8
21:48	1	1.5	13.3	76.6
21:53	1	0	13	77.4
21:58	1	0	13	78
22:03	1	0	12.8	78.1
22:08	1	0	12.7	78.9
22:13	1	0	12.7	78.6
22:18	1	0.7	12.8	78.2
22:23	1	0	12.6	79.2

Appendix Table 5 Wells Farm summarised Bat Activity 3rd June 2021

Survey focussed on distribution shed but could also see activity near stables and front of office. 2 observers

Time hours	Bat Species	Notes
20:51		Start of survey
21:11		Sunset
21:27	Noctule	Bat detected to NW of distribution shed, not seen
21:32	Common pipistrelle	Bat flew from courtyard through opening between stables and distribution shed, potentially emerged from office
21:37	Common pipistrelle	Bat flew from courtyard towards field through opening between stables and distribution shed, potentially emerged from office
21:38-21:39	Common pipistrelle	Bat flying around courtyard
21:39	Noctule	Bat detected flying overhead field side
21:41	Common pipistrelle	Bat flew from field side of distribution shed, towards courtyard circling/feeding in opening between stables and distribution shed before flying away to NW
21:42	Common pipistrelle	Bat flew from courtyard between stables and distribution shed, flying and feeding over grass to SW of workshop
21:43-21:44	Common pipistrelle	Bat flew from field towards south end of distribution shed circling around SE gable end of distribution shed and trees feeding over grass and flying between stables and distribution shed, then flew into courtyard
21:45	Common pipistrelle	Bat flew from field into courtyard
21:46	Common pipistrelle	Two bats flew out of courtyard between stables and distribution shed and flew NW field side of stables
21:49	Common pipistrelle	Two bats flew out of courtyard between stables and distribution shed, 1 bat flew NW field side of stables and 1 bat flew across field towards pond
21:52	Common pipistrelle	Bat flying and feeding over grass (field) by stables
21:54	Common pipistrelle	Bat flew from field into courtyard, then back out between stables and distribution shed, flew away to the south
21:59	Common pipistrelle	Bat flew south along field side of stables, into courtyard and along courtyard side of distribution shed and away to south towards trees by road
22:01	Common pipistrelle	Bat flew from field into courtyard between stables and distribution shed. Flew south along courtyard side of distribution shed.
22:02	Common pipistrelle	Bat feeding over grass between stables and distribution shed, then circled in courtyard before flying back into field and flew south across field towards trees by road
22:03	Common pipistrelle	Bat detected field side of distribution shed, not seen
22:06	Common pipistrelle	Two bats feeding over grass between stables and distribution shed, feeding up and down over grass in front of stables and distribution shed (field side), flew around courtyard, then flew back to field continuing north along field side of stables
22:08-22:10	Common pipistrelle	Bat feeding over grass field side of stables and distribution shed
22:13-22:15	Common pipistrelle	Two bats circling / feeding over grass by stables and distribution shed and around courtyard
22:15	Noctule	Bat detected field side not seen

22:16-22:19	Common pipistrelle	Bat occasionally detected in area of distribution shed but not seen
22:19	Noctule	Bat detected field side not seen
22:20-22:21	Common pipistrelle	Bat flying along field towards trees by road
22:22	Noctule	Bat detected to NW of distribution shed, not seen
22:22-22:25	Common pipistrelle	Bat feeding over grass by stables and distribution shed and around courtyard
22:27		End of survey

Appendix Table 6: Wells Farm weather 3rd June 2021

3rd June 2021	Lux	Wind Speed	Temperature	Relative Humidity
Sunset 21:12		mph	°C	%
20:52	422	1	18.7	66.7
20:57	357	0	18.2	67.4
21:02	267	0	18	68
21:07	184	0	17.9	68.4
21:12	134	0.8	17.9	68.4
21:17	76	2.1	17.8	68.1
21:22	46	1.6	17.8	68
21:27	26	1.2	17.6	68.1
21:32	15	1.3	17.4	69
21:37	8	0.8	17.3	69.3
21:42	4	1.7	17.4	69.4
21:47	2	2.5	17.2	70
21:52	0	1	17.3	70.4
21:57	0	2.3	17.4	69.4
22:02	1	1	17.3	68.3
22:07	1	1	17.1	68.9
22:12	1	1.9	17.2	68.4
22:17	1	1	17.1	68.5
22:22	1	1.1	17	68.9
22:24	1	1	17.5	69.3
22:27	1	0	17	68.9

Appendix Table 7: Wells Farm summarised Bat Activity 10th June

Survey focussed on stables but could also see west elevation of warehouse and distribution shed 3 observers. Inside of stables monitored- storage area blocked by trailer.

Time hours	Bat Species	Notes
20:57		Start of survey
21:17		Sunset
21:36	Noctule	Bat flew west, high over courtyard and stables towards field pond
21:37-21:45		No bat activity
21:46	Noctule	Bat flew high northwards from field (pond area)
21:48	Common pipistrelle	Bat detected to south of stables, not seen
21:53	Common pipistrelle	Bat flew from courtyard into field between stables and workshop, then flew south along distribution shed elevation
21:55	Noctule	Bat detected to south of stables, not seen
21:55	Common pipistrelle	Bat flew south from field towards stable, feeding around northwest corner of stables by tree
21:55	Common pipistrelle	Different bat flew from courtyard into field between stables and distribution shed, then flew south along distribution shed elevation
21:56-21:58	Noctule	Bat detected overhead to south of stables, not seen
21:56	Common pipistrelle	Bat flying in courtyard
21:57	Common pipistrelle	Bat flying south, field side of stables and distribution shed
21:58-22:02		No bat activity
22:03	Common pipistrelle	2 bats observed flying and feeding in opening between stables and distribution shed and up and down grass alongside stables and distribution shed and flew back to courtyard
22:05	Common pipistrelle	Bat flew from field into courtyard between stables and distribution shed and then back again and away north along field side of stables
22:06	Common pipistrelle	Bat detected to south of stables, not seen
22:07	Noctule	Bat detected overhead
22:08	Common pipistrelle	Bat detected to south of stables, not seen
22:09	Common pipistrelle	Bat circling/feeding around tree at NW corner of stables, flying and feeding along front elevation of stables
22:10-22:11	Common pipistrelle	Bat circling over roof (north end of stables/storage area) and swooping down to grass, then flew south
22:10-22:11	Common pipistrelle	Second bat circling over roof of north end of stables
22:12	Common pipistrelle	Bat circling over roof, north end of stables, feeding
22:13	Common pipistrelle	Bat circling over roof, north end of stables, then flew south, briefly flew into courtyard between stables and distribution shed, then flew south along field elevation of distribution shed
22:14-22:15	Common pipistrelle	Same bat flew back north along field side of workshop, into courtyard briefly, continued north along front of stables then back south, into courtyard briefly again, then south along field elevation of distribution shed
22:16	Common pipistrelle	Bat flew north along field elevation of distribution shed and stable then flew back south again
22:17	Common pipistrelle	On the north side of the site a bat flew east to west past warehouse to stables, , then flew south along field side of stables, then hunting up and down front of stables while dipping into courtyard between

		stables and distribution shed, before circling whole of stables clockwise and returning to feeding over grass in front of stables
22:18	Common pipistrelle	Bat flying up and down field side of stables and distribution shed
22:19	Common pipistrelle	Bat flying out of courtyard and north past stables
22:22	Common pipistrelle	Bat feeding between stables and workshop and up and down field side of stables and distribution shed
22:25-22:30	Brown long-eared	Bat observed flying around northwest corner of stables near tree and also flying up and down front elevation of stables (storage area and stables below overhanging roof. Flew into stable. Probable emergence.
22:34	Common pipistrelle	Bat flying and feeding around stables
22:35		End of survey

Appendix Table 8: Wells Farm weather 10th June

10th June 2021	Lux	Wind Speed	Temperature	Relative Humidity
Sunset 21:18		mph	°C	%
20:53	969	0	19.7	73.5
20:58	774	1.3	19.7	73.6
21:03	639	1.7	19.9	73.5
21:08	478	1.5	19.8	73.6
21:13	323	0	19.7	74
21:18	200	0.8	19.6	74.3
21:23	121	1.6	19.5	74.6
21:28	72	2	19.5	74.8
21:33	46	0	19.2	75.1
21:38	24	0	18.8	76.7
21:43	13	0	19	76.8
21:48	6	0	18.9	77.5
21:53	3	0	18.3	78.7
21:58	1	0	18.7	77.7
22:03	0	0	18.4	79.4
22:08	0	0	18.9	77.7
22:13	1	0	18.4	78.4
22:18	1	0	18.5	78.5
22:23	1	0	18.3	79.7
22:28	1	0	18.1	80.1
22:33	1	2.1	18.3	79.9
22:35	1	2.2	18.2	80.6

Appendix Table 9: Wells Farm summarised Bat Activity 15th June

Survey focussed on the machine shed , east elevation of warehouse visible. 2 observers.
Inside monitored

Time hours	Bat Species	Notes
21:13		Start of survey
21:21		Sunset
21:54	Common pipistrelle	Bat detected (not seen) south side of machine shed
21:57	Common pipistrelle	Bat flew from courtyard into garden east along south end of machine shed
21:58-22:02		No bat activity
22:03	Common pipistrelle	Bat flew from garden into courtyard west along south end of machine shed
22:04	Soprano pipistrelle	Bat detected south side of machine shed (pond area)
22:08	Common pipistrelle	Bat detected in garden
22:08	Noctule	Bat detected in distance to north
22:09	Common pipistrelle	Bat detected in garden
22:12-22:13	Common pipistrelle	Bat detected in garden
22:15	Common pipistrelle	Bat detected and observed flying by tree to north of machine shed
22:16-22:21		No bat activity
22:22	Common pipistrelle	Bat detected to north of machine shed, not seen
22:23-22:30		No bat activity
22:31		End of survey

Appendix Table 10: Wells Farm weather 15th June

15th June 2021	Lux	Wind Speed	Temperature	Relative Humidity
Sunset 21:21		mph	°C	%
21:11	484	0	17.3	66.4
21:16	358	0	17	66.9
21:21	257	0	16.6	67.8
21:26	175	0.8	16.7	67.2
21:31	113	1.5	16.6	67.7
21:36	69	1.5	16.6	67.5
21:41	39	1.1	16.4	68.5
21:46	20	0	16	69.4
21:51	10	0	15.9	71
21:56	5	0	15.6	70.7
22:01	3	0	15.7	70.8
22:06	1	0	15.4	71.7
22:11	1	0	15.3	72.4
22:16	0	0	15.2	72.7
22:19	0	0	15.5	73
22:26	0	0	15.5	72.1
22:31	0	0	15.2	71.9

Appendix Table 11: Wells Farm summarised Bat Activity 28th June

Survey focussed on warehouse (including monitoring the inside) with observations of office, stables and distribution shed. 4 observers. Detectors placed in key locations and one observer walked around the site

Time hours	Bat Species	Notes
21:13		Start of survey
21:23		Sunset
21:42	Common pipistrelle	Bat emergence from office flew west across courtyard, then flew north between warehouse and stable block.
21:43	Common pipistrelle	Bat detected field area by stables
21:44-21:50		No bat activity
21:51	Common pipistrelle	Bat flew south along east elevation of warehouse and flew west across courtyard towards field. Detected flying by stables
21:53	Common pipistrelle	Bat detected south of warehouse (office area)
21:55	Common pipistrelle	Bat detected south of warehouse (office area)
21:55	Noctule	Bat flew high south over warehouses
21:57	Common pipistrelle	Bat flew from stable area, circled around roof of warehouse and swooped up and down by south gable ends of warehouse
21:58-21:59	Common pipistrelle	Bat detected (not seen) south of warehouse
22:03	Common pipistrelle	Bat detected (not seen) south of warehouse
22:04-22:07		No bat activity
22:08	Common pipistrelle	Bat flying between stables and warehouse
22:11	Noctule	Bat detected to SE of warehouse C
22:12	Common pipistrelle	Bat detected (not seen) south of warehouse
22:16-22:20	Common pipistrelle	Bat feeding field side of distribution shed and stables. Observed circling over stable roof and down to grass (as before)
22:21	Common pipistrelle	Bat detected flying in courtyard east side of distribution shed /stables
22:22-22:33		No bat activity
22:33		End of survey

Appendix Table 12: Wells Farm weather 28th June

28th June 2021	Lux	Wind Speed	Temperature	Relative Humidity
Sunset: 21:23		mph	°C	%
21:13	54	0	16.4	87.5
21:18	35	0	16.1	87.9
21:23	21	0	15.9	88.3
21:28	15	0	15.8	89.1
21:33	10	0	15.7	89.2
21:38	5	0	15.6	89.7
21:43	3	0	15.6	89.9
21:48	1	0	15.6	90
21:53	0	0	15.5	90.3
21:58	0	0	15.4	90.5
22:03	1	1.6	15.4	90.7
22:08	1	0	15.3	90.9
22:13	1	0	15.4	91
22:18	1	0	15.4	91
22:23	1	0	15.4	91.2
22:28	1	0	15.3	91.3
22:33	1	0	15.1	91.4

Appendix Table 13: Wells Farm summarised Bat Activity 15th July

Survey focussed on office but one observer walked around the site later in the evening. 3 observers

Time hours	Bat Species	Notes
21:03		Start of survey
21:13		Sunset
21:22	Common pipistrelle	Bat detected in garden to east of office, not seen
21:31	Common pipistrelle	Bat detected in garden to east of office not seen
21:32	Common pipistrelle	Bat flying from house area westwards along driveway
21:34-21:35	Common pipistrelle	Bat detected to east of office building, not seen
21:36-21:40		No bat activity
21:41	Common pipistrelle	Bat detected in garden east of office
21:43-21:46	Common pipistrelle	Bat detected in garden to east of office
21:47-20:50	Common pipistrelle	Bat observed circling and feeding up and down NE elevation of office lawn/pond area
21:51	Common pipistrelle	Bat emerged from office building, from behind cladding at NE elevation gable apex, below alarm box
21:51-21:53	Common pipistrelle	Two bats feeding up and down NE elevation of office building and over lawn/pond area
21:53-22:05	Common pipistrelle	At least 1 bat continuously flying up and down in front (S elevation) of warehouse occasionally swooping up to NW gable of office barn in courtyard.
21:57-21:58	Common pipistrelle	Bat flew over roof of office towards lawn flying lawn/pond area
22:01	Noctule	Bat detected to north and east of office building, not seen
22:05-22:11	Common pipistrelle	Bat flying and feeding in courtyard around warehouses occasionally flying around office building
22:05-22:13	Common pipistrelle	Bat feeding over grass by stable and around stable roof
22:12-22:15	Common pipistrelle	Bat flying up and down SW elevation of office and circling over roof of office, flying in courtyard and in front of warehouses
22:16-22:18	Common pipistrelle	Bat detected driveway/pond area
22:18	Common pipistrelle	Bat flew over office building towards warehouse, then turned and flew back NE
22:19	Common pipistrelle	Bat flying up and down SW elevation of office building and in front of ware house
22:20	Common pipistrelle	Bat flying over courtyard, flew away to south
22:22	Common pipistrelle	Bat flying up and down SW elevation of office building and up and down in front of warehouses, before flying away to south
22:23-22:27		No bat activity
22:28-22:35	Common pipistrelle	Bat continuously flying up and down in courtyard in front of warehouses and around office building occasionally detected driveway/pond area
22:35		End of survey

Appendix Table 14: Wells Farm weather 15th July

15th July 2021	Lux	Wind Speed	Temperature	Relative Humidity
Sunset 21:13		mph	°C	%
20:53	970	0	16.3	79.6
20:58	710	0	15.6	81.9
21:03	493	0	15	82.7
21:08	349	0	15	83.8
21:13	231	0	14.4	84.3
21:18	147	0	14.1	85.8
21:23	89	0	13.5	87.1
21:28	51	0	13.7	88.2
21:33	27	0	13.5	86.1
21:38	14	0	14	86.9
21:43	8	0	14	86.4
21:48	4	0	13.8	86.2
21:53	3	0	14	85.4
21:58	2	0	13.8	85.3
22:03	1	0	13.2	87.3
22:08	1	0	13.4	86.9
22:13	1	0	13.3	87.2
22:18	1	0	13.2	87.4
22:23	1	1.2	13.2	88.3
22:28	1	0	13.2	86.6
22:33	1	0	13.4	85.6

Appendix Table 15: Wells Farm summarised Bat Activity 19th July

Survey focussed on stables with 1 observer located inside storage area (roost area). Roost area in stables discovered following removal of trailer that previously had blocked access. Distribution shed could also be observed. 3 observers

Time hours	Bat Species	Notes
21:03		Start of survey
21:09		Sunset
21:29	Noctule	Bat detected to north of stables
21:30-21:35		No bat activity
21:36	Common pipistrelle	Bat flew west from courtyard between stables and distribution shed then away to south
21:41	Common pipistrelle	Bat flew from courtyard west between stables and distribution shed then north along front elevation of stables, over roof, circled in front of stables then flew away to north
21:42-21:46		No bat activity
21:47-21:48	Common pipistrelle	Bat flew from north (field), feeding around NW corner of stables, including over roof, then flew south past stables and distribution shed
21:51	Common pipistrelle	Bat flew from north (field), circling around roof at north end of stables
21:52	Common pipistrelle	Bat flew from courtyard west between stables and distribution shed then north along front elevation of stables
21:52-21:53	Brown long-eared	Bat emergence from inside storage area of stables (roost located during daytime inspection). Detected flying inside stable storage observed flying briefly by SE wall. Flew out observed flying up and down front elevation potentially flew into stable.
21:53	Common pipistrelle	Bat feeding around NW corner of stables.
21:54	Common pipistrelle	Bat flew west from courtyard between stables and distribution shed then away to south
21:55-21:57	Common pipistrelle	Bat flew in and out of open stable door, then flew south and into courtyard
21:58	Common pipistrelle	Bat flew west from courtyard to field then two bats flying up and down front elevation of stable, feeding around NW corner, one flew south to field and one flew north
21:59	Common pipistrelle	Bat flew from courtyard to field and around NW corner of stables, circled roof and flew south along front elevation and into courtyard, then back out of courtyard and north past front elevation of stables
22:00-22:01	Common pipistrelle	Bat flew from courtyard to field and around NW corner of stables, circled roof and flew south along stables front elevation and into courtyard, then back out of courtyard and away to south
22:03	Common pipistrelle	Bat flew from courtyard west between stables and distribution shed then north along front elevation of stables, and over roof, circling roof at NW corner of stables
22:04	Common pipistrelle	Bat flew from NW corner of stables, south along front elevation and into courtyard
22:05-22:06	Common pipistrelle	Bat flew north along field side of distribution shed to stables, then feeding up and down over grass adjacent to distribution shed and stables then flew west across field

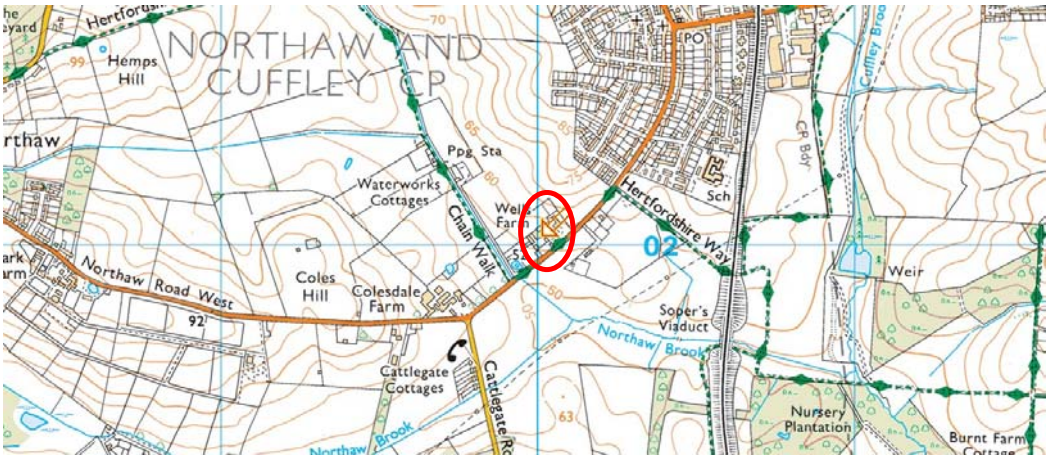
22:07-22:08	Noctule	Bat detected overhead
22:09	Common pipistrelle	Bat flew from field to courtyard
22:11-22:18	Common pipistrelle	Bat occasionally detected to north of stables (east side) not seen
22:20-22:24	Common pipistrelle	Bat occasionally detected in field south of stables not seen
22:26	Common pipistrelle	Bat detected to east of stables not seen
22:29-22: 32	Common pipistrelle	Bat occasionally detected in field to SW of stables not seen
22:32	Soprano pipistrelle	Bat detected to NW of stables, not seen
22:33		End of survey

Appendix Table 16: Wells Farm weather 19th July

19th July 2021	Lux	Wind Speed	Temperature	Relative Humidity
sunset 21:09		mph	°C	%
20:54	462	0	24.1	64.5
20:59	370	0	23.5	66.2
21:04	235	1.1	23.1	67.5
21:09	151	1.8	22.9	68.1
21:14	94	0	22.6	68.7
21:19	60	0	22.3	69.3
21:24	30	1.1	21.9	70
21:29	14	1.4	21.8	70.5
21:34	6	0	21.6	71.4
21:39	2	0.7	21.2	72.6
21:44	0	0	21.1	73.4
21:49	1	0.9	20.7	74.4
21:54	2	0	20.5	74.8
21:59	2	1.3	20.3	74.8
22:04	2	1.5	20.1	75.2
22:09	2	0	20.1	75.2
22:14	2	1.2	19.9	75.4
22:19	2	0	19.7	75.7
22:24	2	0	19.7	75.8
22:29	2	1.3	19.6	76.3
22:31	2	1.9	19.7	76.3

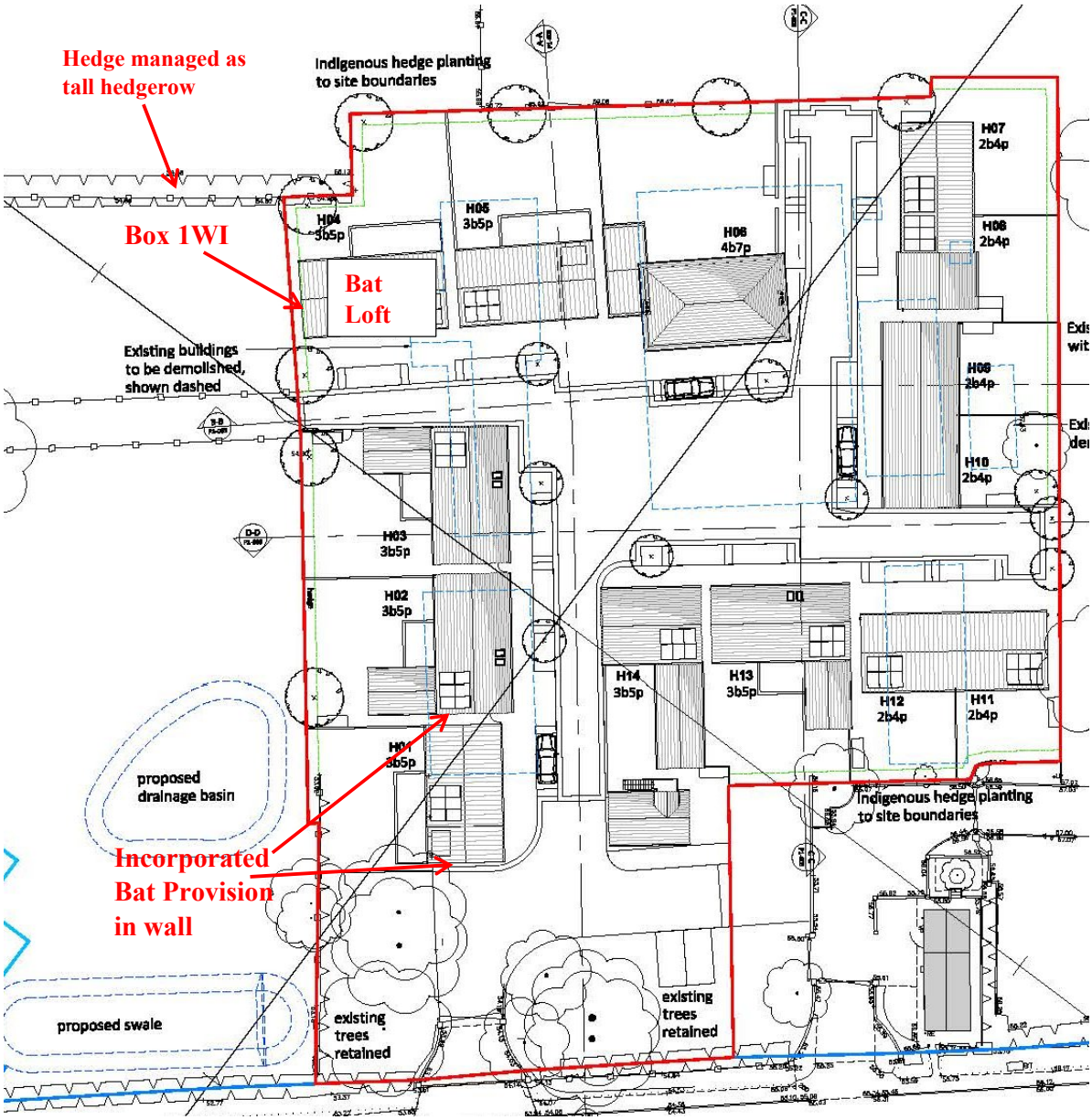
H3 Appendix Plans

Appendix Plan 1: Site Location



Appendix Plan 2: Aerial photograph showing site and surrounding habitats.

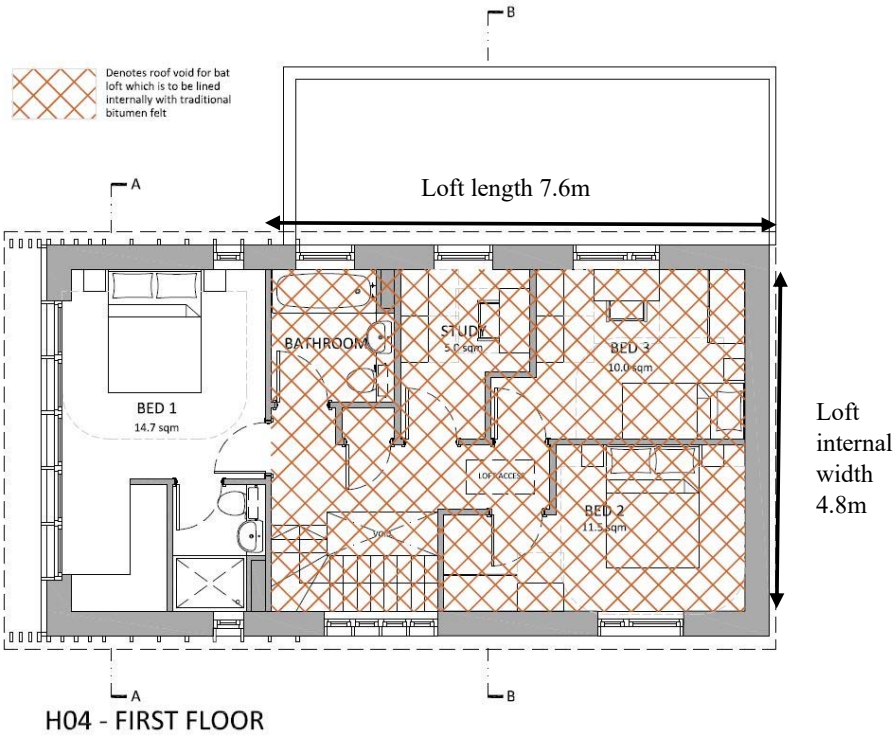
Appendix Plan 3: Location of new bat roost provision



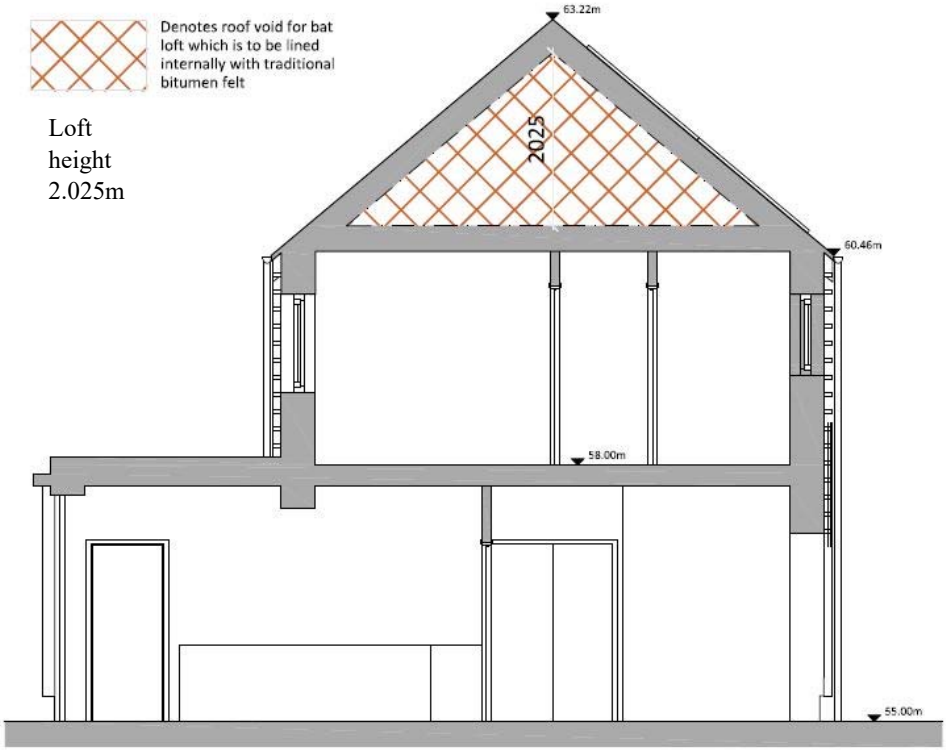
External bat boxes to provide compensation and enhancement to be erected on trees or telegraph poles near field pond to include:

Schwegler Type 3FF x3, Schwegler type 2FN x2, Schwegler 2FS x1
Large multi-chambered woodstone bat box x2

Appendix Plan 4: Bat Loft in H04



H04 - FIRST FLOOR



H04 - SECTION B - B

H4 Bat Box Specifications

Schwegler Type 3FF deep flat bat box
Spacious enough to be used by a nursery colony of pipistrelle bats

Height 430mm
Width 270mm
Depth 200mm
Weight 9.5kg

Schwegler Type 2FN

Type 2FN- round domed roofed box
with front and rear entrance and
increased height that allows bats to form clusters,
Height 360mm
Diameter 160mm
Weight 4.3kg

Large Multi Chamber Woodstone Bat Box

Dimensions
13cm x 27.5cm x 16cm

Weight 4kg

Schwegler Type 2FS

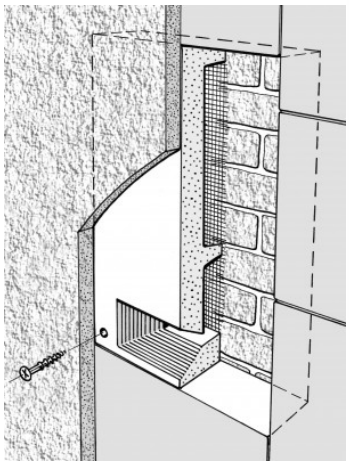
General purpose bat box suitable for a large colony of bats
Suitable for summer and winter use

Height 440mm
Width 280mm
Depth 200mm
Weight 9.5kg

Schwegler Type 1WI

Designed for all year occupation
Can be set into wall flush with the surface
with entrance visible

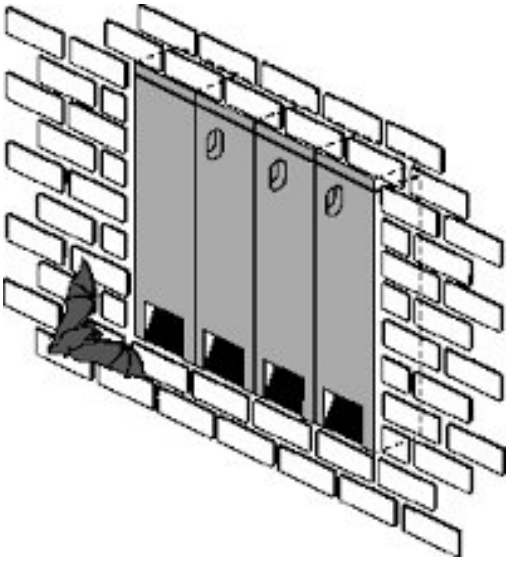
Height 545 mm
Width 345 mm
Depth 95 mm
Weight 15 kg



Schwegler Bat Box (Bat Tube) Type 1FR.

Long woodcrete bat tubes that can be incorporated in walls

Height	475 mm
Width	200mm
Depth	125mm
Weight	9.8kg



Habibat Bat Box

Box made from concrete plus brick facing that can be incorporated in walls

Height	440 mm
Width	215mm
Depth	102 mm
Weight	9 kg