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Pandy Farm, Merthyr Tydfil

Bat Report



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1. Introduction

- 1.1 This report has been prepared by Ecology Planning on behalf of Kevin Jones in support of a listed building application for the repair and re-roofing of several existing barns at Pandy Farm, Brecon Road, Merthyr Tydfil, hereafter referred to as the 'Site'.
- 1.2 This assessment includes all affected buildings, as well as consideration of the remaining buildings at the Site that are not subject to this application. The farmhouse and clock tower, forming the eastern side of the courtyard, were not assessed.
- 1.3 The Site is situated at National Grid Reference SO 040070 adjacent to Brecon Road
- 1.4 All protected species were considered following the initial Site walkover survey. Impacts are extremely limited and do not extend beyond the Site boundary. Bats and nesting birds are included within this report. There is no potential to other protected species to be present or affected by proposed works.
- 1.5 The report includes full descriptions of all methods undertaken to gather ecological data, the results and analysis and recommendations for appropriate mitigation and enhancement with regards to relevant legislation, planning policy and conservation documents.

2. Methodology

- 2.1 This section provides details of all methods used in this ecological assessment including timing of works, weather conditions and equipment used.
- 2.2 All works were carried out in accordance with best practice guidelines including:
- Bat Surveys for Professional Ecologists Good Practice Guidelines¹;
 - Bat Mitigation Guidelines²; and
 - Bat Workers Manual³.

Desk Study

- 2.3 As requested, a desk study was undertaken. Records were supplied by SEWBREC for roof nesting birds and bats within a 2km radius.

Site Survey

- 2.4 A building assessment of all buildings at the Site was undertaken on 8th April 2022. Given the built nature of the habitat immediately surrounding the Barns, no impacts to protected species beyond birds and bats were considered likely.
- 2.5 In accordance with current best practice guidance, a daytime building assessment was supported by two night-time surveys of Barn D and three night-time surveys of Barn E to H (as shown on *Rural Office Site Plan drawing SK027 v1*).

Building Assessment

- 2.6 An external and internal assessment of Buildings B – G (as shown in **Appendix 2** and *Rural Office drawing SK027 v1*) was undertaken on 8th April 2022 by Rebecca Bohane, a licensed bat worker. All buildings were subject to a detailed assessment and the information is provided in this report for context.
- 2.7 The survey followed standard methodologies and consisted of a visual inspection of the exterior of the buildings for:
- direct evidence of bat use including droppings, feeding remains and scratches and staining from fur oil or urine around roost exit/entry points;
 - features that have the potential to be used by bats including loft voids, soffits, wooden beams, hanging tiles; and
 - general conditions including roof structure, temperature, disturbance and connectivity of suitable habitat.
- 2.8 The survey was aided by the use of ladders, close-focussing binoculars and high-powered torches where necessary.
- 2.9 The roosting potential of the building was classified into one of the following categories:
- High Roosting Potential – Buildings with significant potential containing a large number of suitable features or features present appear optimal;

¹ Collins, J. (ed.) (2016). *Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn)*. The Bat Conservation Trust, London

² Mitchell-Jones, A.J. (2004) *Bat Mitigation Guidelines English Nature*, Peterborough

³ Mitchell-Jones, A.J. & McLeish A.P. (2004) *Bat Workers Manual (3rd Edition)* JNCC, Peterborough

- Medium Roosting Potential – Buildings with roosting features appearing less suitable;
- Low or No Roosting Potential – Buildings with few if any features suitable for roosting.

Emergence/Dawn Swarming Surveys

- 2.10 **Appendix 2** illustrates surveyor locations, although these were strategically located during different surveys and were not necessarily covering one building per survey. This means some elevations were surveyed on more than one occasion as they were visible from surveying a different section of the complex. Surveys were well spaced during the 2022 maternity period. A minimum of three surveys were carried out of Buildings E-H and two surveys of Building D.
- 2.11 The dates and weather conditions were suitable for all surveys, as detailed in **Table 1.** below.

DNA Analysis

- 2.12 Following a request from the Merthyr Borough Ecologist, the droppings recorded in Building D were subject to DNA analysis.

Date	Buildings Surveyed	Dawn/ Dusk time	Duration	Temperature (Start - End)	Cloud Cover	Wind	Precipitation	Automated Detector Location
17.06.2022	East of F,G	21:38	21:20 – 23:10	22.5°C – 20.8°C	8/8	Light to moderate breeze	None	Inside G
	North of H							Inside H
	West of G							
18.06.2022	West of D, F	04:58	03:10 – 05:00	18.0°C – 18.0°C	8/8	Very light breeze	None	Inside F
	North of E							Inside D
	South of F							
21.06.2022	East of E	21:35	21:20 – 23:10	21.5°C – 19.5°C	0/8	Very light breeze	None	
	South of F							Inside F
	North of H							
08.07.2022	East of D	21:33	21:20 – 22:50	21.3°C – 20.3°C	2/8	None	None	
	East of G							
	West of D,F							Inside E
09.07.2022	North of E	05:00	03:15 – 05:00	17.5°C – 16.5°C	2/8	None	None	Inside D
	South of F							Inside E
	East of E							
15.08.2022	North of H	20:45	20:30 – 22:15	25.0°C – 19.8°C	4/8	None	None	
	West of G							
	South of F							Inside F
24.08.2022	East of E	20:24	20:10 – 21:55	21.3°C – 19.5°C	7/8	Light breeze	None	North of G
	East of F							
	East of D							Inside G
26.08.2022	North of H	20:15	20:00 – 21:30	23.8°C – 19.8°C	0/8	None	None	
	East of G							Inside F
	East of F							Inside G

Table 1. Dates, durations and weather conditions of night-time bat surveys.

- 2.13 All surveys were led by Laurence Brooks, a licensed bat worker and experienced bat surveyor (with more than 15 years' experience), with the exception of the survey on 26th August, which was led by Rebecca Bohane. Sorch Lewis was present on all surveys. All surveyors are licensed bat workers, each with more than 10 years' surveying experience.
- 2.14 Surveyors used *Batbox Duet* heterodyne and frequency division bat detectors, with a further two static automated detectors for additional coverage on most surveys. These were located both in and outside the buildings being surveyed. All calls were recorded as MP3 files/WAAC files and analysed using *BatSound* and *AnaLook* software.

Automated Detector Surveys

- 2.15 All buildings were subject to a minimum of three nights consecutive automated detector survey during the peak maternity period. Anabat Express detectors were used and positioned internally within the buildings. The forecast was favourable for all survey work, being warm and dry throughout. Building G was subject to two sets of survey since this was the only building where evidence of bats was recorded internally.

- 2.16 Detectors were placed in open locations within the buildings, at head height or higher to capture any flight within the upper part of the Buildings. This will not be the case in Building F, where there is a separate roof void which is partly inaccessible and the only accessible damaged area, too dangerous to access. The detectors in Building E were positioned in the loft space.
- 2.17 The dates for the automated detector surveys are shown in **Table 2**, below.
- 2.18 The weather during all periods of survey was warm and dry. There was no rain forecast during any of the survey periods, with the weather unusually hot and dry throughout. The temperature log of the detectors obviously reflects the internal conditions and the buildings warm throughout survey. There is no reason to suggest that the periods of automated survey would be unrepresentative of activity throughout the summer.

Date	Building
17.06.2022 – 21.06.2022	F
23.06.2022 – 27.06.2022	H
23.06.2022 – 27.06.2022	G
08.07.2022 – 12.07.2022	E
08.07.2022 – 12.07.2022	D

Table 2. Dates of static detector surveys.

Constraints

- 2.19 The surveys were carried out in accordance with best practice guidelines, with optimal timing of surveys. The valley between the southern stable block (Building F) and the courtyard stable block (Building H) is nearly impossible to view from any aspect. It is possible that bats may have emerged from these roof pitches, but bats would still need to exit the roof environment from a more visible location. One emergence survey was done from scaffolding, but this was not deemed safe enough to repeat.
- 2.20 The southern and eastern elevations of the Coach House (Building E) could not be viewed as these elevations can only be seen from neighbouring properties.

3. Results

Desk Study

Designated Sites

- 3.1 There are no designated sites for bats within 2km of the Site.

Background Records

- 3.2 More than 400 records of bats were returned from within 2km of the Site. The vast majority relate to in flight records and very few of roosts. Many of the roost records are historic. The nearest confirmed records of roosts include:
- A possible small natterer's roost at a distance of 1.2km;
 - A possible small daubenton's roost at a distance of 1.2km;
 - 2 unidentified minor roosts at a distance of 1.2km;
 - One unidentified pipistrelle roost at a distance of 1.3km; and
 - A minor soprano pipistrelle roost at a distance of 1.4km.
- 3.3 There are multiple records from Cyfarthfa Park of a wide range of species. These all relate to static detector surveys and without detailed data it is not possible to say over what time period these records were collected. There do not appear to be sufficient records of any one species to indicate a significant roost nearby.
- 3.4 There are more than 1600 records of roof nesting birds within 2km, which is not surprising given the urban nature of the locality. Many of the species recorded could use the Site.

Site Setting

- 3.5 The Site is located within the town of Merthyr Tydfil. There is residential accommodation immediately to the south and again to the west, with the north and east being bordered by Brecon Road and Cyfarthfa Road. Despite the very urban location, a large park, with lake, lies immediately beyond Brecon Road to the north.

Building Assessment

- 3.6 Barns D-H are set out in detail below. Buildings A-C are described in *Ecology Planning report 1703/01*.
- 3.7 The descriptions below should be read in conjunction with **Appendix 1 - Photographs**.

Building D

- 3.8 Building D forms the south western corner of the main courtyard. It comprises a northern section that is in a very poor state of repair and a workshop in the southern section.
- 3.9 The entire section is single storey, although the workshop forms the main part and is in considerably better condition. The northern part comprises two small store rooms of rough stone construction that are in poor condition. There are notable deep crevices within the walls, which are very damp. The roof comprises corrugated metal and fibreboard and is significantly damaged, with some sections missing entirely.

- 3.10 The workshop is a traditionally built stone building with a hipped artificial slate roof. The stonework is in good condition on the western elevation; with the north and south being formed by the adjacent buildings, and the east being the small store rooms.
- 3.11 The roof is in moderate condition: the concrete hipped roof appears to be intact and fitted, but at least one gap is present under the main clay tiled ridge. The northern end is concreted at the verge and this appears to be quite tightly sealed. The slates are all present, although several are raised on the western pitch. The timber fascia boards are in good condition but gaps are present beneath at the wall tops.
- 3.12 Internally, the workshop is open to the roof, which has a collar beam construction, and is cluttered near the apex. There is bitumen felt present in part and this is in very poor condition, being absent in places and badly torn. The timber double doors on the western elevation are not tightly fitted, and small gaps are present around them.
- 3.13 The room is in regular use and the floor clean. There is internal lighting and it is likely that the internal space is lit regularly. The entire space was inspected and no evidence of bats recorded.
- 3.14 **Building D is considered to have moderate potential to support roosting bats.**

Building E

- 3.15 Building E is a single storey building of stone construction. The front, eastern, elevation is constructed of cut stone, which is well fitted and contains no obvious gaps. The other elevations are of rough stone construction and appear to be well pointed, with no obvious deep crevices, although some minor gaps within the stonework.
- 3.16 The timber doors on the eastern elevation are well fitted into cut stone surrounds. It was not possible to view the north, south and west adequately but from internal stonework, there does not appear to be any access.
- 3.17 The pitched roof is hipped and almost square with nearly equal sized roofs on all aspects. The main north-south ridge is clad with clay tiles, one of which has been replaced with a concrete tile. The majority of tiles, whilst being uneven to appear to be sealed with concrete, as do the hips on the eastern elevation. The hips on the western elevation were only partly visible and appear to be uneven. There is missing mortar beneath the bottom tile on the north western hip.
- 3.18 The roof slates are in poor condition with several raised and missing slates, particularly on the bottom course.
- 3.19 The timber fascias are all present, but choked with vegetation beneath. It is possible that gaps are present into the roof void amongst the vegetation.
- 3.20 Internally the ground floor stonework painted throughout and in good condition.
- 3.21 There is a suspended ceiling with no access into the loft space, which will be large and over 2m in height. There is a large damaged section through which it is possible to view the underside of the roof. The loft space does not appear cluttered and it is likely to have a simple cut and pitch construction. No roofing felt was present. It was not deemed safe to use a ladder against the damaged ceiling so the loft could not be inspected for evidence of bats.
- 3.22 The hipped construction and open loft space is suitable for bats.
- 3.23 **Building E is considered to have moderate to high potential to support roosting bats.**

Building F

- 3.24 Building F is a large building of traditional stone construction, spanning the full width of the Site at the south. It is a tall single storey building containing a ground floor and loft internally.

- 3.25 The southern elevation is of cut stone construction, which is in excellent condition. Similar to Building E, there are cut stone arches around all doors and windows, which are well fitted in the main. A gap is present between one of the stone window arches and timber cladding above the window. The eastern and western elevations are both of rough stone construction and in moderate condition. There are no visible gaps on the eastern elevation but large gaps at the wall tops on the west. A single window is present on both elevations, with the one on the west being gappy. The northern wall is the joining wall with Building H.
- 3.26 The pitched slate roof is difficult to view adequately owing to the height of the Building and the tight boundary wall close to the southern elevation. The roof is a simple pitched slate roof, with hips on the eastern and western elevations. The main ridge appears to be concrete tiled, but it is not possible to assess the condition of it. The hipped ridges on the east are in poor condition, with warped metal coverings. The concrete hipped ridges on the west are in good condition. The roof appears to be clad in slate along the southern pitch and as far as it was possible to view, it is assumed likely that the northern pitch is slate also. The western pitch appears to be asbestos tiles or similar. The slate tiles on the eastern pitch are in poor condition, with numerous missing tiles and obvious access gaps.
- 3.27 Internally the majority of the Building is open to the roof, which is a simple cut and pitch construction and in all areas where it is possible to view, there is bitumen felt on the northern pitch and no felt on the southern pitch. One room contained bitumen felt on the southern pitch of the roof. The hipped roof on the western end also has a bitumen felt.
- 3.28 There are two sections with a ceiling, creating large loft voids, which will have a minimum of 2-3m at the apex. It was not possible to access the loft on the eastern end due to health and safety constraints. The central section which supports a ceiling has no access. All internal dividing walls are brick and there are significant gaps at the wall tops of each wall, allowing access between the open internal space and the loft voids.
- 3.29 No evidence of bats was recorded on the ground floor. There was significant pigeon and jackdaw activity within the eastern end. A nesting jackdaw was recorded at the wall top of the western external wall.
- 3.30 **Building F is considered to have high potential to support roosting bats.**

Building G

- 3.31 Building G is a workshop and adjacent small storeroom, very similar in design to Building D. The walls of a rough stone construction and are in good condition, with well fitted doors and windows. The exception is a deep cavity in the wall on the eastern elevation. The southern wall, where it joins Building F is brickwork.
- 3.32 The roof is clad with small concrete tiles, with a concrete ridge and appears to be in good condition. There are timber fascias on the eastern and western elevations, with large gaps present beneath all.
- 3.33 Internally the main workshop space is open to the roof, which is of simple cut and pitch construction. There is bitumen felt throughout which is in excellent condition, with only a few gaps present where overlapping pieces are sagging.
- 3.34 The internal stone and brickwork is painted and overall is in excellent condition, barring one crevice.
- 3.35 The small storeroom to the north is open to the roof internally, which is of simple construction with intact bitumen felt throughout.

- 3.36 Ten medium segmented bat droppings were recorded near to the southern wall. A large crevice was also present in the stonework. These were not fresh and were scattered. The angled nature of the segments may be consistent with Natterer's bats. The results of DNA analysis are awaited. The droppings were sufficiently scattered to be meaningfully photographed.
- 3.37 **Building G is considered to have high potential to support roosting bats.**

Building H

- 3.38 Building H is the main stable block, forming the southern side of the courtyard. The Building is single storey and of cut stone construction on the northern elevation, with well fitted doors and windows set into stone arches. A horse is currently occupying one stall and as such half of a stable door is kept open.
- 3.39 The simple pitched roof is clad with small concrete tiles on the northern pitch. This is in poor condition and numerous tiles have slipped on the bottom courses. The southern pitch is corrugated fibreboard with corrugated plastic light panels. This is intact and, together with the ground floor windows on the north, renders the internal space very light. It is not possible to view the exterior of the southern pitch nor the valley where the roof joins Building F.
- 3.40 Internally, there is gappy brickwork on all wall tops and an internal brick dividing wall, which is also gappy at the top. The stonework is painted and offers limited potential to bats, other than the brickwork at the tops.
- 3.41 The roof is a simple collar beam construction, very similar to Building C. There is bitumen felt beneath which is in very poor condition, shredded, with large sections hanging.
- 3.42 There is a mezzanine loft along the northern edge, which was inspected. Whilst covered with hay and debris, it was possible and safe to search for evidence of bats.
- 3.43 No evidence of bats was recorded.
- 3.44 **Building H is considered to have moderate potential to support roosting bats.**

Night-Time Surveys

3.45 The recorded roosts are shown in **Table 3**, below. These are also illustrated in **Appendix 2**.

Building	Date	Emergence/ Entry
D	18.06.2022	No bats entered.
	08.07.2022	1 whiskered bat emerged eaves on west.
	15.08.2022	No bats emerged.
	21.06.2022	No bats emerged.
	24.08.2022	No bats emerged.
E	18.06.2022	No bats entered.
	08.07.2022	1 common pipistrelle out hole in slate on east.
	09.07.2022	1 common pipistrelle in at eaves on east.
	15.08.2022	2 common pipistrelle out hole in slate on east. 1 common pipistrelle out ridge on north.
	17.06.2022	1 soprano pipistrelle out under southern fascia.
	18.06.2022	1 soprano pipistrelle in under southern fascia.
	21.06.2022	No bats emerged.
	08.07.2022	1 common pipistrelle out under southern fascia.
F	09.07.2022	2 common pipistrelles in under southern fascias. 1 soprano pipistrelle in above door on south.
	15.08.2022	1 soprano pipistrelle out from southern fascia.
	24.08.2022	1 soprano pipistrelle out from hip ridge cover on east.
	26.08.2022	1 whiskered/Brandt's bat emerged from hip apex on east.
	17.06.2022	No bats emerged.
	21.06.2022	No bats emerged.
	09.07.2021	No bats entered.
G	24.08.2022	No bats emerged.
	26.08.2022	No bats emerged.
	17.06.2022	No bats emerged.
H	21.06.2022	No bats emerged.
	09.07.2022	No bats entered.
	24.08.2022	No bats emerged.
	26.08.2022	No bats emerged.
	17.06.2022	No bats emerged.

Table 3. Results of night-time bat surveys.

3.46 Activity was exceptionally low, with no activity recorded in any building during the surveys and very little on detectors positioned externally. The most activity recorded by any detector was 10 bat passes on 21/06/22. The remainder had no more than 3 passes on any given night.

3.47 The only species recorded by the detectors that were not recorded emerging from the buildings were:

- One natterer's bat pass recorded at 01:05 on 18/06/22 on EP4.
- One noctule pass was recorded tat 21:18 on 26/08/22.

Automated Detector Surveys.

3.48 There was extremely little bat activity recorded within the buildings during the static detector survey. Results are set out in **Table 4**, below.

Building	Date	Emergence/ Entry
D	08.07.2022 – 09.07.2022	No bats recorded.
	09.07.2022 – 10.07.2022	No bats recorded.
	10.07.2022 – 11.07.2022	No bats recorded.
	11.07.2022 – 12.07.2022	No bats recorded.
E	08.07.2022 – 09.07.2022	No bats recorded.
	09.07.2022 – 10.07.2022	No bats recorded.
	10.07.2022 – 11.07.2022	No bats recorded.
	11.07.2022 – 12.07.2022	No bats recorded.
F	17.06.2022 – 18.06.2022	No bats recorded.
	18.06.2022 – 19.06.2022	No bats recorded.
	19.06.2022 – 20.06.2022	No bats recorded.
	20.06.2022 – 21.06.2022	No bats recorded.
G	23.06.2022 – 24.06.2022	No bats recorded.
	24.06.2022 – 25.06.2022	No bats recorded.
	25.06.2022 – 26.06.2022	No bats recorded.
	26.06.2022 – 27.06.2022	No bats recorded.
H	23.06.2022 – 24.06.2022	01:04 1 soprano pipistrelle pass.
	24.06.2022 – 25.06.2022	No bats recorded.
	25.06.2022 – 26.06.2022	No bats recorded.
	26.06.2022 – 27.06.2022	01:16 – 01:22 10x pass myotis bat.

Table 4. Results of static detector surveys.

DNA Analysis

- 3.49 The DNA results are included at Appendix 4. The droppings relate to use by a brown long-eared bat. The number of droppings is consistent with minor use prior to 2022. There were no obvious gaps in the felt which would conceal further droppings and indicate a significant roost. The scattered nature of the droppings suggests occasional use, with the Building used no more than a handful of times.

Other Protected Species

- 3.50 There is significant potential for common and widespread species of birds use the Site nest within the Site.
- 3.51 Nesting behaviour by gull, pigeon and sparrow was recorded in Buildings E, F, and H, although it is possible that birds nest within all buildings.

4. Legislation and Conservation Context

Legislation

- 4.1 All bats species are listed on Schedule 5 of the Wildlife and Countryside Act, 1981 (as amended) (WCA), which provides legal protection from injury and protection to their roosts. The WCA has been strengthened by the CRow Act, which allows for 'reckless' as well as deliberate offenses under the legislation. Certain species are also afforded protection under the Environment Act (Wales) 2016, which additionally requires biodiversity enhancement as part of new development.
- 4.2 The Conservation of Habitats and Species Regulations 2017 (as amended) make it an offence to damage or destroy a breeding site or resting place of any bat, or to deliberately capture, kill or disturb a bat or its roost.
- 4.3 All birds are protected from disturbance during the nesting season by the WCA (as amended).

5. Discussion and Recommendations

Evaluation

Bats

- 5.1 There was an exceptionally low level of bat activity recorded across the Site as whole, which was consistent across all manned and automated surveys. Despite roosting opportunities present in all buildings, all roosts are minor, with a maximum of two pipistrelles recorded in one location only. The surrounding habitat is suboptimal for bats, being developed and disturbed. However, a significant park lies to the north of the Site, which would provide suitable foraging habitat for bats. There is a high level of lighting in the surrounding area which appears to negate the roosting and foraging habitats present. The surveys were undertaken during the optimal period for bat survey, capturing both the maternity and post-maternity period.
- 5.2 There was no increase in the number bat droppings recorded in Building G, first noted in April 2022, by October 2022. The DNA analysis confirmed the droppings as brown long-eared bat. The small number does not reflect a significant roost and is likely to be a single brown long-eared bat on a couple of occasions. It is clear that the roost is not used regularly and therefore the individual is not reliant on the internal space.
- 5.3 In light of the extremely low level of activity of four common species during the peak activity season, the likelihood of bats hibernating at the Site is reduced. It is recognised that there are few records of whiskered bat within the Merthyr area. However, within a UK context they are considered a common species. The author has recorded numerous whiskered bats within south, west and mid Wales. The presence of minor whiskered bat roosts is notable within Merthyr but not significance within a wider/regional context.
- 5.4 The Site is of low/moderate importance for bats and the activity is largely restricted to the southern aspect of the Site.

Birds

- 5.5 Common species of bird nest within the Buildings. There are no species of particular conservation significance.

Impact Assessment - Bats

- 5.6 There will be significant roofing works and it is assumed that entire re-roofing will be undertaken.

Short-term impacts: disturbance

- 5.7 Non-breeding bats roosting individually are least likely to be significantly affected by disturbance, as such minor roost features are usually common and bats can relocate quickly and easily. There will be multiple opportunities in neighbouring buildings for the species recorded.
- 5.8 However, any bats present at the time of demolition would be disturbed and there is also potential for direct harm to those bats present.

Long-term impacts: roost modification

- 5.9 The locations roost sites recorded beneath are all within external features and can be replaced. In all likelihood the sites will probably be lost in the absence of mitigation since works will result in well sealed roofs, with limited inherent gaps.

- 5.10 The internal space of Building G will be modified, preventing the brown long-eared bat from having access to the entire internal space. Compensation will be provided by way of a retained void, as set out below.

Long-term impacts: roost loss.

- 5.11 The roost sites will likely be lost to works. Bats would be entirely excluded from internal locations within the buildings although there is no evidence for significant roosting within any Building.
- 5.12 The droppings in Building G likely result from minor use in a previous year, with no new droppings in 2022 or any night time use by the automated detector. Whilst the results from the DNA analysis are awaited, these are not considered likely to change the provision offered. The lack of regular use of the Site means that the individual is clearly not dependent on the internal space. Crevice opportunities are provided inherently in the new design.
- 5.13 The only records of bats within a Building recorded by the automated detector result from one evening and all passes are in quick succession, suggesting a brief entry only, rather than night roosting.

Long-term impacts: fragmentation and isolation

- 5.14 Repair of the buildings will not result in the loss of any connectivity. There are no particular flightlines recorded and, as the red line does not extend to include the surrounding grounds, there will be no changes to vegetation and no impacts are predicted.

Post-development interference impacts.

- 5.15 There is no proposed change of use and the Site is likely to be used as existing.
- 5.16 No external lighting is present within the Site, although there is illumination of the north east of the Site owing to the streetlight on the roundabout to the north east. This affects the Buildings outside of the red line boundary and to a lesser extent the eastern elevation of Building F and G. This will be beyond the control of the applicant and will be unchanged.
- 5.17 There will be no new external lighting.

Predicted scale of impact

- 5.18 In the absence of mitigation long term loss of minor roosts of three/four common species is considered to be of low-moderate impact overall. It is recognised that there are few records of whiskered bats in the Merthyr area. However, they would still not be classified as a rare species and disturbance of minor roosts would be of no more than a moderate impact. Suitable roost sites will be retained in the long term. Disturbance is expected to be a low impact in accordance with NE guidance (Bat Mitigation Guidelines; pg. 37) consisting of disturbance of small numbers of common species only.
- 5.19 A licence from Natural Resources Wales will be required for the works to proceed lawfully. Outline measures are provided below to demonstrate how the long-term favourable conservation status of the species will be maintained.

Impact Assessment - Birds

- 5.20 Any works undertaken during the nesting bird season have the potential to disturb nesting birds. There are currently numerous opportunities for nesting birds, which will inevitably be reduced following roofing and repair works.

Mitigation

Timing of Works

- 5.21 No hibernation survey has been undertaken on the basis that stonework crevices are notoriously difficult to survey thoroughly. The absence of hibernating bats during an endoscope check would likely result in the same caveat that bats could be present, since it is almost impossible to conclusively rule them out.
- 5.22 It is therefore recommended that works to buildings with hibernation potential are not undertaken during the hibernation period, mid November-mid March, inclusive.
- 5.23 It is strongly recommended that buildings are repaired outside of the nesting bird season (March – August, inclusive) unless a visit by a suitably qualified ecologist immediately prior to works confirms that no birds are present.

Working Methods

Bats

- 5.24 All works will be subject to a licence. Minor bat roosts have been recorded at eaves, below roof covers/ridges and from beneath slates.
- 5.25 There appear are some significant cavities in stonework, particularly at wall tops that may be affected prior to new roofs. All potential crevices will be inspected/excluded as necessary. These works may be undertaken at any time of year, provided the Named Ecologist is satisfied that bats are not/unlikely to be present.
- 5.26 Prior to works commencing, the licensed ecologist will give a toolbox talk on site to all contractors undertaking the works. The toolbox talk will outline the protection given to bats by law and the overall mitigation strategy and the methods required to ensure that bats are safeguarded throughout construction. It will also cover unexpected bats discovered.
- 5.27 Any stonework cavities present will be directly investigated with a high-powered torch and/or endoscope, as necessary. If it is not possible to fully inspected the cavity and if it is not possible to deconstruct the cavity to ensure no presence/evidence of bats inside, these crevices will be subject to a standard exclusion exercise following methodology set out in the Bat Worker's Manual. This will comprise either a Constantine device or rigid plastic flap, dependent on the best fit for the individual cavities. All timings will be carried out in accordance with the Bat Worker's Manual. Cavities will be sealed immediately to prevent use.
- 5.28 The Named Ecologist will supervise all works to recorded roost sites from height, working directly alongside contractors. Gaps beneath barge/fascia boards will be checked immediately prior to removal. Removal will involve carefully removing the boards, to prevent compression of any spaces behind. The Named Ecologist will also supervise removal of the roof covering were bats were recorded. Ridge tiles will be lifted directly upwards and the undersides checked. The Named Ecologist will then take a view as to whether the removal of further tiles requires supervision. The absence of felt across much of the Site significantly reduces the presence of suitable roost sites.
- 5.29 In the event that any bats are encountered during the works (not including the stonework), the bats will initially be left to disperse of their own accord. If bats remain in situ, and if it is safe to remove the bat (dependent on location) individuals will be removed by a licensed bat worker to a pre-erected bat box on a tree within the Site.

Bat Provision

- 5.30 There is opportunity to incorporate provision for bats within the repaired buildings. Despite numerous opportunities present, the lack of any significant roost suggest that the urban surrounds are unsuitable for most species. Opportunities are designed to ensure both the existing roosts will be maintained and there is scope for roosts to expand.
- 5.31 All opportunities will be integral to ensure they remain in perpetuity. These measures are shown in **Appendix 3**.
- 5.32 Access will be provided for bats in each building, as follows:
- Bat access slates just below the ridge on all buildings. To comprise: one on east of G; one on east of F; four on south of F; one on west of F; two on west of D; and four on north of H. Building E will have two each on the east and west and one each on the north and south; and
 - Fascia board access on: the west of G and F (two locations each); south of F (10 locations); and a minimum of two locations on each elevation of Building E.
- 5.33 A breathable roofing membrane will be used. A small square (1m x 1m) of bitumen 1F felt will be used directly below the access tiles and this will be battened around to prevent bat access to the roofing membrane across the main roof. The project architects have confirmed this is possible and there will be no access to the main roof by bats.
- 5.34 Access behind barge/fascia boards will have minimum dimensions of 20mm depth x 50mm width. Bats will have no access to the main roof. This will be boarded above, creating a small enclosed crevice and restricting access above to the roof.
- 5.35 These will replicate opportunities where bats have been recorded roosting. Access into the internal space is not considered necessary since very limited evidence in terms of droppings and bat activity was recorded.
- 5.36 In order to provide a void for brown long-eared bat, and at the request of NRW, a void will be provided within Building G, where the droppings were recorded. The void will be 2.2m by 5.5m long and 1.8m at the apex. There will be bitumen felt present within this section of roof. Access will be via an access slate on both the east and west pitch and fascia access on the eastern elevation. This will be adequate to accommodate small number of long-eared bats and there is no evidence that more significant numbers use this building or the Site in general. The edges of the bitumen roofing felt will all be tightly battened and this will prevent bat access across the rest of the roof.
- 5.37 A hibernation box will be provided to replicate lost opportunities. This will be sited on the northern elevation of Building D. A suitable model would be the Schwegler 1WI or 1WQ, depending on which is more acceptable to the conservation officer.
- 5.38 There will be no new lighting. The existing levels of lighting, typical of an urban area, will be unchanged.

Bird Provision

- 5.39 In order to replace lost opportunities to birds currently able to use the buildings, and as requested by the Council Ecologist, two nest boxes will be provided on each elevation:
- Two two-chambered woodcrete sparrow boxes⁴ at a height of 3m on the north western elevation on Building F; and

⁴ Available online at: [Search \(nhbs.com\)](https://search.nhbs.com) [accessed 02/12/22]

- Two swift boxes will be provided at a height of 4.5m, which is consistent with guidance from *Swift Conservation*⁵. These will be a built-in design⁶, of which numerous models are available, (model to be determined following discussion with the Conservation Officer), which have a minimum longevity of 10 years. These will be provided on the eastern elevations, one on each of Building F and G, at the wall tops. The built-in nature of the boxes will prevent overheating. Swift are present in the local area, although the location restricted on the SEWBREC data.
- 5.40 There will be no provision on the southern elevation. All bird provision will be in place prior to use of the buildings.

Post-Development Disturbance.

- 5.41 No new lighting is proposed.
- 5.42 The remainder of the farm complex is not subject to renovation and numerous opportunities for birds and bats remain.

Compliance

- 5.43 The measures summarised above set out an opportunity to ensure opportunities for birds and bats remain in the long term and ensure that impacts are minimised throughout works.
- 5.44 It is always challenging to provide a biodiversity enhancement when buildings only are affected by work and there is no outside space. However, the long term security of bat roosting opportunities will be maintained, not only of recorded sites, but further potential sites. The specific provision for two declining bird species is also considered a positive enhancement. In the absence of repair works, eventually the buildings will become less suitable and this security in the long term is considered a realistic enhancement measure.
- 5.45 All bat measures will be controlled via a Natural Resources Wales licence.
- 5.46 It is envisaged that the implementation of measures for birds will be controlled via an appropriately worded condition.

⁵ Available online at: <https://www.swift-conservation.org/Nestboxes&Attraction.htm#Where%20to%20fit%20Swift%20nest%20places> [accessed 17/04/23]

⁶ Available online at <https://www.nhbs.com/woodstone-swift-nest-box?bkfno=217160> [accessed 20/10/22]

Appendix 1 - Photographs



Photograph 1. Building B. The gated access on the northern elevation.



Photograph 2. Building B. The gated access on the southern elevation.



Photograph 3. Building B, eastern section. The rough stonework on the southern elevation.



Photograph 4. Building B, eastern section. The eastern elevation with gappy verges.



Photograph 5. Building B. The roof structure above the central gated section.



Photograph 6. Building B, eastern section. The tie and collar beam roof construction.



Photograph 7. Building B, eastern section. Gaps beneath fascia boards on the northern elevation.



Photograph 8. Building B, eastern section. Further gaps beneath fascia boards.



Photograph 9. Building B, western section. The western elevation (adjacent to Building C).



Photograph 10. Building B, western section. Gappy verges on the western elevation.



Photograph 11. Building B, western section. The first floor.



Photograph 12. Building B, western section . The tie and collar beam roof construction.



Photograph 13. Building C, southern half of the eastern elevation.



Photograph 14. Building C, northern half of the eastern elevation, with missing ridge tiles and bowing of roof visible.



Photograph 15. Building C. The western elevation.



Photograph 16. Barn C. The internal roof construction and mezzanine loft.



Photograph 17. Building D. The damaged storeroom entrance on the eastern elevation.



Photograph 18. Building D. The western elevation.



Photograph 19. Building D. The store rooms in a very poor state of repair.



Photograph 20. Building D. The roof structure of the workshop, which has some sections of bitumen felt.



Photograph 21. Building E. The eastern elevation.



Photograph 22. Building E. Missing tiles from the lower courses.



Photograph 23. Building E. The Missing mortar from the hip.



Photograph 24. Building E. Damage to the ceiling showing the unlined roof above and access through the roof.



Photograph 25. Building F. The southern elevation.



Photograph 26. Building F. The eastern elevation.



Photograph 27. Building F. The western elevation



Photograph 28. Building F. Gaps present below window arches.



Photograph 29. Building F. The unlined slate tiles on the southern pitch and bitumen felt on the north.



Photograph 30. Building F. Gappy internal wall tops allowing access between sections.



Photograph 31. Building F. Bitumen felt present on most of the western hip.



Photograph 32. Building F. A damaged ceiling showing loft space on the eastern end.



Photograph 33. Building G. Gaps beneath fascia boards at the western corner.



Photograph 34. Building G. The eastern elevation (right hand section of building).



Photograph 35. Building G. Significant gaps beneath fascias on the eastern elevation.



Photograph 36. Building G. A large internal crevice and the bitumen felt in good condition in close proximity to where bat droppings were recorded.



Photograph 37. Building H. The northern elevation showing bowing of the roof and an open stable door.



Photograph 38. Building H. The internal space showing northern pitch of roof in very poor condition.

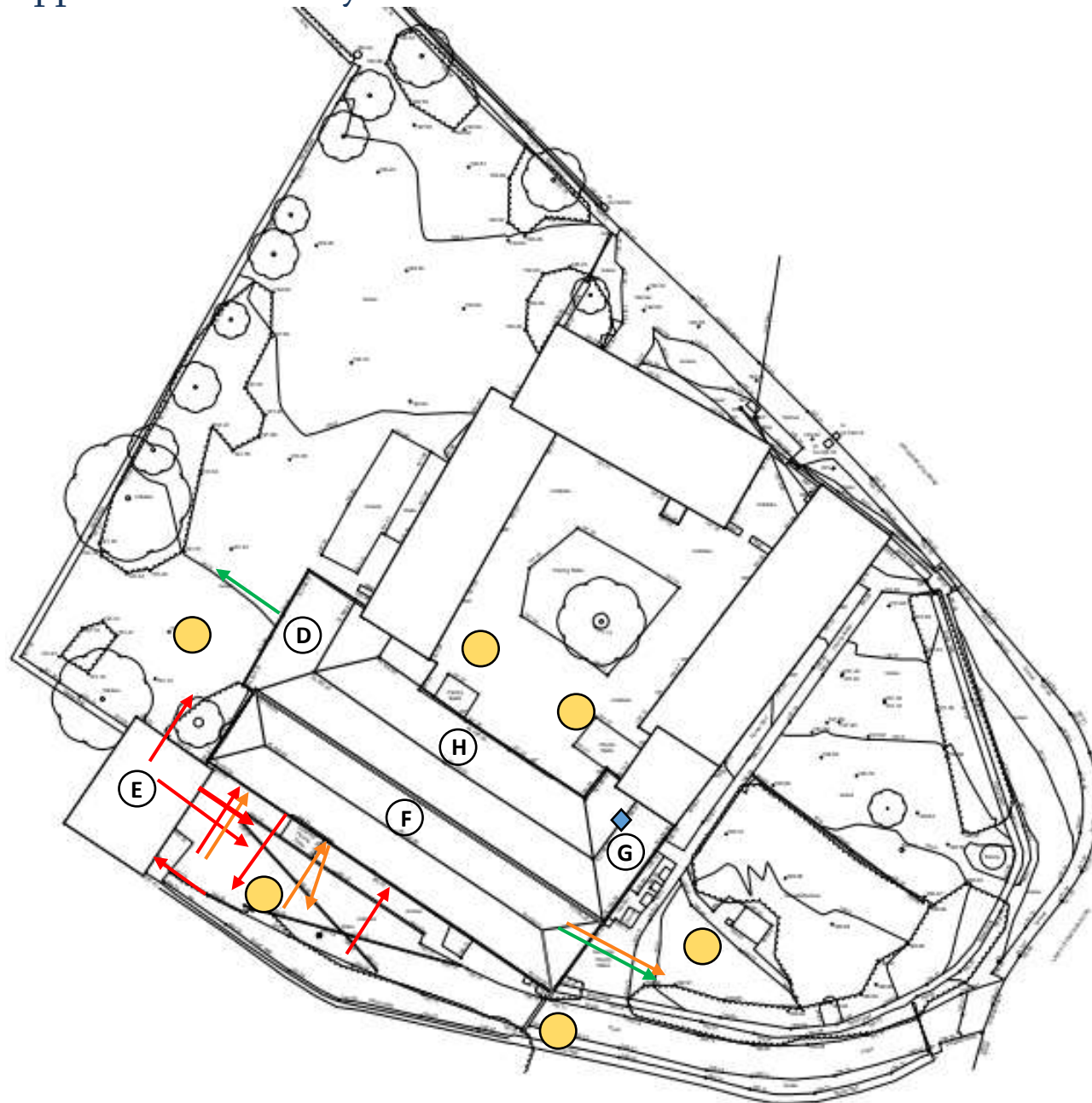


Photograph 39. Building H. The mezzanine loft level is very well lit.



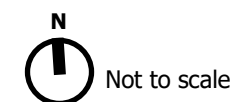
Photograph 40. Building H. Gappy brickwork visible at the wall tops.

Appendix 2 – Survey Results



KEY

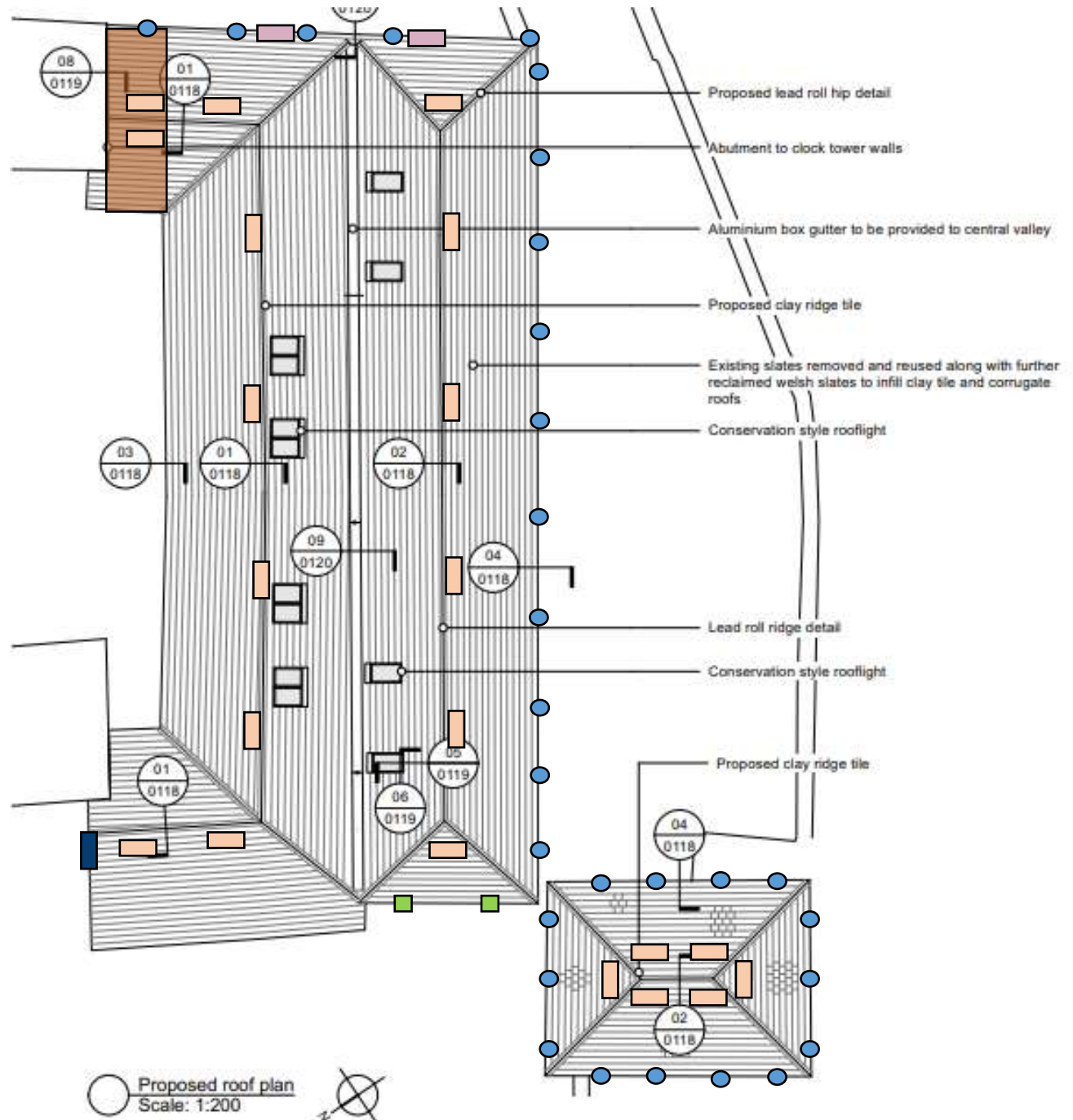
-  Surveyor Location
-  Small number of unidentified droppings
-  Common pipistrelle
-  Soprano pipistrelle
-  Whiskered bat



Ecology Planning
Ecological Planning Advice and
Protected Species Surveys

Project: Pandy Farm
Drawing Number: 1703/ 01
Drawn by: RJB
Date 07/11/22

Appendix 3 – Mitigation Measures



KEY

-  Bat Access Tile
-  Fascia Board Access
-  Sparrow Nest Box
-  Swift Box
-  Bat Hibernation Box
-  Bat Loft

Not to scale

Ecology Planning

Ecological Planning Advice and
Protected Species Surveys

Project: Pandy Farm

Drawing Number: 1703/ 02b

Drawn by: RJB

Date 21/03/23

Appendix 4 – DNA Results



12 December 22

Re: Identification Results for Rebecca Bohane, Ecology Planning

Job number 19199, received 05 December 2022

Sample labelled: Pandy Farm, Merthyr Tydfil

PCR amplification successful. DNA sequence:

ATGACCAACATTTCGAAAATCCCACCCTCTCATAAAAATTATCAATGACTCATTTCATTGA
CTTACCTGCTCCCTCAAATATTTTCATCATGATGAAACTTTGGATCTCTTCTAGGC

Phylogenetic analysis identification: *Plecotus auritus*

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

Best regards,

Professor Robin Allaby

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

Professor Robin Allaby

School of Life Sciences,
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