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St. Luke's Church, Gellideg



Bat Activity Survey Report

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Bat Activity Survey Report

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0. Executive Summary

- 0.1** This report has been prepared at the request of Mr. Gareth Harbord (M V Homes). It relates to the potential presence of bats and birds at the proposed re-development site located at St. Luke's Church, Lansbury Road, Gellideg, Merthyr Tydfil, CF48 1HA (OS Ref: SO 03140 07070). To fulfill this brief, Elite Ecology undertook a field survey.
- 0.2** The proposed works are for the demolition of the existing building (St Luke's Building), and the construction of 4 buildings comprising 2 bungalows, 8 flats and 2 dwellings with landscaping, car parking, drainage arrangements and new play area.
- 0.3** Due to the amount of potential ingress/egress points and suitable roosting features, one of the structures on site was deemed to be of **low** potential for bats to roost and **moderate** potential for birds to nest. Therefore, one bat activity survey is required during the bat survey season (May to August inclusive).

0.4 Summary

Bat presence/absence

From the survey visits undertaken on the site, it has been concluded that the buildings on site contain no bat roosts. In addition to this, no foraging and commuting bats were identified during the survey.

Bird presence/absence

From the survey visit undertaken on the site, it can be concluded that the church contains no evidence of nesting birds. The office building contains evidence of bird activity and is of **moderate** bird nesting potential. The surrounding landscape provides all of the necessary habitat elements that birds require, and their presence can be assumed.

Ecological value of building units

The ecological value of the buildings has been deemed as **negligible** to bats due to the absence of them using the structure for roosting purposes. The ecological value of the buildings to birds has been deemed **moderate** due to the the presence of birds within one of the structures.

Recommendations

The recommendations for St. Luke's Church can be summarised as follows (please refer to **Section 5 – Recommendations** for a more in-depth description):

- As the buildings are suitable for hibernating bats, in particular pipistrelles, as a precaution the works should avoid the winter period.
- Artificial lighting should be avoided where possible. If this is not possible, this should be sensorised for large bodies only and pointed downwards.
- No works to be undertaken during the bird breeding season of March to September, inclusive (unless the structure has been inspected no more than 24 hours prior to works commencing).
- Enhance the site for bats by installing four [Integrated Eco Bat Boxes](#) on appropriate elevations (southern, eastern and/or western) – these must avoid artificial lighting.
- Incorporate a bat friendly planting scheme post development.
- Install five [Eco Bird Boxes](#) around the site post development to enhance the site for the local bird population.
- Create small gaps (13cm x 13cm) within any boundary fencing to enable the specimens to continue to commute through the area.

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1. Introduction

1.1 Report rationale

This report has been prepared at the request of Mr. Gareth Harbord (M V Homes). It relates to the potential presence of bats and birds at the proposed re-development site located at St. Luke's Church, Lansbury Road, Gellideg, Merthyr Tydfil, CF48 1HA (OS Ref: SO 03140 07070). To fulfill this brief, Elite Ecology undertook a field survey.

1.2 Site description

The site itself is situated within a residential area in Gellideg, a small village in the Merthyr Tydfil County Borough in Wales. Merthyr Tydfil is located approximately 1.7km to the east of the survey site. Hard standing ground and semi-improved grassland are situated in the immediate vicinity of the building, as well as a conglomeration of other buildings (mainly residential dwellings and their associated gardens). The wider landscape consists of amenity grassland, buildings, hard-standing ground and parkland. The habitats on site are considered to contain potential to support the local bat and bird populations by offering roosting/nesting, commuting and foraging opportunities. This report relates to a church which measures approximately 265m² and an office block located across the road, to the south of the church (1-2 Heol Parc Y Lan), which measures approximately 190m².

Figure 1: An aerial photograph of the surveyed structures at St. Luke's Church, Gellideg (as shown by the red outline).



1.3 Proposed works

The proposed works are for the demolition of the existing building (St Luke's Building), and the construction of 4 buildings comprising 2 bungalows, 8 flats and 2 dwellings with landscaping, car parking, drainage arrangements and new play area.

1.4 **Aims of surveys**

The aims of the surveys were to undertake an assessment of the building(s), vegetation and surrounding area to establish whether any bats and birds may be present and, if so, in what way they are using the site. The actions of the surveyors on the site and during the production of this report were conducted in accordance with Bat Conservation Trust (BCT) guidelines (3rd edition).

1.4.1 This survey effort considered the potential for all **bat and bird species (including Barn Owls (*Tyto alba*))** onsite:

- To establish the possibility of bat roosts and bird nests being present at the proposed development site.
- To assess any roost/nest status (i.e. what type and numbers of individuals).
- To assess suitable food, resources and habitat requirements on site and in the local landscape.

1.4.2 The information will subsequently be used in conjunction with the knowledge of the proposed works at the site to determine the potential need for further survey effort, the impacts of the proposed scheme of works, to establish whether a Natural Resource Wales Development Licence is required along with species-specific mitigation and compensation. This is done in order to keep any protected species at a favourable conservation status on site.

2. Survey Methodology

2.1 Desktop Survey Methodology

2.1.1 A variety of resources were independently consulted to assess the known local records within the nearby area and the importance of the site within the local landscape from an ecological perspective. The resources used were the Local Records Centre, www.naturalresources.wales, www.ordnancesurvey.co.uk, Google Maps, Google Earth and Bing Maps. A search of other relevant nature conservation information was made through the use of the Multi-Agency Geographic Information for the Countryside (MAGIC) database.

2.1.2 Aderyn: LERC Wales was the relevant record centre for this project.

2.2 Field Survey Methodology

2.2.1 Initial Site Survey

This is done by assessing the site by visually inspecting all building/s/structures and any trees/vegetation to be impacted by the proposed works. This is done to assess the resource availability for protected species on site and in the immediate area. Particular reference is made to:

- The presence or absence of bats and birds onsite.
- Any evidence of potential bat roosts and birds' nests onsite.
- Whether any additional survey effort will be required.

During the initial survey, an internal and external inspection of the building(s) is undertaken to look for signs of bat activity. This is done in accordance with BCT guidelines for the assessment of building(s) and built structures.

2.2.2 External Inspection

This survey method is used to locate potential ingress and egress points around the structures that both bats and birds could use to gain access into the building. It also aims to identify any areas where cracks and crevices are present to be used as roosting/nesting features. This visual inspection is carried out in full daylight using binoculars, endoscopes, torches and ladders.

This will allow for the determination of the following information:

- The type of building(s) surveyed.
- The approximate age of building(s) surveyed.
- The construction type and materials used.
- The presence of potential roost features (e.g. missing roof tiles, raised ridge tiles, air vents, cracks and crevices within the mortar).
- The presence of suitable ingress and egress points (e.g. missing windows and doors, missing mortar, lifted tiles).
- The location of any anecdotal evidence for the presence of protected species (e.g. nests, droppings or food remains).

2.2.3 Internal Inspection

This survey method aims to locate and examine areas which potentially provide suitable environmental conditions for bats. This visual inspection was undertaken by using binoculars, endoscopes, torches, ladders and bat detectors to inspect internal features of the building(s).

This will allow for the determination of the following information:

- The presence of warm areas, dark areas, joints, crevices, beams and cavities that could be used for roosting and nesting purposes by bats and birds.
- To locate possible bat roost and bird nest sites.
- To listen for social calling bats.
- To locate any evidence of bat and bird presence through the identification of live or dead specimens, grease marks, droppings, food remnants, urine stains and/or the characteristic smell of bats.

2.2.4 Building/Vegetation Classification

A building/vegetation classification will be assigned to each surveyed feature that is proposed to be impacted by the scheme of works. This classification is based on the features potential to support roosting bats. The rating is also influenced by the location of the structure(s) in the local landscape, along with the number of suitable alternative roosting features, the type of features present in the landscape and the surveyor's experience. For example:

A structure that has a high level of anthropogenic disturbance with limited opportunities for access by bats, that is also situated within an urbanised area with few or no mature trees, parkland, woodland or wetland would generally equate to having **negligible/low** potential.

Conversely, an older structure (e.g. pre 20th century or early 20th century) with multiple features suitable for use by bats that is close to optimal foraging habitat would equate to having **high** potential.

The amount of additional survey effort required for each feature will depend on its rating:

- **Negligible** – No further survey effort is required.
- **Low** – One further activity survey is required (structures only).
- **Moderate** – Two further activity surveys are required.
- **High** – Three further activity surveys are required.

2.2.5 Roost Categories

Any structures with evidence of bats will be further evaluated to assess which of the following roost categories may be present onsite:

➤ **Day Roost:**

A place where individual bats or small groups of males, rest or shelter during the daytime. These bats are rarely found at night at these sites.

➤ **Feeding Roost:**

A place where individual bats rest or feed during the night, but are rarely present in the day.

➤ **Hibernation Roost:**

A place where bats may be found either individually or together during the winter months. These roosts often have a constant cool temperature and high humidity.

➤ **Maternity Roost:**

A place where female bats give birth and raise their young to independence.

➤ **Mating Roost:**

A place where mating/copulation takes place between male and female bats. These can continue through the winter months.

➤ **Night Roost:**

A place where bats rest and/or shelter during the night, but will rarely be found here during the day. These can be used colonially or individually by the bats.

➤ **Satellite Roost:**

These are alternative roosting sites that are found within close proximity to the main nursery colony within the maternity roost. These are used throughout the breeding season by individual or small groups of female bats.

➤ **Swarming Site:**

A place where large numbers of bats come together during the latter summer months through until autumn. These sites are classed as being important mating areas.

➤ **Transitional/Occasional Roost:**

A place that is used by individuals or small groups of bats for a small period of time. These are used by the bats prior to hibernation and/or shortly after hibernation.

2.2.6 Bat Detector Survey (presence/absence survey)

If required, the object for this survey method is to detect any bats leaving or returning to their roost sites within the surveyed features. This is achieved by undertaking dusk and dawn activity surveys under the following protocol:

- Commencing the survey fifteen minutes before sunset (dusk survey) and two hours before sunrise (dawn survey).
- Listening for any social calls at potential roost sites using bat detectors.
- Standing at different survey points around the building(s) and/or vegetation using bat detectors to hear the bat echolocation.
- The survey will attempt to witness the first bats emerging (dusk) and the bats returning (dawn) to their roosts.

- Standing at different transect points at foraging/commuting areas around the site.
- Carrying out this survey methodology for up to two hours after sunset (dusk) and up to fifteen minutes after sunrise (dawn). This will cover the emergence and re-entry of the bats at the potential roost site, for some bat species.

2.2.7 In order to comply with the required legislation, the results from the surveys will be collated to establish whether a European Protected Species (EPS) development licence will be required. If required, project appropriate species-specific compensation and mitigation measures will be devised to ensure the species remains at a favourable conservation status at the impacted site.

2.3 Surveyors Information

2.3.1 The survey was undertaken by licensed bat ecologist/s and members of the Chartered Institute of Ecology & Environmental Management (CIEEM) and Elite Ecology staff members:

Mr. Richard Millington: BSc (Hons), ACIEEM, Senior Ecologist, Natural Resources Wales Bat Survey Licence Number: S088127/1.

Mr. Matthew Hill: MRes, Assistant Ecologist.

Mr. Connor Wild BSc (Hons), Assistant Ecologist

Ms. Sophie Webb BSc (Hons), Assistant Ecologist

Ms. Ella Moore BSc (Hons), Assistant Ecologist

2.4 Field surveys

2.4.1 Site Surveys

Elite Ecology were not made aware of any previous site surveys.

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2.4.2 Roost Surveys

The buildings at St. Luke's Church, Gellideg were externally and internally inspected for the presence of bats and birds with the use of various types of equipment (including binoculars, torches, endoscopes and ladders) in full daylight. Subsequent activity surveys use a variety of bat detectors that include Bat Box Duet, SSF Bat2 and the EcoObs Batcorder. The following table outlines the environmental variables from the survey visits:

Environmental variables	PRA Survey of the Building – 11 th June 2020. Daytime	PRA Survey of the Building – 28 th July 2020. Sunset
Temp Start:	14°C	11°C
Temp Finish:	14°C	10°C
Humidity Start:	76%	80%
Humidity Finish:	76%	85%
Cloud Cover Start:	90%	10%
Cloud Cover Finish:	90%	10%
Wind Speed Average:	Low	Low
Precipitation:	None	None

3. Results

3.1 Desktop Survey Results

3.1.1 Bats:

The ecological data search revealed a large number of bat records, made up of 9 species within the 2km search radius. All of the bats revealed are locally BAP protected species. The UK BAP species revealed were brown long-eared bat (*Plecotus auritus*), lesser horseshoe bat (*Rhinolophus hipposideros*), noctule (*Nyctalus noctule*), and soprano pipistrelle (*Pipistrellus pygmaeus*). The non-BAP species revealed in the search were common pipistrelle (*Pipistrellus pipistrellus*), daubenton's (*Myotis daubentonii*) and Natterer's (*Myotis nattereri*). In addition to this, some unidentified bat species were revealed in the search including unidentified pipistrelle (*Pipistrellus sp.*), unidentified myotis (*Myotis sp.*), unidentified long-eared (*Plecotus sp.*) and unidentified bat species (*Chiroptera sp.*). The closest record is of an unidentified pipistrelle (*Pipistrellus sp.*), recorded 401m from site.

3.1.2 Birds:

The ecological data search revealed 17 bird records, made up of 10 species within the 2km search radius. These species were blue tit (*Cyanistes caeruleus*), great tit (*Parus major*), herring gull (*Larus argentatus*), house sparrow (*Passer domesticus*), jackdaw (*Corvus monedula*), lesser black-backed gull (*Larus fuscus*), peregrine (*Falco peregrinus*), pied wagtail (*Motacilla alba*), starling (*Sturnus vulgaris*) and wren (*Troglodytes troglodytes*). The closest record is of herring gull (*Larus argentatus*), recorded 562m from site. All UK birds can be split into three categories of conservation importance (red, amber and green – please see [RSPB](#) for more information). The data obtained from this survey effort is deemed to highlight the species presence/absence within the structures inspected.

3.1.3 Designated sites

As the current proposals remain within the site boundary, it was not necessary to obtain any further information regarding both Statutory and Non-Statutory Nature Conservation Designations. This is due to the proposed works not altering any of the landscape surrounding the site.

3.2 Field surveys

3.2.1 Habitat description

The site itself is situated within a residential area in Gellideg, a small village in the Merthyr Tydfil County Borough in Wales. Methyr Tydfil is located approximately 1.7km to the east of the survey site. Hard standing ground and semi-improved grassland are situated in the immediate vicinity of the building, as well as a conglomeration of other buildings (mainly residential dwellings and their associated gardens). The wider landscape consists of amenity grassland, buildings, hard-standing ground and parkland. Therefore, the habitats that are present in and around the site contains all of the elements that are considered to be critical in both bat and bird life cycles.

Figure 2: An aerial photograph of the surveyed site (yellow star) and some of the nearby habitats to the structures at St. Luke's Church, Gellideg.

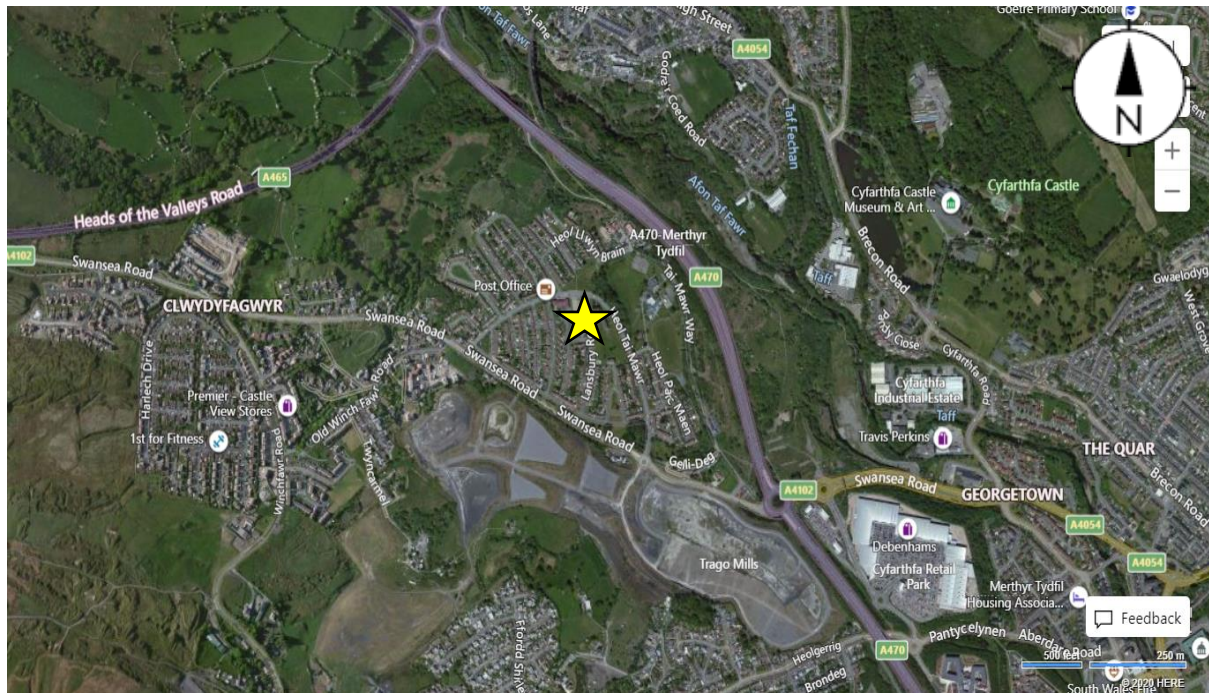


Figure 3: An OS map obtained from Bing Maps showing the survey site at St. Luke's Church, Gellideg (yellow star) and the surrounding area.



3.2.2 Building survey

External Inspection:

Church:

The church has a unique, dome like roof. The roof is felted and in a good condition. The soffit boards are in poor condition with several large holes. The limited amount of cladding present has some small cracks or has come away from the building. However, the windows are covered with metal rollers, meaning that the lintels are not exposed and as such, do not provide an area for bats to enter. The building itself is not clad in any material and, therefore, presents no opportunity for bats to roost. No evidence of bats or birds was identified externally.

Office building:

This structure has a pitched roof with clay tiles which seems to be in an adequate state. There is, however, room under some of the tiles for access as several small bird species were observed moving in and out of these. Again the lintels were covered by security rollers, however, in two areas these had fallen off and provided an area for bats to enter. Externally, the rest of the building was in good condition and the limited amount of cladding appeared to be good condition. No evidence of bats was identified externally.

Internal inspection

Church:

Internally there is a small loft space near the front of the building. It is not particularly high and there is limited room to move as it is being used as a storage area. The loft is not lined and is in very good condition. No holes are apparent in the structure itself or in any of the beams. It is located above a corridor and the hatch does not close so it is likely to receive a lot of disturbance despite being dark. No evidence of bats or birds was identified internally.

Office building:

The building had one large attic space which ran most of the length of the building. Although this was lined, there was a hole which allowed access into the loft and potentially behind the lining. The space was generally uncluttered although there were a couple of support beams and a hot water tank in the middle of the room. There were some gaps where the beams met each other which could have provided crevices for bats to utilise. The attic had not been accessed for some time, however, it is likely there is regular traffic under the hatch from office workers. No evidence of bats or birds was identified internally.

3.2.3 Summary of the building inspection

Due to the amount of potential ingress/egress points and lack of suitable roosting features, the church was deemed to be of **negligible** potential for bats to roost and **negligible** potential for birds to nest. The office building was deemed to be of **low** potential for bats to roost and **moderate** potential for birds to nest.

Therefore, further survey effort is required for the survey site.

Table 1: Low/Moderate/High potential building(s) survey recommendations. The full guidance can be found in the Bat Conservation Trust Good Practice Survey Guidelines. These guidelines are what all local authorities abide by.

Bat Conservation Trust

Table 7.3 Recommended minimum number of survey visits for presence/absence surveys to give confidence in a negative result for structures (also recommended for trees but unlikely to give confidence in a negative result).

Low roost suitability	Moderate roost suitability	High roost suitability
One survey visit. One dusk emergence or dawn re-entry survey ^a (structures). No further surveys required (trees).	Two separate survey visits. One dusk emergence and a separate dawn re-entry survey. ^b	Three separate survey visits. At least one dusk emergence and a separate dawn re-entry survey. The third visit could be either dusk or dawn. ^b

^a Structures that have been categorised as low potential can be problematic and the number of surveys required should be judged on a case-by-case basis (see Section 5.2.9). If there is a possibility that quiet calling, late-emerging species are present then a dawn survey may be more appropriate, providing weather conditions are suitable. In some cases, more than one survey may be needed, particularly where there are several buildings in this category.

^b Multiple survey visits should be spread out to sample as much of the recommended survey period (see Table 7.1) as possible; it is recommended that surveys are spaced at least two weeks apart, preferably more. A dawn survey immediately after a dusk one is considered only one visit.

3.2.4 DNA Results

No DNA Analysis was undertaken for this project as no bat droppings were identified by surveyors on site.

3.2.5 Activity surveys

One activity survey was undertaken on the building on the 28th July 2020.

Activity Survey 1 (28th July 2020):

This survey was undertaken at dusk, with sunset being recorded at 21:08. During this survey, no bats were seen to emerge from the surveyed structure. In addition to this, no foraging and commuting bats were witnessed on site at all.

4. Impact Assessment

4.1 Constraints

Constraints on:	Survey Information	Equipment Used
Constraint (Yes or No):	No	No
Explanation of Constraints:	N/A	N/A
Action Taken:	N/A	N/A

4.2 Potential Impacts of the re-development

The current planning proposal is for the structures at St. Luke's Church to be redeveloped in the future. The potential impacts of these works have been identified as follows:

4.2.1 Designated Sites

As the proposed works are due to remain within the site boundary, the presence of any designated sites nearby is not applicable to this project. This, therefore, means that any building works would be of no detriment to the surrounding habitats and landscape.

4.2.2 Priority Habitats

With reference to Section 7 of the Environment (Wales) Act, no priority habitats were identified on site, and therefore will not be impacted by the proposed works.

4.2.3 Bat Roosts

Impact	Short-term Impacts: Disturbance	Long-term Impacts: Roost Modification	Long-term Impacts: Roost Loss
Classification:	Negligible	Negligible	Negligible
Justification:	The structure was found to contain no roosting bats during the site surveys and it can be assumed that no bat roosts are present within the surveyed structure.	The structure was found to contain no roosting bats during the site surveys and it can be assumed that no bat roosts are present within the surveyed structure.	The structure was found to contain no roosting bats during the site surveys and it can be assumed that no bat roosts are present within the surveyed structure.
Any further action:	No further survey action is required.	No further survey action is required.	No further survey action is required.

4.2.4 Bird Nests

Due to the presence of birds within one of the structures, but no confirmed bird's nests, any proposed scheme of works will be of a **moderate** effect to the local bird populations.

4.2.5 Foraging and commuting habitat

It is considered that the re-development of the site would have a **negligible** effect on potential foraging and commuting habitat. The site itself offers little foraging habitat, with the adjacent land containing better opportunities for bats and birds to use. Post development, all foraging and commuting habitats will be maintained, thus not negatively affecting the local landscape.

5. Recommendations

5.1 Bats

The surveyed structure at St Luke's Church, Gelledig has been deemed to be absent of roosting bats. Therefore, the proposed scheme of works will not impact upon any bats or their roosts. However, as the buildings are suitable for hibernation of bats, in particular pipistrelles, as a precaution the works should avoid the winter period.

Any onsite lighting must conform with the Bat Conservation Trust (BCT) 'Guidance Note 8: Bats and Artificial Lighting' guidelines

(<https://theilp.org.uk/publication/guidance-note-8-bats-and-artificial-lighting/>).

A soft landscaping plan should incorporate some wildlife attracting species. The table below outlines species recommended by the Bat Conservation Trust, all of which could be incorporated into the site post development:

Flowers for borders	Trees, shrubs & climbers
English Bluebell	Ash
Evening Primrose	Bramble
Foxglove	Buddleia
Grape Hyacinth	Common alder
Hoary Plantain	Dogrose
Knapweed	Elder
Mallow	English oak
Ox-eye daisy	Gorse
Oxlip	Guelder rose
Primrose	Hawthorn
Red campion	Hazel
Ribwort Plantain	Honeysuckle (native)
Scabious	Hornbeam
St John's Wort	Ivy
Stork's-bill	Jasmine
Sweet Cicely	Pussy willow
Wallflowers	Rowan
Water forget-me-not	Silver Birch
Welsh Poppy	Ivy
Yarrow	Herbs
Yellow horned-poppy	Angelica
	Bergamot
	Borage
	Coriander
	English marigolds
	Fennel
	Feverfew
	Hyssop
	Lavenders
	Lemon balm
	Marjoram
	Rosemary
	Sweet Cicely
	Thyme

5.2 Birds

Evidence of bird activity was observed within the office building. Therefore, the structure is deemed to be of **moderate** bird nesting potential. It is recommended that all works are undertaken outside of the breeding bird season (March to September, inclusive). If this timescale cannot be achieved, then an inspection by a suitably qualified ecologist is required no more than twenty-four hours prior to the commencement of the works. If active nests are located, appropriate exclusion zones are to be implemented until the nests become disused. An update nesting survey should be undertaken prior to commencement of any works and further compensatory measures will be devised following this additional survey.

5.3 Enhancements

5.3.1 Bats

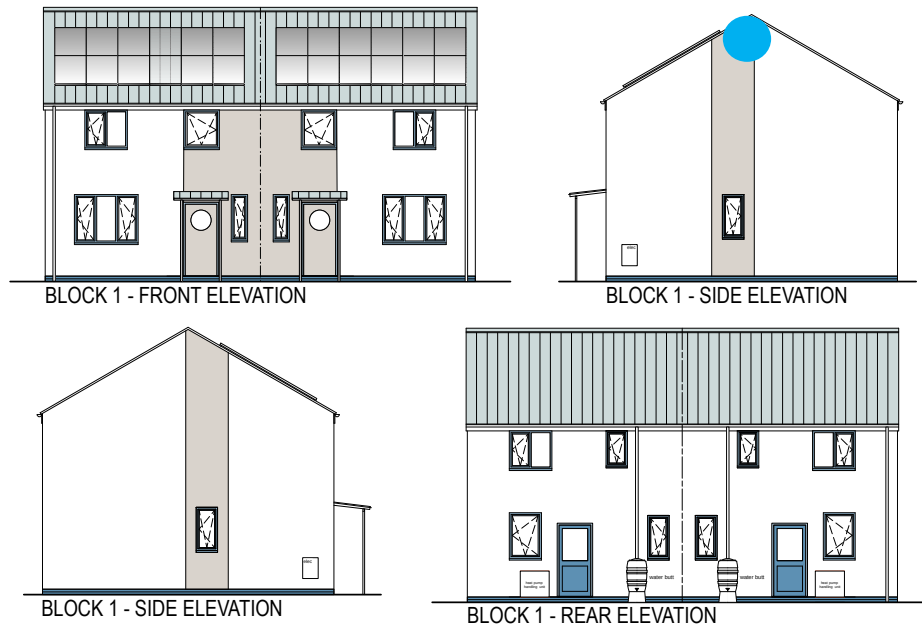
To increase the number of roosting opportunities for bats, further enhancements can be made by including a number of [Integrated Eco Bat Boxes](#) on the new structures on site. These should avoid any artificial lighting, and are most suitable when facing east, south-east, south-west and/or west. For this site, it is recommended that four boxes should be included.

Figure 5: An illustration of the integrated eco bat box locations on the proposed landscape plans (as shown by the blue circles).



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Figure 6: An illustration of where the bat boxes should be situated, as high as possible on the elevations, at either the gable end or just underneath the eaves/fascia/soffit. This one shows the southern elevation of Block 1 in the site plans with the one bat box, indicated by a blue circle, shown.



5.3.2 Birds

The site could be enhanced for birds by installing a variety of bird boxes on site. More specifically, it is recommended that five [Eco Bird Boxes](#) are installed on this particular site, due to their outer shell being constructed from precision cut, UV stabilised 100% recycled plastic, making them weatherproof and long-lasting. They can also be constructed with various hole sizes, making them suitable for a range of bird species, and can be installed onto buildings and/or trees.

As the proposed new trees and landscaping on site will not be able to initially support these boxes, it is recommended that the bird boxes are installed on the buildings, walls or fences close to the proposed new habitat, to immediately provide nesting opportunities post-development. See **Figure 7** for example locations of these bird boxes.

Additional boxes can be added at the prerogative of the client.

Figure 7: An illustration indicating some proposed locations of the eco bird boxes on the proposed landscape plans (indicated by yellow circles).



5.3.3. Hedgehogs

It is also recommended that small gaps (13cm x 13cm) are left within any boundary fencing (if used) to enable the specimens to continue to commute through the area (an example can be found within **Figure 8**). This will ensure that the local hedgehog populations do not become fragmented within the local landscape.

Figure 8: An image of an example hedgehog tunnel (obtained from RSPB).



6. Summary

6.1 Bat presence/absence

From the survey visits undertaken on the site, it has been concluded that the buildings on site contain no bat roosts. In addition to this, no foraging and commuting bats were identified during the survey.

6.2 Bird presence/absence

From the survey visit undertaken on the site, it can be concluded that the church contains no evidence of nesting birds. The office building contains evidence of bird activity and is of **moderate** bird nesting potential. The surrounding landscape provides all of the necessary habitat elements that birds require, and their presence can be assumed.

6.3 Ecological value of building units

The ecological value of the buildings has been deemed as **negligible** to bats due to the absence of them using the structure for roosting purposes.

The ecological value of the buildings to birds has been deemed **moderate** due to the presence of birds within one of the structures.

6.4 Recommendations

The recommendations for St. Luke's Church can be summarised as follows (please refer to **Section 5 – Recommendations** for a more in-depth description):

- As the buildings are suitable for hibernating bats, in particular pipistrelles, as a precaution the works should avoid the winter period.
- Artificial lighting should be avoided where possible. If this is not possible, this should be sensorised for large bodies only and pointed downwards.
- No works to be undertaken during the bird breeding season of March to September, inclusive (unless the structure has been inspected no more than 24 hours prior to works commencing).
- Enhance the site for bats by installing four [Integrated Eco Bat Boxes](#) on appropriate elevations (southern, eastern and/or western) – these must avoid artificial lighting.
- Incorporate a bat friendly planting scheme post development.
- Install five [Eco Bird Boxes](#) around the site post development to enhance the site for the local bird population.
- Create small gaps (13cm x 13cm) within any boundary fencing to enable the specimens to continue to commute through the area.

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8. Appendices

Appendix A: Site Plans

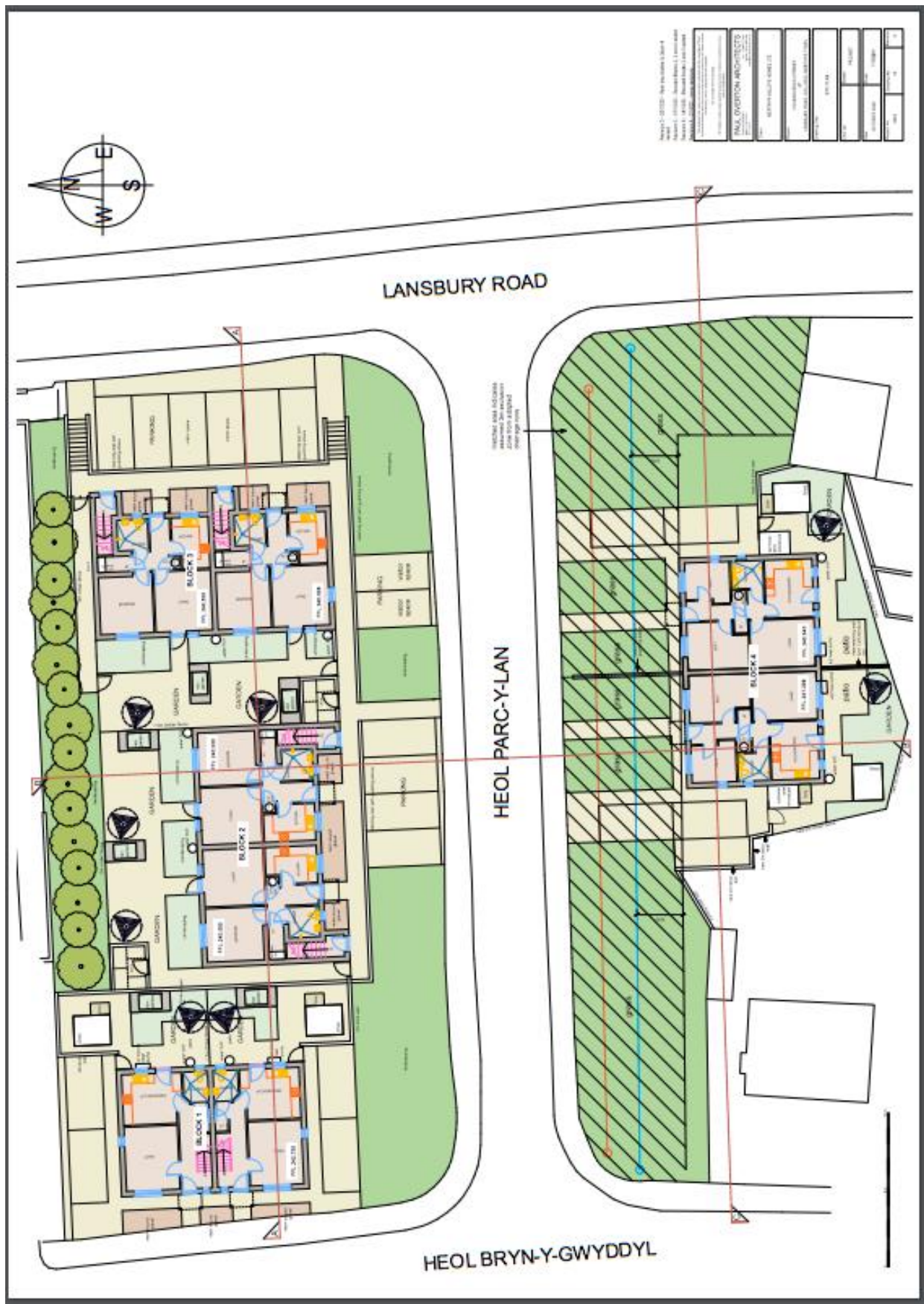
Appendix B: Eco Data Map

Appendix C: Artificial Light and Bats

Appendix D: Photographic Records

Appendix E: The Annual Bat Year (BCT)

Appendix F: Legislation

Appendix A: Site Plans

Appendix B: The Ecological Data Search Maps

No ecological data search maps were produced for this project.

Appendix C: Artificial Lighting and Bats

Artificial lighting is known to affect bat's roosting and foraging behaviour, with lighting resulting in a range of impacts that includes roost desertion (BCT, 2009), delayed emergence of roosting bats (Downs et al., 2003), increased activity of some bat species and decreased activity by others (Stone et al., 2012).

An experimental approach using LED units, demonstrated that relatively fast-flying bat species, including the common pipistrelle, showed no significant impacts as a result of new artificial lighting, even when lighting was set at relatively high levels close to 50 lux.

In contrast, slow flying bats such as the myotis bats (*Myotis* spp.) showed sharp reductions in presence, even at low light levels of 3.6 lux (Stone et al., 2012).

Current recommendations for all bat species specifies that no bat roost should be directly illuminated.

Due to the impacts of lighting, mitigation and sensitive lighting design schemes are required for projects where bats are present. These should include bat friendly lighting plans that should aim to avoid lighting wherever possible. If this is not possible, then the minimisation of any lighting impacts is required by adopting the following measures:

➤ **To introduce lighting curfews or use of PIR sensors.**

Lighting curfews can be an effective way of avoiding impacts on bats. These curfews may involve either turning off lighting or dimming light units at specific times of the night, dimming units at key times of the year, providing the luminaire allows for this option via a control unit. Lighting to be triggered by PIR sensors can be expected to be illuminated only when required and for a low proportion of time.

➤ **To consider no lighting solutions where possible.**

Options such as white lining, good signage and LED cat's eyes should be considered as preferable. Reflective fittings may help make use of headlights to provide any necessary illumination in some areas.

➤ **To use only high pressure sodium or warm white LED lamps where possible.**

High pressure sodium and warm white LED lamps emit lower proportions of insect attracting UV light than mercury, metal halide lamps and white LED lighting. Generally, lamps should have a lower proportion of white or blue wavelengths, with a colour temperature <4200 kelvin recommended (BCT, 2014).

➤ **To minimise the spread of light.**

The light spread should be kept at or near horizontal to ensure that only the task area is lit. Flat cut-off lanterns or accessories should be used to shield or direct light to where it is required. Baffles, hoods, louvres and shields should be used where necessary to reduce light spill.

➤ **To consider the height of the lighting column.**

While downward facing bollard lighting is often preferable, it should be noted that a lower mounting height does not automatically reduce impacts to bats as bollard lighting can often be designed to provide up-lighting. Where bollard lighting is considered to be the most appropriate system, bollard spacing or unit density should be kept to a minimum and units should be fitted with the appropriate hoods/deflectors to reduce any up-lighting.

➤ **To avoid reflective surfaces below lights.**

The polarisation of light by shiny surfaces attracts insects increasing bat activity (BCT, 2012). Consequently, surface materials around lighting require consideration.

Appendix D: Photographic Records

Plate 1: Front elevation of the surveyed church.



Plate 2: Rear elevation of the surveyed church.



Plate 3: Detail of gap around the soffit of the church.



Plate 4: Front elevation of the surveyed office building.



Plate 5: Detail of the eaves of the office building.



Plate 6: Internal view of the office loft space.



Appendix E: The Annual Bat Year (BCT)

A Year in the Life of a Bat			
January		February	
	Hibernating; using up fat reserves.		Still hibernating; few fat reserves left.
March		April	
	Some activity; occasional bat seen feeding.		Awake and feeding at night.
May		June	
	Females looking for nursery sites.		Young born, usually only one.
July		August	
	Young still suckling.		Young start catching insects; females leave nursery to find males.
September		October	
	Mating season begins; start building fat reserves for hibernation.		Search for suitable hibernation site.
November		December	
	Hibernation begins although still some activity in warm weather.		Hibernating.

Appendix F: Legislation and Policy

All species of bat are fully protected under a variety of domestic, European and international legislation and conventions. These include:

- Bern Convention (Appendix II)
- Bonn Convention (Appendix II)
- Conservation Regulations (Northern Ireland) 1995
- Conservation of Habitats and Species Regulations 2017
- Countryside Rights of Way Act 2000
- Eurobats Agreement
- Habitats Directive (Annexes IV and II)
- Habitats Regulations 1994 (as amended) Scotland
- NERC Act 2006
- Wildlife and Countryside Act 1981 (as amended)
- Wild Mammals Protection Act

In addition to this, some species have additional protection by being listed on the UK Biodiversity Action Plan (UKBAP).

The legislation afforded to bats makes it illegal to possess or control any live or dead specimens, to damage, destroy or obstruct access to any structure or place used for shelter, protection or breeding, and to intentionally disturb a bat while it is occupying a structure or place which it uses for that purpose.

All nesting birds are protected under the Wildlife and Countryside Act 1981 (as amended), which protects birds, nests, eggs and nestlings from harm. In addition to this, some rarer species, such as barn owls are afforded extra protection.

National Planning Policy Framework, Section 15:

In early 2012, the National Planning Policy Framework (NPPF) replaced much previous planning policy guidance, including Planning Policy Statement 9: Biological and Geological Conservation. The government circular 06/05: Biodiversity and Geological Conservation - Statutory Obligations and Their Impact within the Planning System, which accompanied PPS9, still remains valid. A presumption towards sustainable development is at the heart of the NPPF. This presumption does not apply however where developments require appropriate assessment under the Birds or Habitats Directives. The latest National Planning Policy Framework was updated in February 2019, with the section in relation to conserving the natural environment being located within section 15.

Section 15, on conserving and enhancing the natural environment, sets out how the planning system should contribute to and enhance the natural and local environment by minimising impacts on biodiversity and, where possible, provide net gains in biodiversity. Opportunities to incorporate biodiversity gains into a development should be encouraged.

Biodiversity 2020:

This sets out to halt overall biodiversity loss and support healthy well-functioning ecosystems by establishing coherent ecological networks, with more and better places for nature, to the benefit of wildlife and people. The government's policy is aimed at individuals, communities, local authorities, charities, business and government, which all have a role to play in delivering Biodiversity 2020.

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The survey results purport the current status of the site and its potential for protected species utilisation at the time of surveying. It should not be viewed as a complete list of the possible flora and fauna species that could be using the site at different times of the year.

Elite Ecology has been provided with full payment for this report and thus the product has been released to the client(s) for the purpose of their planning application. If any part of the report is lost or altered without the written permission of Elite Ecology, then the entire report becomes invalid. Due to the potential for continual change within the natural world, this report is valid for **2 years only** from the date of the last survey visit. If this report is submitted after the 2 year deadline, then a further updated inspection will be required to ascertain whether the site remains in the same condition as it was when initially inspected.

No reliance should be made on any such comments in relation to the structural integrity of the features located on the surveyed site. All information within the report is based solely on evidence that has been found on site during the service provided. No individual opinion or inference will be made other than that of the suitably qualified ecologist appointed to the project.