



WEST VIEW, MARCHWIEL;

BAT AND NESTING BIRD SURVEY

DATE	ECOLOGIST	APPROVED	VERSION	COMMENTS
21/01/2022	Jane Kingsley	Keymar Wake	V1	
10/09/2022	Jane Kingsley	Keymar Wake	V2	Addition of emergence survey results and mitigation

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Executive Summary

Site	West View, Overton Road, Marchwiell, Wrexham, LL13 OTE Grid reference; SJ 35809 46831
Surveyors	Keymar Wake and Jane Kingsley
Proposed work	Extension of an existing bungalow and replacement of the roof; construction of a detached single storey workshop building.
Area/structures affected	Entire structure. The roof will be replaced. Additional footprint to replace amenity grassland and hardstanding.
Type of survey	Preliminary Roost Assessment (PRA), Nesting Bird Survey (21/01/2022), Bat Emergence Surveys (20/07/22 and 04/08/22)
Main results of survey	• The building had several Potential Roosting Features (PRF's) for bats, including many access points into the roof space and roosting opportunities under the slates and lead flashing, as well as gaps in the mortar • The loft space had high light and air flow levels, and would be considered unsuitable for day roosting of free-hanging species • A number of droppings (<20) were found scattered throughout the loft – identified as whiskered bat • One Pipistrelle bat emerged from the building during the emergence surveys. • The loft has good nesting potential for birds, indicators of a nest were seen under a barge board and a dead blue-tit was found on the loft floor • Surrounding habitat was of moderate suitability for bats with pastoral fields and connectivity to further suitable habitat through defunct hedge and tree boundaries
Survey conclusions	• The site is considered to have moderate potential for bats • The building is being used by at least two species for roosting purposes; a whiskered bat and soprano pipistrelle • As bat droppings and signs of a bird nest were found in the building, a known bat roost and nesting bird habitat will be lost due to the works
RAMS and Mitigation	• A licence will be required from NRW before any works can commence. • Due to the loss of a bat roost, compensatory bat boxes for crevice dwelling bats are recommended within the site • Bird boxes will be erected around the site to enhance the site for these species • Reasonable avoidance and mitigation measures will be implemented at all times

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1.0 Introduction

- 1.1 Enfys Ecology Limited were commissioned by homeowners Mr. and Mrs. Woodcock, to produce a Preliminary Roost Assessment (PRA) along with a **separate** Ecological Assessment and Method Statement with regards to Great Crested Newts (GCN) (*Triturus cristatus*) in regards to proposed works at West View, Marchwiel. The proposed works comprise a new extension onto the eastern elevation of the existing building that will tie into the current roof, along with the modification of the current roof into a dormer. In addition, a detached single-storey workshop will be constructed further east within the site.
- 1.2 The survey was commissioned to determine whether the proposed works would affect protected species, specifically bats and nesting birds. The survey work to inform this report was carried out on the 4th August 2022. This report is valid for a period of 18 months from the last date (August 2022) in accordance with best practice.
- 1.3 All British bats (and roost sites) are protected under the Wildlife and Countryside Act (WCA) 1981 (as amended). In addition, all bats are classified as European Protected Species by The Conservation of Habitats and Species Regulations 2010 (as amended). Under this legislation, it is an offence to kill, injure or disturb a bat, or to destroy any place used as a shelter by bats.
- 1.4 All birds (and their nests) are legally protected under the Wildlife and Countryside Act 1981 and it is an offence to intentionally take, damage or destroy the nest of any wild bird while it is in use or being built (as well as kill or injure wild birds or their eggs).
- 1.5 Should evidence of bats be found and it is deemed likely that the proposed works will disturb them; a licence from Natural Resources Wales (NRW) must be obtained before any work may proceed.

2.0 Site Description

2.1 Survey area

- 2.1.1 The site was located in the village of Marchwiell (Grid reference SJ35809 46831) (Figures 2.1 and 2.2).
- 2.1.2 The site comprised a single storey bungalow with a single storey wing off the south east corner and a garden of amenity grassland to the west and east elevations. To the west and south side of the bungalow was gravel hardstanding used as a driveway. The driveway ran alongside the property to the rear of the garden where it ended at a strip of concrete hardstanding. The gravel also wrapped around the north side of the bungalow as a footpath. At the rear (east) of the bungalow was a small area of concrete hardstanding used as a patio.

The site was located west of the main A528, where it was screened by a hedgerow. A further hedgerow ran along the length of the plot on the south elevation. To the rear of the garden was a wooden gate that led onto further grassland bordered by a shed and piles of stored timber. Adjoining this was a pond bordered to the rear by broadleaf trees. Immediately to the north, south and east lay pastoral and arable farmland.



FIGURE 2.1. THE SITE AND SURVEYED BUILDING (RED). BASE IMAGE © GOOGLE 2022

- 2.1.3 The site was located in a rural agricultural area approx. 2 km south of the village of Marchwiell and 3km southeast of Wrexham. The wider surrounding area consisted of pastoral and arable land with a few scattered farms; field boundaries comprised scattered trees and hedgerows. There were a number of ponds in the area, the nearest being in the garden, approx. 70m from the house on the eastern elevation. In addition, there was a pond approx. 100m north east. The wider area around the survey boundary is shown in Figure 2.2.

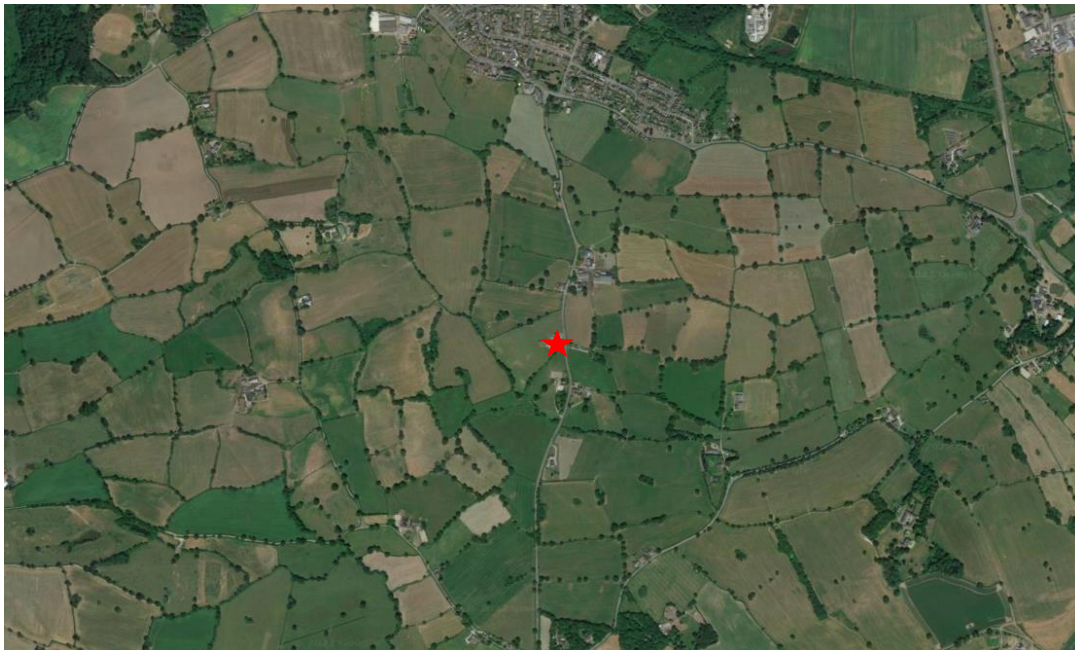


FIGURE 2.2 THE WIDER LANDSCAPE - THE SURVEY SITE IS SHOWN BY RED STAR. BASE IMAGE © GOOGLE 2022

2.2 *Designated and notable sites*

- 2.2.1 There were two non-statutory wildlife sites within 1km of the survey area; Marchwiell Moss is located 932m north of the site and 896m south of the site are three small areas of semi-ancient woodland. There were no sites designated for bats within 2km of the survey area.

3.0 Methodology

3.1 *Preliminary Roost Assessment*

- 3.1.1 The building was assessed for any signs of bats; these include droppings, feeding remains, and other indicative marks, plus features of potential use to bats such as crevices, cracks and other holes, and any potential access points into the building. High powered torches were used to inspect any identified features, and an endoscope was used to investigate any gaps or crevices, where appropriate. Both the exterior and interior of the building were examined.

3.2 *Survey Details*

- 3.2.1 The external and internal building inspections were carried out on the 21st January 2022 by Keymar Wake (accredited agent on Bat Licence No. licence S090407/1) and Jane Kingsley. Potential roost assessments were carried out following the guidelines set by the Bat Conservation Trust, 'Bat Surveys – Good Practice Guidelines' (Collins, J. 2016). Photographic evidence was taken where necessary.

3.3 *Dusk Emergence Surveys*

- 3.3.1 Two bat emergence surveys were carried out during July and August 2022; led by Jane Kingsley and two assistants; surveyors were positioned to be able to observe and monitor all elevations of the building, using Anabat Scout detectors. Records were taken of any bats observed emerging from the building, and of any other bat activity taking place in the area during the survey. The survey began approximately half an hour before sunset and continued for 90 minutes after sunset.

- 3.3.2 The bat call data was analysed using Anabat Insight Software with the BatClassify plugin set at 70% confidence to auto analyse the bat calls; all the calls were then reviewed and re-assessed as required. The surveys began approximately half an hour before sunset and continued for 90 minutes after sunset.

3.4 *Static Detector Survey*

An Anabat Express was left over 15 consecutive nights in the attic to record any calls of bats using it during the period from the 20th July 2022 to the 4th August 2022.

3.3 *Limitations*

- 3.3.1 Some of the loft space was not boarded so it was not possible to access and inspect the roof space above the wing to the south east elevation; however, the lack of access is not considered to have any detrimental effects on the survey and conclusions.
- 3.3.2 Bats are highly mobile animals and it is possible that they may move into a building after the survey has occurred. Therefore, absence of bats cannot be absolutely guaranteed.

4.0 *Survey Results*

4.1 *Building Descriptions*

- 4.1.1 The building proposed for works is a single storey bungalow, approx. 12m x 10m with a wing (approx. 3m x 4m) on the south east corner. The basic layout of the building as it stands now and the proposed changes are shown in Figure 4.1 and the details of the external and internal areas are described in Table 4.1

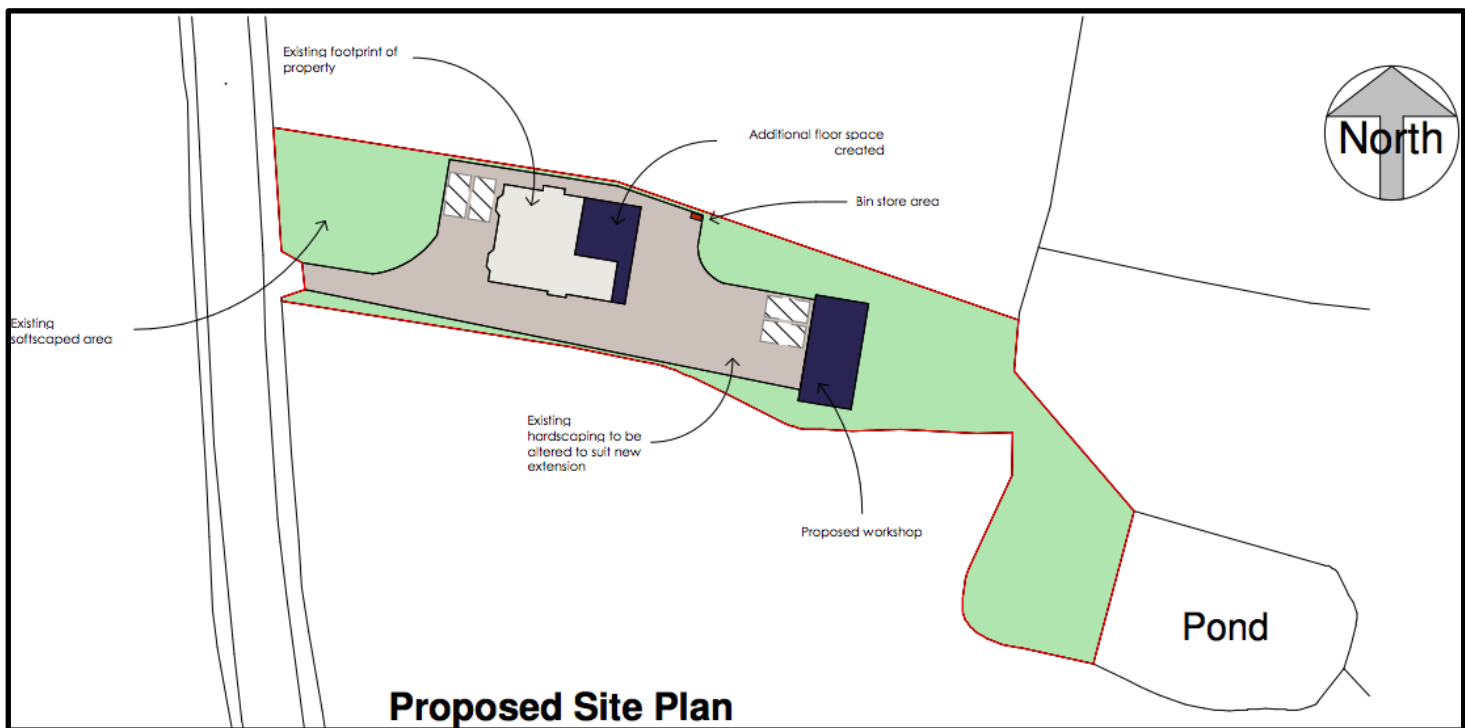


FIGURE 4.1: – SITE PLAN SHOWING PROPOSED ADDITIONAL FOOTPRINT IN BLACK OF BUNGALOW EXTENSION AND NEW WORKSHOP (NOT TO SCALE) BASE IMAGE © OFF THE WALL – ARCHITECTURAL SERVICES

West View, Marchwiel; Bat and Nesting Bird Surveys

TABLE 4.1: BUILDING DESCRIPTIONS

External Description	External Photo	Internal Description	Internal Photo
The bungalow was of a brick - built construction. The main roof was pyramid hipped with the wing having a pitched roof and one gable end. The roof and ridge tiles were concrete; the barge boards and soffits were wooden. The western elevation had two bay windows and an inset porch. The south side of the house was fully glazed and had a small flat roofed	 WEST ELEVATION	The loft space spanned the length and width of the building and was open throughout; it had an apex of approx. 4m high. Under the concrete roof tiles, the loft had timber frames and was lined with a breathable membrane lining.	 LOFT SPACE LOOKING TOWARDS WEST CORNER
	 SOUTH ELEVATION		 LOFT SPACE LOOKING SOUTH

West View, Marchwiel; Bat and Nesting Bird Surveys

External Description	External Photo	Internal Description	Internal Photo
porch extending from the main building. There was a chimney (one of four) on this elevation. The wing on the south east corner had a pitched roof with a gable end.	 <i>EAST ELEVATION</i>	The loft space extended above the wing on the south east elevation. The main loft space was well illuminated by the skylight on the eastern pitch.	 <i>LOFT SPACE ABOVE SOUTH EAST WING</i>
Below was a brick chimney breast and a doorway below. The roof to the east elevation had a further chimney and a skylight into the loft. On the north side of the house was a fourth chimney breast.	 <i>NORTH ELEVATION</i>		 <i>LOFT SPACE LOOKING NORTH</i>

4.2 PRA Results

- 4.2.1 There were many Potential Roosting Feature (PRF's) for crevice dwelling bats within the building, with access points into the loft space at the eaves and under the roof rafters, roof tiles, and through broken or missing soffits. Due to the skylight, the main loft space was subject to high light levels. The far loft space over the south west wing had lower light levels. Between the roof tiles and the membrane was a space of approx. 5cm; the membrane was generally in good condition apart from some tears at the eaves; as the loft was not fully boarded it could not be thoroughly inspected. On most elevations, light could be seen below the roof joists. There were additional PRF's in the form of gaps under the lead flashing around the chimneys, gaps in the timber above some of the windows and missing mortar underneath a couple of the roof tiles.
- 4.2.2 A number of bat droppings (over 20) were found scattered throughout the loft space on top of the insulation. DNA analysis confirmed these to be those of a whiskered bat. The basic layout of the building is shown in Figure 4.2. The external and internal PRF's are described in Table 4.2.

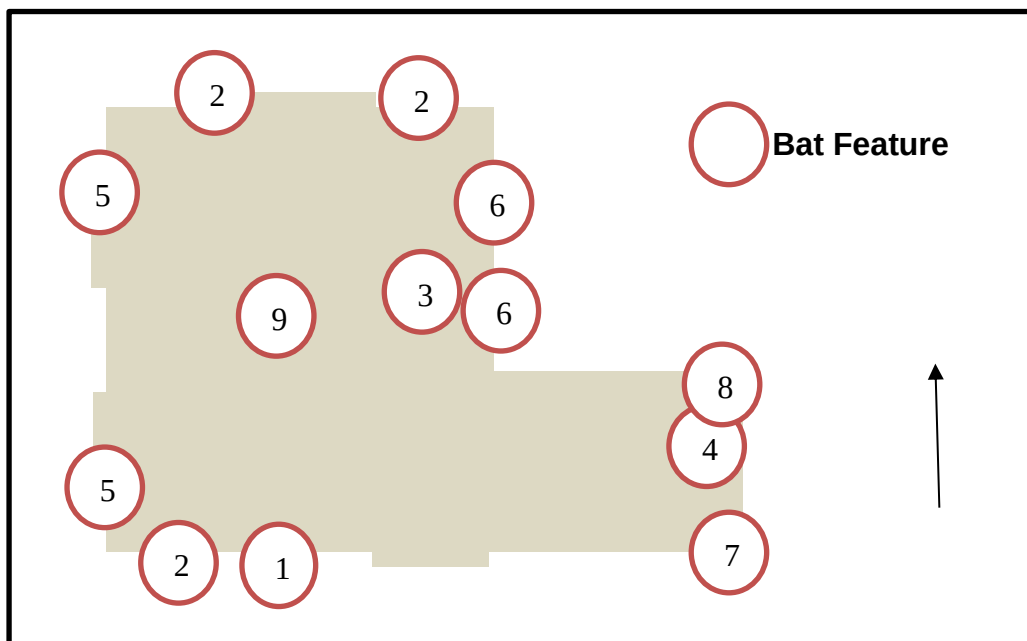


FIGURE 4.2 PLAN OF BUILDING (NOT TO SCALE) SHOWING LOCATIONS OF BAT AND BIRD FEATURES DESCRIBED IN TABLE 4.2

TABLE 4.2 POTENTIAL FEATURES FOR BATS AND BIRDS (NUMBERS REFER TO FIGURE 4.2)

Location	Description	Example photos
1 South Elevation	Access behind the barge boards through tears in the membrane lining	
2 To most elevations	Gaps between walls and the wooden soffits	
3 Below loft window on east elevation	Gaps underneath the roof tiles	

4 North elevation, and East gable end	Gaps under lead flashing	
5 West Elevation	Gaps between bay window timbers and soffits	
6 East Elevation	Missing soffit boards	

7 South east corner	Broken soffit board	
8 Gable end on east elevation	Missing mortar under roof tiles	
9 Scattered throughout loft space	Bat droppings	

Most elevations	Light gaps at eaves under roof joists	
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4.3 Nesting birds

Light could be seen coming from the eaves under the roof joists to most elevations providing access points for birds, and a dead blue-tit was found on the loft floor. There was also evidence of a bird's nest behind the soffit board on the south east corner.

4.4 Bat dropping analysis

4.4.1 A sample of the bat droppings was sent off for DNA analysis and was confirmed to be those of a whiskered bat.

4.5 Activity Survey Results

4.5.1 As there were PRF's, access points, feeding remains and droppings found in the PRA survey; two emergence surveys were carried out to determine if, what species, and how, bats were using the site.

4.5.2 Table 4.5 provides details of the emergence surveys with timings and weather conditions.

TABLE 4.5 – SUMMARY OF SURVEY DETAILS

Survey Type	Date	Start time	Sunset / sunrise time	End time	Temp. at start	Weather
Dusk Emergence	20/07/2022	20:55	21:25	22:55	16°C	90% cloud cover, dry, breezy
Dusk Emergence	04/08/2022	20:32	21:02	22:32	14°C	<5% cloud cover, dry, breezy

4.5.3 First Emergence Survey

The results of the first dusk emergence survey are detailed in Table 4.6.

TABLE 4.6 – SUMMARY OF FIRST EMERGENCE SURVEY ACTIVITY

Time	Species	Activity	Emerge?	Location
21:54– First bat	Soprano Pipistrelle (S.pip)	Passing through site	No	First recorded to the west of the site, flew down the side of house heading east
21:57- 22:25	Soprano Pipistrelle (S.pip)	Two further passes recorded	No	Heading east to west across the site
22:10- 22:48	Noctule	Four passes recorded	No	Recorded across the site
22:24- 22:41	C.pip	Two passes recorded	No	Across the site
General Activity There was occasional foraging activity from soprano and common pipistrelles throughout the survey, across the site. There were four noctule calls during the survey. No other species of bat were heard or seen throughout the survey.				

4.7.4 Second Emergence Survey

The results of the second emergence survey are detailed in Table 4.5.

TABLE 4.5 – SUMMARY OF SECOND EMERGENCE SURVEY ACTIVITY

Time	Species	Activity	Emerge?	Location
21:27 – First bat	Soprano Pipistrelle (S.pip)	Possible emergence	Possible	Possible emergence from south east corner of house. Only recorded by one surveyor.
21:36- End of Survey	S.pip	Four further passes during survey	No	Circled house and recorded across site
22:01	C.pip	One pass recorded	No	Flew from north west to south east
21:42- 22:10	Brown Long Eared (BLE)	Two passes recorded		Observed foraging east of the house
22:27- 22:32	Myotis sp.	One pass characterist ic of whiskered/ Brandts	No	Recorded across the site
General Activity A soprano pipistrelle was observed at the south east corner of the house, it was heard in this location only, where it possible emerged. There were four more calls from soprano pipistrelles. There was one pass by a common pipistrelle heard across the site. A BLE was seen foraging to the east of the house. A <i>Myotis</i> sp. was recorded across the site at the end of the survey. No other species of bat were heard or seen throughout the survey.				

5.0 Discussion and Evaluation

5.1 Proposed works

- 5.1.1 The proposed works are to extend the footprint of the current bungalow and to replace the roof in its entirety with a dormer style roof with vaulted ceilings. In addition, there will be the construction of a new detached workshop built on hardstanding to the east towards the rear of the garden.

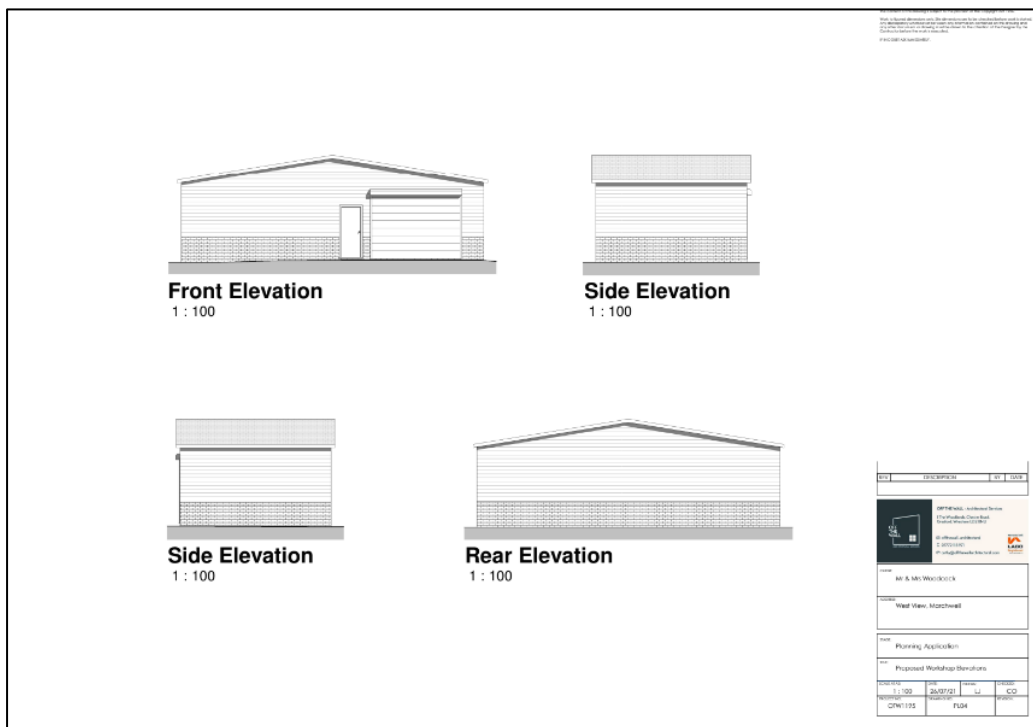


FIGURE 5.1 PROPOSED PLANS FOR MAIN HOUSE, SHOWING EXTENSION IN RED DASH (TOP) AND NEW CONSTRUCTED WORKSHOP (BOTTOM). BASE IMAGE © OFF THE WALL – ARCHITECTURAL SERVICES

5.2 *Designated Sites*

- 5.2.1 The proposed works will not have any impact on any of the designated sites within 1km of the survey area as both sites were over 800m away. The extension and workshop will be constructed on the current gravel, concrete and short amenity grassland of the garden and no other vegetation or habitats will be removed. The proposed extension will be of similar design and height to the current building so will not have a negative visual impact on the surrounding area.

5.3 *Bats*

- 5.3.1 There were a number of PRF's for bats including, but not limited to; gaps under the soffit boards, under the lead flashing, missing mortar under slates and gaps between the window timbers and the roof structure. There were also tears in the roof lining above the soffits and access through these would provide roosting opportunities between the roof tiles and the roof lining; these could provide roosting potential for larger numbers of crevice dwelling bats. A number of bat droppings, confirmed to be those of a whiskered bat, were found scattered throughout the loft space.
- 5.3.2 There were several access points into the building through the eaves, fascia's and under the roof joists where crevice dwelling bats could enter the building; the access points were not considered suitable for free-hanging bats such as LHS. However, most of the interior of the building was subject to high light levels during the day, through a skylight and air flow through these access points. The loft continued above the wing of the house where the light from the window was diminished, however it was not possible to thoroughly inspect this area and its gable end as the floor was not boarded. Due to the relatively small number of scattered droppings, and the light levels within the loft space, it is unlikely that the loft space itself is being used for day roosting bats but it cannot be entirely ruled out. The areas between the membrane and the tiles, as well as the external PRF's were suitable for day roosting crevice dwelling bats.
- 5.3.3 The surrounding habitat was quite exposed but considered suitable for bats with open pastureland bordered by hedgerows and scattered trees. There was a pond within the site that would provide suitable foraging habitat and connectivity along the hedgerow bordering the site. The extension and new workshop will be constructed on the hardstanding present already around the building and on the short amenity grassland of the garden. No other vegetation or habitats will be removed.
- 5.3.4 Under the Good Practice Guidelines (Collins, J., 2016), the building as a whole is considered to have **moderate potential** for bats. This is defined as '*A structure with one or more potential roost sites that could be used by bats due to its size, shelter, protection, conditions and surrounding habitat...continuous habitat connected to the wider landscape that could be used by bats for commuting and foraging...but unlikely to support a roost of high conservation status*'.

- 5.3.5 Scattered bat droppings were found within the loft space, suggesting individual/ small numbers of bats using the building. The size of the loft space does offer the preferred space, or height in particular, for species such as brown long eared bats (BLE) to use for roosting in larger numbers; however, it was also light and open and there was no evidence within the loft space of it being used as a BLE roost, or for large numbers of bats. However, it cannot be completely discounted that the site could be used as a maternity roost. There was ample space available between the membrane and the tiles for large numbers of crevice dwelling species such as *Pipistrelles*.
- 5.3.6 During the second emergence survey a soprano pipistrelle was first observed at the south east corner of the house. This was not observed or recorded by any other surveyors and most like emerged from the house. The droppings found in the attic were DNA tested and found to be those of a whiskered bat. A myotis (sp) typical of a whiskered bat was recorded at the end of the 2nd survey; no *Myotis* sp. were observed emerging from the building. There were moderate levels of activity around the site during both surveys with at least four species using the site to commute through or forage within (common and soprano pipistrelle, myotis sp., noctule and BLE). Therefore, it is considered that the building is an occasional day roost for an individual/ small number of whiskered and pipistrelle bats.
- 5.3.7 As the building is a known bat roost, a licence will be required from NRW before any works can commence. The building is a roost for an individual/small number of bats; the proposed works will not have a negative impact on the favourable conservation status of bat populations within the area as long as mitigation and compensation measures are in place, as well as timing constraints of works and specific working method. These will be provided in detail within the licence method statement, but some mitigation measures are included (but not limited to) in Section 6.
- 5.3.8 The surrounding habitat was suitable for bats with open pastureland bordered by hedgerows and a strip of broadleaf trees approx. 130m west. There was also connectivity along hedgerows and scattered trees to a further strip of broadleaf trees to the east. There was a pond 260m south but there is a strip of woodland closer to this and open pastureland between the trees and the site. The process of works will have the potential to cause some disturbance to bats using the site, and immediately adjacent areas, without mitigation. The RAMs detailed in section 6 will be put in place to reduce any risk or disturbance to bats within the site.
- 5.4 *Nesting birds*
- 5.4.1 The building provided several access points for birds and potential areas for birds to nest; a dead blue tit and evidence of a previous nest were present within the loft space. Therefore, the proposed works to the building will result in the loss of suitable bird nesting habitat. Reasonable Avoidance Measures (RAMs) to reduce risk to nesting birds and compensatory nesting recommendations and enhancements are provided in Section 6.

6.0 Mitigation, Compensation and Reasonable Avoidance Measures (RAMs)

6.1 Bats

- 6.1.1 **As the building is a known bat roost, no works to the building must commence until a licence has been obtained from NRW. A licence can only be applied for following the granting of planning permission and the discharge of any ecology related conditions. Once submitted, the licence application takes 40 working days to be processed by NRW (or more if any there are any queries).** In order to apply for a licence a suitable method statement detailing the specific working method and proposed mitigation for any loss of habitat or disturbance to bats must be created by a suitable qualified ecologist and submitted to NRW.
- 6.1.2 Following the bat mitigation guidelines (Mitchell-Jones, 2004), the mitigation requirements for a roost for small numbers of bats of common or rarer species include the *‘provision of new roost facilities where possible. Need not be like-for-like but should be suitable, based on species’ requirements. Minimal timing constraints...’*
- 6.1.3 Mitigation measures and recommendations will be included in the licence application, and are also included below.
- As the building is not being used as a maternity roost, and has low potential as a hibernation roost, the works can be carried out at any time of year. It is recommended that the destructive works to the roof are carried out between March – November (in agreeable weather – evening temperatures above 5°C) to avoid the (albeit unlikely) event of hibernating bats being present within the building. Should it be necessary to carry out the works during the winter months then mitigation and compensation for hibernating bats will be in place in the form of supervision and a bat box suitable for hibernating bats.
 - Prior to works being carried out, a toolbox talk will be given to all construction workers informing them of the species involved and specific working methods to adhere to. A log of participants will be kept.
 - The removal of the roof structure including ridge tiles, slates, and fascia’s; must be undertaken by hand and supervised (where areas cannot be inspected beforehand) by a licensed ecologist who is named on and authorised to act under the specific licence granted by NRW for this works. Areas that can be inspected, such as behind fascia’s, will be looked at with a torch and/or endoscope prior to works commencing by the licenced ecologist. If a bat is found and accessible it should be captured and placed in an appropriate bat box that will be made available onsite prior to works commencing (which will contribute to one of the proposed mitigation bat roosts). If a bat is found and is not accessible works will start from the furthest point from the

bat and continue in a directional manner to encourage the bat to leave of its own accord.

- Should the replacement roof be lined, it should be lined with non-breathable Bitumen 1F felt where possible. Breathable membranes can be fatal to bats when they get caught in the fibres and cannot escape. Further roof coverings such as vaulted ceilings or wooden cladding across the tiles are acceptable. If it is absolutely necessary to use a breathable membrane then the roof of the entire building needs to be completely sealed off from the bats.
- The replacement timber frame for the roof (and for the enhancements in the bat mitigation areas) will be untreated or pressure treated wood. If treatment is required, only timber treatments listed on Natural England Technical Information Note TIN092 will be used.
- Sufficient compensatory roosting opportunities and enhancements will be provided for bats within the site to contribute to biodiversity net gain (see 6.1.2). A bat box suitable for summer roosting and hibernating bats will be erected onto the site to be available during the works period.
- All mitigation measures will be inspected by an ecologist to ensure compliance with measures detailed in the licence method statement. An Ecological Compliance Audit will be completed during and after the works to document and show evidence that the method statement has been followed.

6.1.4 *Lighting*

The immediate surrounding habitats of the site are suitable for bats and the emergence survey showed bats using these areas to commute and forage. Therefore, any lighting associated with the building during and after the works has the potential to impact bats and nocturnal birds. To reduce the potential impact of any light spillage on commuting bats during the construction and post construction phases of the development, lighting design for the site (both during the works and of the completed building) should seek to minimise the levels of light along any areas used by bats. The following recommendations should be used when forming the lighting plan for the proposed development (Bat Conservation Trust (20018) and Stone, E.L. (2013)):

General Lighting Guidance

- There must be no lights focused on the hedgerow to the south or the treeline east and west of the site during or after the works. There will be no illumination of the recommended bat mitigation and bird boxes (see below) once the works are complete. There should be dark buffer zones across the garden (Figure 6.1).

- The plans propose sky lights to the southern roof pitch, along with additional windows to the east and west, therefore, internal luminaires in all rooms should be designed to minimise light spill and glare; either through being recessed, using dimmer switches, lamp shades, directed away from the windows and/or through the use of blinds and curtains during the summer months.
- Construction should start at least one hour after dawn and finish at least one hour before dusk during the summer months (May – August) to prevent light and noise levels disturbing the bats using the site.
- Any external or security lighting should be limited to provide some dark periods during the night. The lighting should be motion activated, and not stay on longer than one minute, in order to provide maximum darkness when not needed as well as providing safe lighting conditions of residents when required.

The following luminaire specifications are provided by Bat Conservation Trust and Institute of Lighting Professionals (2018) and must be incorporated into the lighting plan for the proposed development.

- All luminaires should lack UV elements when manufactured. Metal halide, fluorescent sources should not be used.
- LED luminaires should be used where possible due to their sharp cut-off, lower intensity, good colour rendition and dimming capability.
- A warm white spectrum (ideally <2700Kelvin) should be adopted to reduce blue light component.
- Luminaires should feature peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats
- Column heights should be carefully considered to minimise light spill.
- Only luminaires with an upward light ratio of 0% and with good optical control should be used.
- Luminaires should always be mounted on the horizontal, i.e. no upward tilt.
- Any external security lighting should be set on motion-sensors and short (1min) timers.
- As a last resort, accessories such as baffles, hoods or louvres can be used to reduce light spill and direct it only to where it is needed.



FIGURE 6.1 PROPOSED DARK BUFFER ZONE (BLUE)

6.1.5 Mitigation – compensation

The proposed works will result in the loss of a day roost for a whiskered bat and a soprano pipistrelle; this will need to be compensated for within the proposed works. In line with Planning Policy Wales, and following the Environment Wales Act (Section 6) and guidance provided in the recent letter by the Chief Planner in Wales, there is a requirement to ensure that a **net benefit for biodiversity** is also provided in all applications for planning in Wales; and that applications are to be refused if they cannot show a gain of biodiversity. The licence method statement will detail measures to be followed to mitigate for the loss of bat roosting areas; and to enhance the site for bats; and will include (but not be limited to):

- Four external bat boxes should be installed within the site: two on the southern, and one on the south eastern elevation of the main house (Figure 6.2); as well as one bat box on the southern elevation of the proposed workshop. These should be as close to the apex and eaves as possible. It is recommended that Woodstone or Woodcrete boxes are used as they last longer and require much less maintenance than wooden boxes. A range of bat boxes are available online and it is recommended that at least one each of the Beaumaris Woodstone Batbox and one large multichambered bat box is installed to provide roosting opportunities for a range of species; the ecologist will approve the bat boxes used if different to those suggested.

6.2 *Nesting birds*

- 6.2.1 Evidence of nesting birds were found within the building. The works should therefore be undertaken outside of the nesting bird season (March - September inclusive) to reduce the risk of disturbance to nesting birds. Should it be necessary to carry out works within the nesting bird season, a nesting bird check should be carried out by an ecologist immediately prior to (no more than 48hrs before) works commencing to ensure that no active nests are affected. If active nests are found, then all work in the vicinity of the nest **must be delayed** until all chicks have fledged.
- 6.2.2 To compensate for the loss of bird nesting habitat in the conversion works; and enhance the site for birds; bird nesting opportunities will be provided by including bird boxes around the site. A minimum of three boxes, suitable for small birds, need to be erected on site, - including one suitable for *Passer domesticus* (house sparrows) with a 32 mm entrance and one for smaller birds (28 mm). Examples of suitable bird boxes are: Vivara pro woodstone house sparrow nest-box; Vivara pro seville 28mm Woodstone nest-box. Woodstone nest boxes are more durable and require less maintenance than wooden boxes. These boxes should be mounted onto the northern elevations of the converted building or other retained buildings on the site (Figure 6.2 for locations).

West View, Marchwiel; Bat and Nesting Bird Surveys

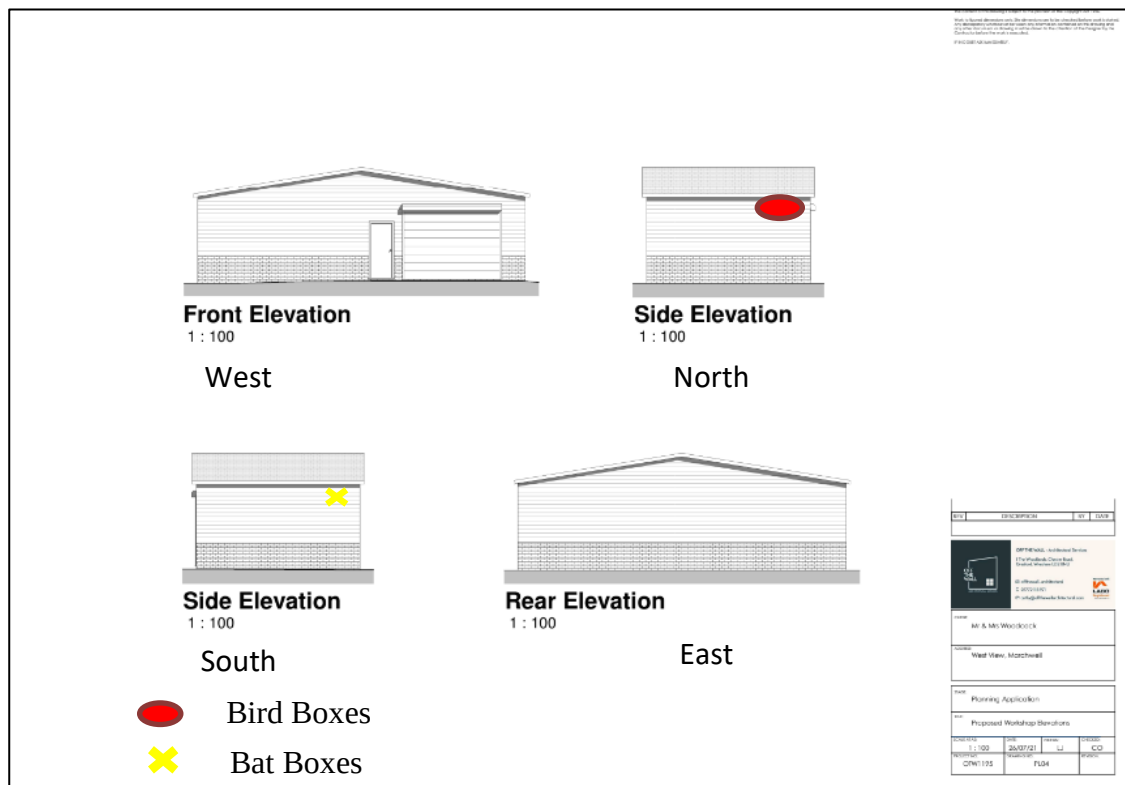
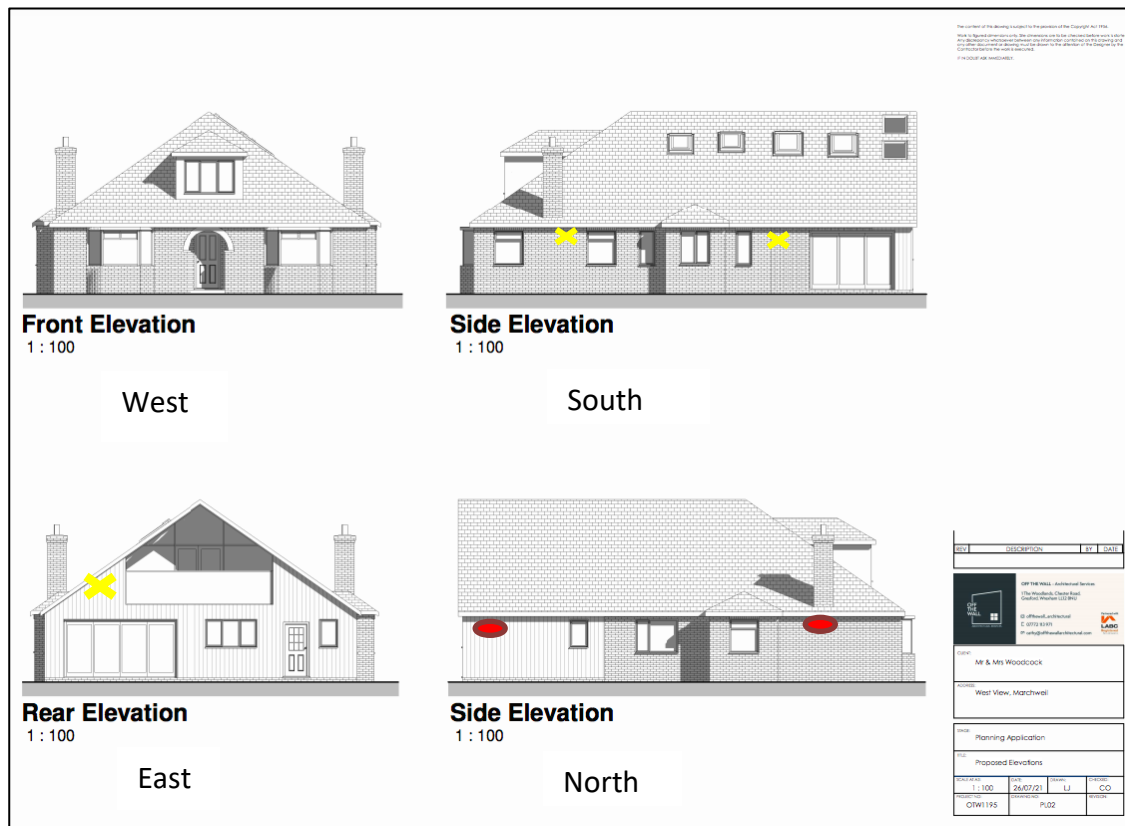


FIGURE 6.2 PROPOSED LOCATIONS OF BAT AND BIRD BOXES ON HOUSE AND WORKSHOP

7.0 Legislation

7.1 *Bats*

The Wildlife and Countryside Act (WCA) 1981 (as amended) forms the key legislation protecting habitats and species in the UK. All UK bat species are fully protected under the 1981 Act through inclusion on Schedule 5. All bats are also listed under Schedule 2 of the Conservation of Habitats and Species Regulations (2017) which transcribes the EC Habitats Directive into UK law. In combination, this legislation makes it an offence to:

- Deliberately or recklessly take, injure or kill a bat;
- Deliberately or recklessly damage or destroy a place or structure used by bats for shelter or protection;
- Deliberately or recklessly obstruct access to a bat roost; or
- Deliberately or recklessly disturb bats while occupying a roost.

Bat roosts are protected under these laws whether the animals are present at the time of survey or not. Under both laws the Welsh Government and D.E.F.R.A. are empowered to issue licences to carry out work to bat roosts for reasons of overriding public interest. It is not illegal to tend to a disabled bat pending recovery.

7.2 *Birds*

In addition, under the Wildlife and Countryside Act, 1981 (as amended) and the Countryside and Rights of Way, 2000, all wild birds, their nests and eggs are protected during the breeding season (typically March to August inclusive). This makes it an offence to:

- Intentionally kill, injury or take any wild bird.
- Take, damage or destroy the nest of a wild bird included in Schedule ZA1.
- Take, damage or destroy the nest of any wild bird while that nest is in use or being built.
- Take or destroy an egg of any wild bird.

7.3 *Biodiversity Net Gain – Relevant sections of legislation*

- Section 6 of the Environment (Wales) Act 2016:

Biodiversity and resilience of ecosystems duty

(1) A public authority must seek to maintain and enhance biodiversity in the exercise of functions in relation to Wales, and in so doing promote the resilience of ecosystems, so far as consistent with the proper exercise of those functions.

(2) In complying with subsection (1), a public authority must take account of the resilience of ecosystems, in particular the following aspects—

- (a) diversity between and within ecosystems;
- (b) the connections between and within ecosystems;
- (c) the scale of ecosystems;
- (d) the condition of ecosystems (including their structure and functioning);
- (e) the adaptability of ecosystems.

.... (5) In complying with subsection (1), a public authority other than a Minister of the Crown or government department must have regard to—

- (a) the list published under section 7;..
- Section 7 of the Environment (Wales) Act 2016:

Biodiversity lists and duty to take steps to maintain and enhance biodiversity

(1) The Welsh Ministers must prepare and publish a list of the living organisms and types of habitat which in their opinion are of principal importance for the purpose of maintaining and enhancing biodiversity in relation to Wales.

(2) Before publishing a list under this section the Welsh Ministers must consult the Natural Resources Body for Wales (“NRW”) as to the living organisms or types of habitat to be included in the list.

(3) Without prejudice to section 6, the Welsh Ministers must—

- (a) take all reasonable steps to maintain and enhance the living organisms and types of habitat included in any list published under this section, and
- (b) encourage others to take such steps

8.0 References and Information Sources

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

Mitchell-Jones, A. J. (2004). *Bat Mitigation Guidelines (1st Ed.)*. JNCC, Peterborough. ISBN 1 85716 781 3

Mitchell-Jones, A. J. & McLeish, A. P. (1999). *The Bat Workers' Manual (2nd Ed.)*. JNCC, Peterborough. ISBN 1-86107-462-X. [3rd edition in 2004].