



FORMER BOYS VILLAGE
SAINT ATHAN

UPDATE BAT SURVEY

June 2015

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Executive summary

Site location	Acer Ecology Ltd was commissioned by Messrs Thomas, Tree, and Mooney to conduct a survey of seven buildings at the former Boys Village Site, St Athan for bats and nesting birds.
Survey methodology	The survey comprised the following: <ul style="list-style-type: none">• A daytime internal and external inspection of the buildings searching for signs of bats and nesting birds; and• One dusk emergence survey or one dawn re-entry survey on each of the buildings on the site.
Results of buildings inspection for bats	No signs of bats were found anywhere in or around the buildings.
Potential for buildings to support roosting bats	No direct evidence of bats was recorded within any of the buildings during the internal/ external inspections.
Evidence of nesting birds	<p>A defunct house sparrow nest was recorded within the worn soffit box at the apex of the gable end wall on the northern elevation of building 1. A defunct swallow nest was also recorded on one of the exposed internal pre-fabricated timber truss rafters of the same building.</p> <p>A defunct thrush nest was recorded inside a partially eroded soffit box at the north-eastern elevation of building 2.</p>
Dusk emergence and dawn re-entry survey results	The dusk emergence and dawn re-entry survey was conducted in optimal conditions, within what the Bat Survey Guidelines (BCT 2012) describe as the peak period (mid-May to end of August) for bat activity surveys. The following roosts were detected during the survey: <ul style="list-style-type: none">• Long-eared roost in Building 6 (Count of 3 individuals);• Lesser horseshoe night roost in Building 6 (1 individual);• Common pipistrelle roost in Building 2 (1 individual);• Common pipistrelle roost in Building 3 (3 individuals); and• Soprano pipistrelle roost in Building 5 (3 individuals).
Licensing requirements	Evidence of bat roosting has been confirmed within the building and therefore a Habitats Regulations derogation licence will be required from Natural Resources Wales prior to works being undertaken on the buildings.
Recommendations	Detailed recommendations are given in Section 6.

1.0 Introduction

1.1 Brief

Acer Ecology Ltd was commissioned by Messrs Thomas, Tree, and Mooney to conduct a survey of seven buildings at the former Boys Village Site, St Athan (OS grid reference: ST 02650 67148) for bats and nesting birds. The site is located within the boundary of Vale of Glamorgan County Borough Council. The location of the site is shown on Plan 1 and the layouts of the buildings are shown on Plan 2.

1.2 Site description

The site proposed for development comprises the old 'Boys Village' holiday camp for the sons of coal miners, which was opened in 1925. It has long since been abandoned, and currently consists of seven dilapidated buildings that are all located around a central yard. The site is situated in a rural location, approximately 200m north-east of West Aberthaw. The immediate surroundings comprise pastoral fields, mature hedgerows and broadleaved woodland copses. Hedgerows demarcate the northern and western boundaries of the site, while the southern boundary leads into an adjacent field. A narrow stand of broadleaved woodland forms the eastern boundary. The feeder stream to Aberthaw power station meanders past the site approximately 170m to the east. Beyond the immediate environs, the village of Saint Athan lies approximately 950m south-east of the site. A cement works and a quarry lie to the east, while the Severn Estuary lies approximately 1.7km to the south.

1.3 Development proposals

The site is proposed for redevelopment, comprising the demolition of six of the seven existing buildings, prior to the construction of multiple housing plots. The church (Building 6) is proposed for refurbishment and conversion into a single residential property.

Planning consent was previously granted by the Vale of Glamorgan Council for the development of 5 plots under planning references 2012/00634/FUL, 2012/00633/FUL, 2012/00632/FUL, 2012/00592/FUL and 2012/00591/FUL.

1.4 Legislation

1.4.1 Bats

All species of bat and their breeding sites or resting places¹ (roosts) are fully protected under the Wildlife and Countryside Act 1981 (as amended) and the Conservation of Habitats & Species Regulations 2012 (as amended). Works affecting bats are subject to licensing procedures by Natural Resources Wales. The legal protection and licensing procedures are summarised in Appendix 1.

¹ Resting places are defined 'as areas that are essential to sustain an animal or group of animals when they are not active' (Anon 2007).

1.4.2 Nesting birds

All wild British birds (while nesting, building nests and sitting on eggs), and their nests and eggs (with certain limited exceptions) are protected by law under Section 1 of the Wildlife and Countryside Act 1981 (as amended) and the Countryside and Rights of Way Act 2000. Included in this protection are all nests (at whatever stage of construction or use) and all dependent young until such time as the nest is abandoned and the young have fledged and become independent. Some species such as barn owls are listed on Schedule 1. This gives them extra levels of protection which includes protection from disturbance whilst nest building; if near a nest with eggs or young; or disturbance of the dependant young of such a bird.

In addition to the above legislation, the Conservation of Habitats and Species Regulations 2012 places a duty on Local Planning Authorities in the exercising of their functions to contribute to the preservation, maintenance and re-establishment of a sufficient diversity and area of habitat for wild birds in the UK including by means of the upkeep, management and creation of such habitat.

As the proposed work has potential to adversely affect protected nesting birds, this study was commissioned to inform and support the proposals.

1.5 Survey scope

The survey comprised the following:

- A daytime internal and external inspection of the buildings searching for signs of bats and nesting birds; and
- One dusk emergence survey or one dawn re-entry survey on each of the buildings on the site.

1.6 Review of historic site data

A bat survey report has been previously produced for the site:

- Acer Ecology Ltd – Former Boys Village Site, Saint Athan. Survey for Bats, September 2012. Comprised a scoping survey of the (then) eight buildings on site (one of which has since been demolished), in order to assess their potential for use by roosting bats. A series of activity emergence/ re-entry surveys were subsequently undertaken on the buildings. Appropriate avoidance and mitigation measures were then devised. Previous survey work for bats had also been undertaken on the site by Acer Ecology Ltd in 2011.

1.7 Reporting

The aims of the report are to:

- Present a summary of the survey methods and results;
- Provide an interpretation of historic site data relevant to the site;

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- Provide an assessment of the ecological significance of the findings;
- Identify the species of bats and roost types² present and characterise³ the roosts to enable suitable mitigation to be designed;
- Identify the legal and policy constraints relevant to bats and nesting birds which may affect the development; and
- Provide an indication of potential licensing requirements and mitigation measures that may be required.

²There are a range of different bat roost types including transition; maternity; satellite; mating; hibernation; night; day; and feeding roosts, as well as swarming sites.

³As identified in section 8.3.4 of the bat survey guidelines the following information should be sought as part of roost characterisation: numbers of bats in the colony; access points used; temperature and humidity regime within the roost; aspect and orientation of the roost; size and perching points; lighting; and surrounding habitat.

2.0 Methods

2.1 Desk study

2.1.1 Statutory designated sites

Information on statutory nature conservation designated sites was obtained from the South East Wales Biological Records Centre (SEWBRc) and a GIS protected sites dataset produced by Natural Resources Wales (NRW).

The citations of protected sites (Sites of Special Scientific Interest (SSSIs) and Special Areas of Conservation (SACs)) within 1km of the site were consulted to determine if any of them made reference to bats. A search for SACs specifically designated for bats within 10km for the site was also undertaken.

2.1.2 Non-statutory designated sites

In addition, information on areas of Ancient Semi-Natural Woodland (ASNW) was obtained from a GIS protected sites dataset produced by Natural Resources Wales (NRW).

2.1.3 Protected species records

The South East Wales Biological Records Centre (SEWBRc) was contacted for records of bats within 1km radius of the site, and roof-nesting bird species records within 150m of the search area.

The Vale of Glamorgan and Bridgend bat group were not contacted to see if any bat information was available for the site and local area as they have responded to previous requests stating that all of their data is held by SEWBRc.

2.1.4 Site context

Aerial photographs of the site and surrounding area were consulted to identify any habitats adjacent to, or connected to the site by linear habitat features, with potential to be used by bats and nesting birds.

2.1.5 Review of historic data

The results and conclusions from the relevant historic report that exists for the proposed development (See Section 1.6) were reviewed in order to help qualify the findings of this report.

2.2 Field study

2.2.1 Daytime internal/ external inspection

A daytime internal/ external inspection was undertaken of the buildings on 9th April 2015 by Rory Jones⁴ (NRW Licence Number: 61458) and Daniel Seaward⁵, with reference to the methodology outlined in the Bat Conservation Trust's Bat Surveys: Good Practice Guidelines (Hundt 2012).

The exterior of the buildings were searched for evidence of use by bats and for features offering roosting potential or allowing access into the interior of the buildings. The interior of the buildings were searched for bats and evidence of bats such as droppings, feeding remains, urine staining, scratch marks and the remains of dead bats.

There were no accessible roof voids within any of the buildings. The only void recorded exists within the eastern portion of Building 6 (Church) and this feature was inaccessible due to safety considerations.

2.3 Survey for nesting birds

Searches were carried out for old nests, as well as any signs which might indicate previous nesting activities such as piles of discarded nesting materials or large aggregations of guano. In many cases, bird nest are hidden from view and their presence can only be detected by an experienced observer looking for nesting bird behaviour, such as carrying nesting material, food or faecal sacs.

2.4 Preliminary roost assessment

Following the internal/ external inspection, a preliminary assessment of the value of the site (and any potential roost sites therein) for bats was made. The assessment was undertaken with reference to best practice guidance⁶ and was based on the relative abundance and quality of habitat features within the site suitable for roosting, foraging and commuting bats in the context of the surrounding landscape. Sites with low numbers of suitable roost sites and poor landscape connectivity are assessed as having low value. Conversely, sites with many and varied potential roost sites and good connectivity to the wider landscape are assessed as having high value for bats. Sites are assessed as being confirmed bat roosts when evidence of bat roosting is recorded.

⁴ Rory is employed as an ecologist with Acer Ecology and is an experienced and licensed bat worker (Natural Resources Wales Licence Number 61458-OTH-CSAB-2015). He graduated with a degree in Environmental Geoscience from Cardiff University and has 3 years postgraduate experience. He has undertaken extensive training in protected species assessment and has undertaken numerous building inspections, dusk emergence and dawn re-entry surveys.

⁵ Daniel is employed as an ecologist with Acer Ecology Ltd. He graduate from Cardiff University with a degree in Zoology and has 2 years postgraduate experience of working in ecological consultancy. He has over 200 hours (as of 17/6/2015) of bat survey fieldwork experience which includes undertaking preliminary roost inspections and undertaking bat emergence and dawn re-entry surveys.

⁶ Table 4.2, page 24, Hundt (2nd Ed. 2012)

2.5 Dusk emergence and dawn re-entry surveys

The evening dusk emergence surveys commenced approximately 30 minutes prior to sunset and continued until low light levels precluded the observation of emerging bats (about 90 minutes after sunset).

The dawn re-entry surveys commenced at least 90 minutes before sunrise and continued for 15 minutes after sunrise.

In accordance with section 10.5.1⁷ of the Bat Survey Guidelines surveys were only undertaken during nights with a minimum night time temperature above 10°C.

Surveyors were positioned to ensure full visual coverage of the buildings with the exception of building 7 where the eastern elevation could not be viewed due to the aspect being covered by the surrounding treeline. Surveyors recorded all bats observed, as well as the time and direction of flight. Particular attention was given to detecting the presence of bats emerging or re-entering the buildings. In addition bat activity in close proximity to the buildings was also recorded.

2.5 Consultation

The Vale of Glamorgan County Borough Council ecologist (Erica Dixon) was consulted about the survey effort required for the site. During a telephone conversation on the 15th May she stated that given that previous survey work had been undertaken on the site that one dusk emergence or dawn re-entry survey could be undertaken on each of the buildings on the site, rather than a greater level of survey that had been recommended in the Acer Ecology 2015 Preliminary Roost Inspection report

2.6 Constraints

2.6.1 Desk study

There were no constraints to the desk study.

2.6.2 Field study – internal/ external inspection

General constraints

Bats are a difficult species group to survey for and often it is signs of their activity, rather than actual presence that indicate the existence of a bat roost. A daytime survey for bats relies on finding signs of bats that have accumulated over time. Whilst large numbers of droppings from a large, active bat roost is often obvious, individual droppings from smaller numbers of bats can be much harder to find and can deteriorate quickly. In addition, evidence from species which roost in open spaces e.g. brown long-eared

⁷ This section of the guidelines refers to surveys in relation to proposed wind turbines. No specific guidance relating to the survey temperature is given for undertaking dusk emergence or dawn re-entry surveys but is assumed to be the same.

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bats (*Plecotus auritus*) and lesser horseshoe bats (*Rhinolophus hipposideros*) are easier to detect than evidence from crevice dwelling species e.g. pipistrelle bats. Lack of evidence of bats does not always mean that bats are not present, nor does it preclude their presence at some future date. A daytime survey must therefore be supplemented by careful assessments of the potential of the building to accommodate bats and the quality of the nearby habitat.

Timing

The survey was undertaken in suitable weather conditions during April, at a time that is slightly outside the optimal period for surveying maternity roosts which don't tend to form until May.

Access

Not all parts of all buildings could be inspected, such as gaps between roof tiles and felt linings and the voids within the soffit boxes. Furthermore, the void in the eastern portion of Building 7 (See Plan 2) could not be inspected due to safety considerations brought about by the plaster board floor substrate which was deemed to be too weak to support weight, and the rood and tower in Building 6 similarly could not be accessed. There were considered to be no constraints to the dusk emergence and dawn re-entry surveys undertaken on the buildings.

Floor covered with detritus

The floor in many of the buildings had a covering of detritus, which made it difficult to detect bat droppings. Therefore the presence of unrecorded bat evidence (and therefore bats) cannot be ruled out and has been taken into consideration.

3.0 Results

3.1 Desk study

3.1.1 Protected sites

The site does not contain, or lie adjacent to any statutory designated sites. The nearest such site is the East Aberthaw Coast Site of Special Scientific Interest (SSSI), which lies approximately 1.5km south-east of the proposed development site. This site is designated for its exposed geological interest, although a variety of scarce botanical species are cited. There is no mention of bats in the citation, and this site is considered to be of no particular value to bats due to its very exposed nature for foraging.

In addition, there are no statutory designated sites (SAC's or SSSI's) that have been specifically designated for bats within 10km of the proposed for development site (SEWBRc, 2015).

There are six areas of Ancient Semi-Natural Woodland (ASNW) within 2km of the site. Furthermore, there is a single Plantation on an Ancient Woodland Site (PAWS) within the same radius.

3.1.2 Bat records

The data search returned a total of one bat within 1km of the site. The record is classified as sensitive and so precise grid reference data is not presented here. It did not specify whether the record referred to a roost or an observation of the bats, but five individuals of an unspecified bat species were recorded in 1992. The raw data can be made available to the LPA on request.

3.1.3 Roof-nesting bird records

The data search returned two records of roof-nesting birds within 150m of the site. Both records comprised flocks of approximately 100 starling (*Sturnus vulgaris*). They were both published in 2010. The raw data can be made available to the LPA on request.

The data search also confirmed that there are records of barn owl within 1-2km of the site (SEWBRc, 2015).

3.1.4 Review of historic site data

Previous survey work has been undertaken on the site in 2011 and 2012 by Acer Ecology Ltd. A summary of the survey results is given below. The surveys identified bat roosts in four of the buildings (Buildings 2, 4, 5 and 6 [See Plan 4]).

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Building Number	Species
2	Common Pipistrelle
4	Common Pipistrelle (See Plate 16)
5	Common Pipistrelle (See Plate 19)
6	Common Pipistrelle (See Plate 31) Brown long-eared bat (See Plate 28, 30)

3.2 Field study

3.2.1 Site Context

The buildings are located in a rural setting, approximately 950m north-west of the village of Saint Athan, with sporadic residential development. The former Boys Village site closed in the 1960s and has been vacant and unused for a long period of time. All of the buildings on the site are in a very dilapidated condition. The site's northern and western boundaries are demarcated by mature hedgerows, while a narrow stand of broadleaved woodland forms the eastern boundary. The southern elevation leads directly into an adjacent field.

3.2.2 Building descriptions

Building 1 – Frazier Hall

This building has a symmetrical pitch roof that follows a north-south axis. It is constructed from slates and is in a fair state of repair. Large numbers of slates have fallen away around the eaves at the east and west elevations, but the ridge remains relatively intact and well maintained along its entire length. Ceramic ridge tiles straddle the ridge, all of which sit flush with no gaps present. Timber soffits are present at the western elevation. They have partially fallen away, thus creating access points that appear to penetrate up into the spaces between the rafters. A moderate sized gap is also present at the apex of the northern gable end wall where the soffit box has worn away.

The external walls are composed from brick and rendered pebble dash which is all sound. All of the windows and doors are open.

Internally, the building is open to the apex with exposed modern timber beams and pre-fabricated timber truss rafters. The original ceiling has been removed. It is bright, airy and exposed to the elements, owing

to the large amount of light ingress through the windows. Bitumen lining is present which is torn in many places, creating crevices that are easily accessible.

Building 2 – Caretakers Building

The former caretakers' building is a small structure with an L-shaped hipped roof. There is a small flat-roofed section at the north-western elevation. The roof is constructed from slates and terracotta ridge tiles, many of which have slipped or fallen away. The southern elevation of the roof is in a slightly better state of repair, with a moderate sized area of intact slates. Timber fascias, soffits and bargeboards are present on all elevations and many of them are in poor condition with a high number of potential access points into either the soffit boxes or into the main roof structure between the exposed rafters. A single brick chimney is present. It is well mortared and of sound construction, although the top is not capped.

The external walls are of brick construction. They are generally well rendered with no significant crevices present. The windows and doors of the property are all absent.

Internally, the building is open to the apex (the ceiling has long since been removed). Rough sawn timber beams are present in the flat roofed section of the building. Relatively modern timbers are visible in the main pitch of the building. No roof lining is present. The whole property is very light and airy.

Building 3 – Dining Room/ Kitchen

This large T-shaped building has a symmetrical pitch roof that is largely absent, following fire damage. The far western end of the main pitch remains relatively intact, as does a fairly large portion of roof at the northern end of the building. A combination of asbestos sheeting and slates with terracotta ridge tiles are present in the remaining sections of roof. Small sections of roof remain relatively intact and sound, but a high number of access points are present where other sections of roofing have collapsed. A length of roof that extends for approximately 2m either side of the ridge remains in fair condition and provides a relatively well-protected cavity between the slates and the sarking below. Timber fascias and exposed rafters are in fair condition with no obvious access points recorded during the inspection. The timber soffit box is uncapped at the north-western elevation of the western pitch, thus allowing access inside. There is a brick built chimney stack which has not been capped.

The external walls are composed of brick and rendered breeze block. Only hairline cracks are present. The numerous windows and doors are all open.

The internal reaches are very bright and are essentially fully exposed to the elements throughout most of the building. The remaining sections of roof are supported by rough sawn timbers with some areas of lining beneath the tiles and timber sarking.

Building 4 – Changing Rooms

The majority of the roof structure is absent from this building. The remnants of the symmetrical pitch are found at the southern elevation. Slates with terracotta ridge tiles are present here. They are largely intact around the ridge at the southern gable end wall, but a high number of access points exist elsewhere where tiles have slipped or where the roof has fallen through. Timber bargeboards at the southern elevation have worn away. A moderate sized gap is subsequently present alongside the drainpipe, which provides access into the soffit box. Two gaps are also present at the apex of the southern wall. A flat roofed structure adjoins the buildings. It is open fronted and finished with bitumen felt roofing material that is in good condition.

The external walls are single skin brick structures that contain no significant crevices. Internally, the only section of enclosed space is found at the far southern elevation, where the roof remains partly intact. This area is open to the apex with plaster board that has partially fallen away, exposing crevices between the plaster and the slates of the roof structure.

Building 5 – Accommodation Block

This is a two storey structure with a flat roof of concrete construction. Timber fascias are present around portions of the building, but they have worn away in many areas. The remaining fascias sit slightly proud of the walls in places, thus creating small crevices. A chimney is present at the north-western elevation. The flume is external from the main building structure. It is constructed from bricks and is in good condition.

The external walls are constructed from bricks that are well rendered and in a good state of repair. All of the windows and doors are open. A cavity is present between the external chimney flue and the walls of the building, although this area is very exposed to the elements.

Internally, the construction details mirrors that of outside, with exposed brick walls throughout most of the building. No crevices are present. Several small holes are present in the concrete ceiling, which allows access into the ceiling space. On the first floor, the ceiling that was once composed of plaster board has largely fallen away, thus exposing crevices between the plaster and MDF panels that sit below the concrete ceiling. These areas are still very bright and airy, as is the rest of the building.

Building 6 - Church

A tall but relatively small single-storey building with a symmetrical pitch roof that runs along an east-west axis. There is a large bell tower in the north-western corner of the building, which has a hipped slate roof. The roofing material comprises slates, many of which have slipped and fallen away, creating numerous large holes in the roof structure. Ceramic ridge tiles straddle the ridge. Although they sit flush to the ridge, several tiles have fallen away, thus creating access points beneath the remaining ridge tiles. Timber bargeboards and soffits are present at the gable end walls. The bargeboard has partially fallen

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away at the western elevation near the bell tower. A cavity is subsequently exposed which appears to penetrate directly up in between the sarking and slates of the main roof structure. Sections of the soffit box are also weathered, which has created access points into the soffits.

The external walls are constructed from brick and rendered pebble dash which is all in good condition, with only superficial cracks present. A sparse amount of ivy is present at the northern elevation. Numerous windows and doorways are present. All of them are missing the glass panels/ doors themselves, thus creating ample access into the building.

Internally, the building is open to the apex with exposed king post construction beams. The multiple open windows make the building light and airy. Portions of the slates and timber sarking roof structure are exposed where the plaster board ceiling has weathered or fallen away, thus exposing gaps between the plaster board and sarking above.

A void is present in the eastern end of the building. There is no access hatch, although a large hole has developed in the plaster board ceiling which allows visibility in to the void. The void is constructed of timber beams, purlins and sarking, which appear to sit below the slates of the external roof. It is approximately 10m in width from north to south, 5m from east to west and with height from the lowest part of about 3.5m. It is in good condition and is dark and undisturbed.

The bell tower follows the same construction detail as the main church building, which a hipped slate roof which is in good condition. Timber soffits are present, all of which are of sound construction. Slit windows and grills are present at each elevation.

Building 7 – Sports Hall

This large building has an asymmetrical pitch that runs along a north-south axis. Corrugated asbestos sheeting covers the majority of the roof, although the poor condition of the roof means that numerous large holes are present in it. Sheet metal has been folded over at the ridge. No fascias or soffits are present. Instead, the corrugated sheeting has been folded over the walls. It does not sit flush and gaps are subsequently present along the majority of the north and south gable end walls. The furrows of the corrugated asbestos have been plugged with cement on the western elevation. Numerous skylights are present in the roof structure. A moderate sized gap is present at the apex of the northern gable end wall where the asbestos sheets do not connect together and part of the breezeblock wall has eroded. This gap appears to provide access beneath the ridge of the building.

The external walls are constructed from a combination of bricks and breeze blocks. They are in fair condition with only superficial cracks present. The external walls are single skin structures, apart from at the northern elevation, where two breezeblock walls create a cavity wall with a void that penetrates all the way up the length of the wall. This cavity is easily accessible. Slatted windows are present at the north and south elevations but both are capped inside by timber sheets, thus preventing access.

Internally, the building is very bright and airy. The majority of the roof structure is supported by steel beams, although timbers are present at the western elevation. Ivy has established in a portion of the building but it is sparse in nature.

3.2.3 Internal and external inspections

Building 1 – Frazier Hall

Evidence of bats

No bats or signs of bats were found anywhere in either the interior spaces or external parts of the building during the building inspection.

Potential access points for bats

Due to the open nature of the building there are numerous potential access points for bats into the interior, mainly through the open sections of roof and the open windows and doors.

Apart from these obvious large access points, a number of potential access points for bats were noted during the internal/ external inspection. The following potential access points were recorded:

- Multiple slipped or missing slates (See Plate 1);
- Broken timber soffits along the western elevation (See Plate 2);
- A moderate sized gap at the apex of the northern gable end wall where the soffit box has worn away (See Plate 3); and
- Between the slate roof and exposed bitumen lining which is torn in many places.

Potential roost sites

A number of potential roost sites were noted during the internal/ external inspection:

- Underneath multiple slipped or missing slates;
- Between the roof slates and the torn bitumen lining (See Plate 5);
- Beneath the slates along the ridge of the building, which remain relatively intact but easily accessible;
- Within the soffits at the western elevation;
- Between the rafters and overlying slates that have been exposed by the eroded soffits (See Plate 2); and
- Within the moderate sized gap at the apex of the northern gable end wall where the soffit box has worn away (See Plate 3).

Building 2 – Caretakers Building

Evidence of bats

No bats or signs of bats were found anywhere in either the interior spaces or external parts of the building during the building inspection.

Potential access points for bats

Due to the open nature of the building there are numerous potential access points for bats into the interior, mainly through the open sections of roof and the open windows and doors.

Apart from these obvious large access points, a number of potential access points for bats were noted during the internal/ external inspection. The following potential access points were recorded:

- In between multiple slipped or missing slates (See Plate 7);
- Gaps in the soffit boxes on all elevations of the building;
- Into the main roof structure between the exposed rafters (See Plate 8); and
- Within the uncapped chimney flue.

Potential roost sites

A number of potential roost sites were noted during the internal/ external inspection:

- Underneath multiple slipped or missing slates;
- Within the soffits;
- Between the rafters and overlying slates that have been exposed by the eroded soffits;
- Within the chimney flue; and
- Upon the exposed rough sawn timber beams in the flat roofed section.

Building 3 – Dining Room/ Kitchen

Evidence of bats

No bats or signs of bats were found anywhere in either the interior spaces or external parts of the building during the building inspection.

Potential access points for bats

Due to the open nature of the building there are numerous potential access points for bats into the interior, mainly through the open sections of roof and the open windows and doors.

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Apart from these obvious large access points, a number of potential access points for bats were noted during the internal/ external inspection. The following potential access points were recorded:

- Between multiple slipped or missing slates (See Plate 10);
- Within areas where roof lining has come loose beneath the sarking and slates;
- Within the soffit box at the north-western elevation of the buildings western pitch (See Plate 11);
and
- Within the uncapped chimney.

Potential roost sites

A number of potential roost sites were noted during the internal/ external inspection:

- Underneath multiple slipped or missing slates;
- Within the relatively protected cavity between the slates and sarking that is present along the majority of the ridge of the central pitch;
- Within the western end of the main ridge, which remains relatively intact;
- Within a relatively large portion of roof space at the northern elevation of the building;
- Within the soffit box on the western pitch;
- Within the chimney flue; and
- Upon the exposed rough sawn timbers.

Building 4 – Changing Rooms

Evidence of bats

No bats or signs of bats were found anywhere in either the interior spaces or external parts of the building during the building inspection.

Potential access points for bats

Due to the open nature of the building there are numerous potential access points for bats into the interior, mainly through the open sections of roof and the open windows and doors.

Apart from these obvious large access points, a number of potential access points for bats were noted during the internal/ external inspection. The following potential access points were recorded:

- Beneath slipped tiles;
- Within the gap that is present on the southern elevation where the bargeboard has worn away next to the drainpipe;

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- Within the soffit box that can be accessed via the above gap;
- Between the two gaps at the apex of the southern wall (See Plate 14); and
- Where the plaster board ceiling has partially fallen away, exposing the slate roof at the far southern elevation of the building.

Potential roost sites

A number of potential roost sites were noted during the internal/ external inspection:

- Underneath multiple slipped or missing slates;
- Within the soffit box on the southern elevation;
- Within the two gaps at the apex of the southern elevation wall (See Plate 14); and
- Between the eroded ceiling plaster and the exposed slates of the roof structure (See Plate 17).

Building 5 – Accommodation Block

Evidence of bats

No bats or signs of bats were found anywhere in either the interior spaces or external parts of the building during the building inspection.

Potential access points for bats

Due to the open nature of the building there are numerous potential access points for bats into the interior, mainly through the open sections of roof and the open windows and doors.

Apart from these obvious large access points, a number of potential access points for bats were noted during the internal/ external inspection. The following potential access points were recorded:

- Beneath the raised fascias (See Plate 19); and
- In between gaps formed where sections of the concrete ceilings have fallen away on the ground and first floors (See Plate 20).

Potential roost sites

A number of potential roost sites were noted during the internal/ external inspection:

- Beneath raised fascias (See Plate 19); and
- Within the cavities formed where portions of the concrete ceiling have fallen away on the ground and first floors, thus exposing the inner reaches of the ceiling (See Plate 20).

Building 6 - Church

Evidence of bats

No bats or signs of bats were found anywhere in either the interior spaces or external parts of the building during the building inspection.

Potential access points for bats

Due to the open nature of the building there are numerous potential access points for bats into the interior, mainly through the open sections of roof and the open windows and doors.

Apart from these obvious large access points, a number of potential access points for bats were noted during the internal/ external inspection. The following potential access points were recorded:

- Beneath slipped tiles (See Plate 23);
- Beneath missing ridge tiles;
- Within gaps created where the bargeboards have partially fallen away on the western elevation, near the bell tower (See Plate 24);
- Within gaps in the soffit boxes;
- Between the slit window grills of the bell tower (See Plate 22); and
- Through the large hole that has developed in the plaster board ceiling at the eastern end of the building, which allows access into the void above (See Plate 28).

Potential roost sites

A number of potential roost sites were noted during the internal/ external inspection:

- Underneath multiple slipped or missing slates;
- Beneath ridge tiles;
- Within the cavity that is exposed at the western elevation (near the bell tower), where a section of the bargeboard has fallen away, thus exposing direct access up in between the sarking and slates of the main roof structure (See Plate 24);
- Within the soffit box;
- Behind gaps in the internal ceiling where sections of the plaster board ceiling have weathered or fallen away, thus exposing the slates and timber sarking above (See Plate 27);
- Within the void in the eastern end of the building (See Plate 28, 29); and
- Potentially within the bell tower.

Building 7 – Sports Hall

Evidence of bats

No bats or signs of bats were found anywhere in either the interior spaces or external parts of the building during the building inspection.

Potential access points for bats

Due to the open nature of the building there are numerous potential access points for bats into the interior, mainly through the open sections of roof and the open windows and doors.

Apart from these obvious large access points, a number of potential access points for bats were noted during the internal/ external inspection. The following potential access points were recorded:

- Gaps beneath the folded over corrugated sheeting on the majority of the northern and southern gable end walls (See Plate 37);
- A gap at the apex of the gable end wall of the northern elevation, where the asbestos sheets do not connect together and part of the breezeblock wall has eroded (See Plate 38); and
- Up inside the cavity wall at the northern elevation (See Plate 39).

Potential roost sites

A number of potential roost sites were noted during the internal/ external inspection:

- Beneath the folded over asbestos sheeting on the majority of the northern and southern elevations (See Plate 37);
- Within the gap at the apex of the northern gable end wall, which appears to provide access beneath the ridge of the building (See Plate 38);
- Inside the cavity wall that extends up the entire length of the northern gable end wall (See Plate 39); and
- Potentially upon the exposed timber beams in portions of the building's western elevation (See Plate 35).

3.2.3 Dusk emergence and dawn re-entry surveys

Dusk emergence and dawn re-entry surveys were undertaken on various dates during May and June 2015. The surveyors were equipped with an Anabat SD1 or SD2 frequency division detector and an

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Elekon Batscanner or an Elekon Batlogger M or an Echometer EM3+. The surveys were undertaken by Paul Hudson⁸, Lea Likozar⁹ Andrew Smith¹⁰, Hal Starkie¹¹, Jessica Dangerfield¹² and Cari Ormerod¹³.

The survey results are given below in the order that the building was surveyed. The raw data from the survey is given in Appendix 3.

Survey Details: Building 4
Date: 22/05/2015
Sunrise time: 05:12
Start time: 03:30
Finish time: 05:27
Cloud cover - 3/8 oktas
Precipitation – Dry, some light rain during last 10 minutes of survey
Start temp. – 14°
Finish temp. – 11°
Surveyors: 3: Paul, Lea & Andrew
Re-entry: Lesser horseshoe flew into building for a few seconds before flying off to the south.
Foraging and Commuting: Small numbers of long-eared, common pipistrelle and soprano pipistrelle recorded during the survey.

Survey Details: Building 2
Date: 23/05/2015
Sunset time: 21:08
Start time: 20:42
Finish time: 22:45
Cloud cover - 0/8 oktas
Precipitation – Dry
Start temp. – 13°
Finish temp. – 12°
Surveyors: 2: Paul & Andrew

⁸ Paul graduated with a degree in Environmental Biology from Reading University and a Postgraduate Diploma in Conservation Management from the University of East Anglia. He has worked within ecological consultancy since 2000 and has been involved in bat work since 2001. He holds a Natural England licence to disturb bats for science, education & conservation (2014-3623-SCI-SCI). Further details of his qualifications and experience can be found at <http://linkd.in/19aGTf4>.

⁹ Lea is employed as an ecologist with Acer Ecology and has several years of bat work experience in England, as well as in Slovenia, Denmark and Norway. She regularly attends national and international bat meetings and workshops. Lea worked on bat research projects and consultancy-related bat work since 2008. Lea graduated in Biology from the University of Ljubljana, Slovenia. Her MSc thesis was based on an ecological study of a whiskered bat maternity colony. Lea holds a Danish bat licence issued by the Danish Nature Agency, a Slovenian bat licence issued by the Ministry of the Environment and Spatial Planning and an English bat licence from Natural England Licence Number: 2015-8311-CLS-CLS. Further details of her qualifications and experience can be found at <http://linkd.in/1MSZCL3>.

¹⁰ Andrew graduated with a biological degree from the University of Glamorgan. He is in his second season of undertaking bat work and has undertaken training with Acer Ecology Ltd in basic bat ecology, bat survey techniques and bat sound analysis under the tutorage of Lis Weidt, Lea Likozar and Rory Jones.

¹¹ Hal is a Wildlife Biology Graduate from Manchester Metropolitan University. Since graduating he has been gaining experience in the ecology sector, and has undertaken professional training and surveyed for numerous protected species such as bats, water voles, great crested newts, otters and reptiles. Hal is also a member of his local bat group, mammal group and reptile group. He is also training to become a bat carer and is a volunteer for the Bat Conservation Trust phone line.

¹² Jessica graduated from Royal Holloway, University of London with a 1st class degree in Zoology. Since graduating she has been gaining experience in the ecology sector, and has undertaken professional training and surveyed for numerous protected species such as bats, water voles, great crested newts, otters and reptiles. Jessica is also a member of her local bat group, mammal group and reptile group. She is also training to become a bat carer and is a volunteer for the Bat Conservation Trust phone line.

¹³ Cari is a qualified biology teacher, with fifteen years of teaching experience. She is also an experienced ecological surveyor and has over ten years of bat survey experience.

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Emergence: Single common pipistrelle bat emerged from north-eastern part of building

Foraging and Commuting: Small numbers of common pipistrelle, soprano pipistrelle and long eared recorded during the survey. Soprano pipistrelle was recorded foraging in hedgerow to the west of buildings, whilst up to two common pipitrelles were recorded foraging in grassland to the east of the building.

Survey Details: Building 1

Date: 24/05/2015

Sunrise time: 05:11

Start time: 03:27

Finish time: 05:26

Cloud cover - 5/8 oktas

Precipitation – Dry

Start temp. – 11°

Finish temp. – 11°

Surveyors: 2: Paul & Andrew

Re-entry: No bats were recorded flying in close proximity to the building.

Foraging and Commuting: Small numbers of common pipistrelle, soprano pipistrelle and long-eared bat were recorded during the survey.

Survey Details: Building 5

Date: 28/05/2015

Sunrise time: 05:05

Start time: 03:27

Finish time: 05:20

Cloud cover - 2/8 oktas

Precipitation – Dry

Start temp. – 12°

Finish temp. – 10°

Surveyors: 2: Paul & Hal

Re-entry: Three common pipistrelle returned to roost within the southern aspect of the building.

Foraging and Commuting: Small numbers of common pipistrelle, soprano pipistrelle and noctule were recorded during the survey. In addition, there was a single pass of lesser horseshoe bat.

Survey Details: Building 3

Date: 04/06/2015

Sunrise time: 04:49

Start time: 03:17

Finish time: 05:05

Cloud cover - 1/8 oktas

Precipitation – Dry

Start temp. – 13°

Finish temp. – 10°

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Surveyors: 4: Andrew, Paul, Jess & Hal

Re-entry: Three common pipistrelle bats returned to roost in the northern part of the building.

Foraging and Commuting: Small numbers of common pipistrelle, soprano pipistrelle and long-eared bats were recorded during the survey. In addition, lesser horseshoe bat was observed commuting along the hedgerow to the north of the site.

Survey Details: Building 7

Date: 14/06/2015

Sunrise time: 4:55

Start time: 3:15

Finish time: 5:10

Cloud cover – 2/8 oktas

Precipitation – Dry

Start temp. – 13°

Finish temp. – 11°

Surveyors: 2: Paul & Cari

Re-entry: No bats were observed returning to roost within the building

Foraging and Commuting: Small numbers of common pipistrelle, soprano pipistrelle, long-eared and lesser horseshoe bats were observed during the survey.

Survey Details: Building 6

Date: 14/06/2015

Sunset time: 21:31

Start time: 21:30

Finish time: 23:15

Cloud cover – 3/8 oktas

Precipitation – Dry

Start temp. – 16°

Finish temp. – 13°

Surveyors: 4: Andrew, Paul, Jess & Hal

Emergence Three long-eared bats emerged from the void at the eastern end of the building.

Re-entry: A lesser horseshoe bat was seen perching on the ceiling of the tower. This structure was being used as a night roost by this species. It is possible that the tower may also be used by day roosting bats.

Foraging and Commuting: Small numbers of common pipistrelle, soprano pipistrelle, long-eared and lesser horseshoe bat during the survey. In addition, a single pass by a myotis bat was observed.

3.2.4 Nesting bird survey

A defunct house sparrow nest was recorded within the worn soffit box at the apex of the gable end wall on the northern elevation of building 1. A defunct swallow nest was also recorded on one of the exposed internal pre-fabricated timber truss rafters of the same building.

A defunct thrush nest was recorded inside a partially eroded soffit box at the north-eastern elevation of building 2.

None of these nests were active during the bat surveys undertaken on the site in May and June 2015.

3.2.5 Barn owl survey

No evidence of barn owls was recorded in any of the buildings.

4.0 Interpretation of survey results

4.1 Bats - confirmed roosts

The dusk emergence and dawn re-entry survey was conducted in optimal conditions, within what the Bat Survey Guidelines (BCT 2012) describe as the peak period (mid-May to end of August) for bat activity surveys. The following roosts were detected during the survey:

- Long-eared roost in Building 6 (Count of 3 individuals)
- Lesser horseshoe night roost in Building 6 (1 individual)
- Common pipistrelle roost in Building 2 (1 individual)
- Common pipistrelle roost in Building 3 (3 individuals)
- Soprano pipistrelle roost in Building 5 (3 individuals)

In addition, buildings 2 and 4 were previously recorded as being confirmed roosts in the surveys undertaken by Acer Ecology Ltd in 2011 and 2012 (See Section 1.6 and 3.1.4).

4.2 Characterisation of identified roosts

The long-eared roost is situated at the eastern end of the church. As only low numbers of bats were recorded (maximum of 3) it is considered likely that the long-eared¹⁴ roost within the building is a non-breeding summer roost. This assessment is based on the small number of bats observed emerging. However, this species can form maternity roosts of quite low numbers and so the possibility of the building supporting a small maternity colony cannot be ruled out entirely. The roost is assessed as being of low nature conservation significance as defined in Figure 4 (Guidelines for proportionate mitigation) of the Bat Mitigation Guidelines (2004) (see Appendix 5).

The common pipistrelle bats roosting in Buildings 1 and 3 are considered to be non-breeding summer roosts. This assessment is based on the small number of bats observed re-entering (which is lower than would be expected in a maternity roost). The roost is assessed as being of low nature conservation significance as defined in Figure 4 (Guidelines for proportionate mitigation) of the Bat Mitigation Guidelines (2004).

The soprano pipistrelle bats roosting in Buildings 5 is considered to be a non-breeding summer roost. This assessment is based on the small number of bats observed re-entering (which is lower than would be expected in a maternity roost). The roost is assessed as being of low nature conservation significance.

¹⁴ It is considered likely that these bats were brown long-eared bats *Plecotus auritus*, as the other UK long-eared bat species (grey long-eared bat *Plecotus austriacus*) is generally associated with the south east of England. However, recent studies (Razgour, 2012) have detected grey long-eared bats in Pembrokeshire and so this species may be present in other locations in South Wales. DNA analysis of droppings from this building may be necessary to identify the bat to species level with a high level of confidence.

The lesser horseshoe bat roosting within the tower is considered to be a night roost. It is possible that the tower may also be used as an occasional day roost by this species but due to access constraints it was not possible to gain access to the tower to search for droppings. The roost is assessed as being of low to moderate nature conservation significance as defined in Figure 4 (Guidelines for proportionate mitigation) of the Bat Mitigation Guidelines (2004). In addition, is a Habitats Directive Annex II and Annex IV and (Habitats Regulations) Schedule 2 species.

4.3 Preliminary roost inspection

No direct evidence of bats was recorded within any of the buildings during the internal/ external inspections.

4.4 Potential hibernation roosts

Most British bats hibernate in caves, or artificial structures such as mines, tunnels and cellars which provide relatively stable cool temperatures and humidity during the winter. However, some species such as serotine and pipistrelle appear to prefer to hibernate in buildings (Altringham 2003) and other species, such as brown long-eared bats, also frequently hibernate in buildings.

It is possible that any of the buildings may support hibernating bats, but this is considered unlikely due to the following factors:

- The largely open nature of the buildings, with large sections of missing roofing and open windows, which means that the temperature and humidity regimes are likely to be inconstant;
- The absence of roof lining in most of the buildings;
- The fact that much of the fabric of the buildings is exposed to the elements, and is likely to be subject to sub-zero conditions in winter;
- The relatively exposed position of the buildings. They are not shaded by any structures to the south and are likely to be subject to direct sunlight through winter months for much of the day and would therefore be unlikely to provide the stable, cool temperatures and humidity regime that would ordinarily be required by hibernating bats;
- The good condition of the internal and external walls of the buildings, with an absence of thick external walls in any of the buildings, and the absence of any crevices that could be utilised by bats (with the exception of the cavity wall on the northern gable end wall of building 7); and
- The fact that many of the features that have been assessed as suitable for use by roosting bats (e.g. soffit boxes, or the cavities between plaster lining and slate/ asbestos/ metal

roofing material) are not considered to be thermally stable enough to support hibernating bats.

4.5 Bird – Interpretation of nesting bird survey

Building 1 has previously been utilised by house sparrows and swallows, although the nests were defunct at the time of survey. This was not in used during 2015.

Building 2 has previously been utilised by a nesting thrush species. This was not in used during 2015.

4.6 Licensing requirements

Evidence of bat roosting by has been confirmed within buildings 2, 3 5 and 6 have been identified as supporting bat roosts in 2015. Furthermore, building 4 supported roosting bats in 2011 and/ or 2012. The legal protection for bats concerns impacts from disturbance, loss of roost locations, modifications to roosts and loss of access or obstruction to roost locations. The proposed works will result in impacts of this nature and so a Habitats Regulations derogation licence will be required from Natural Resources Wales prior to demolition of the building or the conversion of building 6. Natural Resources Wales have a turn around target of 30 working days, and as such it is recommended that licence applications are submitted at least 8-10 weeks prior to the commencement of works. Planning permission must be granted before the licence application will be considered by Natural Resources Wales. In addition, there may also be timing constraints on when the work should be undertaken.

The licence application will require the production of a detailed method statement which sets out the activities to be carried out under the licence to minimise the risk of bats being harmed during construction works and to ensure that bats will be conserved during the development of the site. This will need to detail the mitigation proposed (such as the replacement or compensation roost), the timescale and schedule of works, the number, size and locations of bat access points to be provided, the type of materials to be used (roofing material, roof lining, fascias, soffits and bargeboards etc), lighting proposals, action to be taken in the event bats are found during works and a post-development monitoring programme. The method statement will need to be accompanied by scaled plans and maps detailing the bat mitigation features. A cross section of the access points and roost space is often required. The method statement must ensure that provision is made for new or continued roosting opportunities after the completion of development works. In some instances a method statement is requested by the Local Planning Authority or Natural Resources Wales before the planning application is determined.

5.0 Assessment of potential impacts

The potential impacts are based on the development proposals at the time of writing. This impact assessment may need to be reviewed and amended as necessary in light of any alterations to the development proposals and the results of the further surveys.

5.1 Development proposals

The site is proposed for redevelopment, comprising the demolition of six of the seven buildings, prior to the construction of multiple housing plots. The church (Building 6) is proposed for refurbishment and conversion into a single residential property. The void which currently supports long-eared bats and the tower which supported a lesser horseshoe night roost are proposed for retention as bat roosting areas.

Planning consent was previously granted by the Vale of Glamorgan Council for the development of 5 plots under planning references 2012/00634/FUL, 2012/00633/FUL, 2012/00632/FUL, 2012/00592/FUL and 2012/00591/FUL.

5.2 Potential impacts of the development on bats

Potential direct impacts

Roost sites and access points (obstruction)

Buildings, 2, 3 5 and 6 have been identified as supporting bat roosts in 2015. Furthermore, building 4 supported roosted bats during the surveys undertaken in 2011 and/or 2012. Without mitigation the proposals would lead to the loss of the roosting sites bats, or the death or injury of bats that may be roosting during any of the development work.

Individual bats

If the proposed work was undertaken whilst bats are present, it could result in the disturbance of bats and potentially the killing or injuring of bats. In addition, when the building becomes occupied, the residents might introduce cats to the site, increasing predation risk.

Potential indirect impacts

External Lighting

External lighting has the potential to disturb nearby bat roosts and foraging areas if light spill is not controlled (See Section 6.0).

Bat Foraging and Commuting Routes

The impact on bat foraging and commuting routes is unknown. Lesser horseshoe was detected commuting around the hedgerows in the site, and this could potentially be affected by the proposals. Recommendations to limit light spill around the perimeter of the site is given in section 6.0.

5.3 Potential impacts of the development on birds

Defunct nests were recorded in building 1 and 2. The demolition of these buildings would result in the loss of nesting habitat for bird species, including house sparrow, swallow and thrushes.

The Wildlife and Countryside Act 1981 (as amended) makes it an offence to harm individual wild birds, or to damage or destroy the nest, eggs or young. Replacement house sparrow, swallow and thrush nests will need to be provided to ensure compliance with the Conservation of Habitats and Species Regulations 2012¹⁵.

¹⁵ The legislation states that there is a duty on Local Planning Authorities to *'take such steps in the exercise of their functions as they consider appropriate to contribute to... the preservation, maintenance and re-establishment of a sufficient diversity and area of habitat for wild birds in the UK including by means of the upkeep, management and creation of such habitat...'* (Reg 9A(2) & (3)).

6.0 Recommendations

6.1 Habitats regulations derogation licence in respect of bats

As noted in the previous section, Buildings 2, 3, 5 and 6 support current bat roosts whilst Building 4 supported roosting bats during the previous surveys. A Habitats Regulations Derogation licence is required from Natural Resources Wales before any works are carried out which might affect bats to enable the development to progress legally.

Outline mitigation measures are set out in the following paragraphs, however, these will be confirmed and fine-tuned during the licensing stage.

If works on the site have not commenced within 2 years of this survey, an update survey is likely to be required in accordance with guidance from Natural Resources Wales¹⁶ and BS 42020:2013¹⁷ to determine if conditions and evidence of bat use has changed since that described in the current report. If bat use has altered the mitigation proposals may need to be modified.

6.2 Precautionary measures to avoid potential impacts on bats

6.2.1 Timing of works

The demolition of the buildings and the conversion of building 6 will take place from October to March outside of the active season for bats so that there is the lowest likelihood of bats being present.

6.2.2 Site induction and tool box talk

A suitably qualified bat ecologist will give a 'tool box talk' to all contractors involved with works that could affect bats before the commencement of works. All site workers will be briefed on the legal status of bats, the likely places to find them, the working practices required to minimise and avoid harming or disturbing bats (e.g. the procedure required for removing tiles etc) and the action to be taken if bats are encountered during the works. All site workers will be made aware that in the event of any bats (or occupied birds' nests) being found or suspected when the ecologist is not on site all works must cease in the affected area until appropriate expert advice has been sought from an ecological professional qualified to deal with bats or Natural Resources Wales. A copy of the Natural Resources Wales licence and the Mitigation and Compensation Delivery Plan will remain available on the site at all times and a summary sheet of guidance will be given to the builders and contractors working on the site.

6.2.3 Supervision of works / soft strip

¹⁶ As set out in Point 5 of the Natural Resources Wales *Bat Surveys - Frequently Asked Questions* and Point 4 of the guidance included within the Natural Resources Wales European Protected Species Development Application Form.

¹⁷ As set out in Section 6.2.1, point 7 which states that ecological information should not normally be more than two/three years old, or as stipulated in good practice guidance).

Demolition of the buildings and works undertaken as part of the conversion of Building 6 will commence with a licensed bat ecologist (NRW licence with bat handling specified) supervising a 'soft strip' to expose and remove all features of interest to bats such as the soffit boxes, barge boards, roof tiles, ridge tiles¹⁸ etc and the. The tiles must be lifted off vertically rather than rolled, and checked on their underside to ensure that no bats are clinging to the underside. This will minimise the chance of bats being killed/injured.

This work will be undertaken using hand tools, (i.e. picks, crow bars, slate rippers, bow saws etc.). These features will be carefully removed by hand and contractors will check for the possible presence of bats on the undersides of these features before they are lifted off, before discarding them, or storing them prior to disposal. During the soft strip process, any cracks or crevices that have potential to be used by bats will be inspected by a licensed bat worker using a high powered torch to ensure they are not in use. Cavities will be carefully prised open using a crowbar.

The removal of such features will be observed and supervised at close quarters by a licensed bat handler surveyor from an appropriate viewing position to be provided by the demolition contractor (eg scaffolding or lifting platform). After the soft strip has been completed the building will be left for 24 hours (to allow any bats present the opportunity to move off on their own accord) before re-commencing with the demolition rwork or the roofing works on Building 6.

Works will avoid encountering torpid bats in roof structures by only working during periods when temperatures have not dropped below 8°C over four consecutive days and nights, where practicable.

The services of an appropriately qualified and licensed ecological consultant will be available on an 'on-call' basis at all stages of the works to deal with any unexpected encounters with bats or nesting birds.

6.2.4 Actions to implement in the event that a bat is discovered during works

If bats are encountered during supervised works, works will stop whilst the bat is allowed to move of its own accord. If the bat fails to move away of its own discretion the licensed bat handler will capture the bat/s with thin-gloved hands or hand net and place the bat/s in a draw-string cloth bag. Removed bats will be temporarily transferred to a day-holding facility (a well-insulated specially designed bat box) and will then be transferred into the bat roost box that will be fixed at a suitable location on or very near to the site. This should allow the bat/s to settle in a safe place for the remainder of the day, and to emerge safely in the evening. Any injured bats would be immediately taken into care.

If a bat is discovered at other, unsupervised times when the ecologist is not present all work will cease immediately and the bat ecologist will be consulted for advice. The bat will be rescued by the licensed bat handler using the methodology described above or allowed to move of its own accord. Builders and contractors are explicitly forbidden to handle bats.

¹⁸ It is generally considered best to commence the roof strip with the ridge tiles.

6.2.5 Provision for bats displaced during works

In advance of the works, a Schwegler 2F (or suitable alternative) temporary bat box will be erected on a suitable large tree¹⁹ on the boundary of the site. This will provide compensatory alternative roosting habitats during the construction period for any bats which may be displaced as a result of the works.

6.3 Roost provision

The construction of the new roosting features will, where practicable be in place ready for the beginning of the subsequent bat activity season which is generally regarded as 1st May.

6.3.1 Dedicated bat loft in roof void of Building 6

The exact size of roof void in former school chapel (Building 6) used by brown long eared bats for roosting is not known. The void is approximately 10m in width from north to south, 5m from east to west and with height from the lowest part of about 3.5m. The existing roof void will be retained with appropriately designed bat access points leading to the exterior (see Plan 6). The restored void will ideally remain unaltered or be lined with timber sarking as present currently. The existing access point via the gap in the ceiling will be closed off. New bat access points should be provided in the form of one access points in hip (see Plan 5) and two lead saddles or adapted ridge ventilators (ie with the internal mesh or plastic mouldings removed). Small holes will be made through the timber sarking behind the access points.

6.3.2 Dedicated bat loft in tower of Building 6

The tower of Building 6 will be retained for use as a night roost by lesser horseshoe bats. The existing access will be closed off and chimney-style entrance installed giving access via the window on the eastern side of the tower. The existing access will need to be closed off. No other modifications to the tower are considered necessary.

6.3.3 External roosting opportunities in the new dwellings

Bat roosting opportunities should be enhanced through the provision of artificial bat boxes. A variety of bat boxes and bricks, suitable for buildings and are available from Schwegler²⁰ and Istock²¹ (See Appendix 9). One feature for bats or nesting birds (see section 6.5) will be provided for each new dwelling. Ideally, a variety of different boxes should be used. Ideally, bat boxes should be installed in unlit locations, in the vicinity of connective features to allow bats undisrupted dispersal to local foraging habitat.

¹⁹ The bat box should ideally be positioned to face either south-east or south-west and located as high as possible, ideally located as close as possible to the previous roosting location.

²⁰ <http://www.schwegler-nature.com/>

²¹ <http://www.ibstock.com/sustainability-ecozone.asp>

6.4 Lighting

It is assumed that the housing estate will require some form of street lighting and that individual dwellings will have security lighting.

Lighting will be absent from the boundary of the development thus creating a 'dark corridor' to minimize disturbance to roosting bats that commute across the site, as identified during the activity surveys. The exact models of lighting are yet to be finalised.

The lighting design for the site (during both construction and post-development stages) will be of a 'bat-friendly' specification and kept to the minimum level which meets the needs of security and health and safety.

Domestic Security Lighting (check recommendations template for more up to date text)

Lighting will be installed at low-level only (i.e no higher than eaves level) and downwards directed. Lighting will not be located in the vicinity of, or shine towards the integrated bat bricks. In general lighting around the perimeter of the site will be avoided.

The exact models of lighting are yet to be finalised. However, any security lights used will operate off a passive infrared (PIR) motion sensor sensitive to large objects only to avoid constant triggers by bat passes and with timers set on a low duration (i.e a maximum 'on' time of 2 minutes) to reduce the amount of 'lit time'.

Street Lighting

Any newly installed lights will ideally be low wattage (i.e 11 watts), glass glazed, compact fluorescent light sources fitted with appropriate UV filters. Hoods/shields or cowls will be installed to prevent upwards and horizontal light spill. White lighting sources including mercury or metal halide, CDO and CPO which have a significant effect on bats will be avoided, and instead low intensity, low pressure sodium or warm light LED light bulbs will be used.

6.5 Measures to mitigate against potential impacts on birds

To compensate for the possible loss of house sparrow and thrush nesting opportunities, a sparrow terrace (see Appendix 6) will be installed on the exterior of two of the new buildings and two open fronted thrush (see Appendix 7) boxes will be installed on trees around the perimeter of the site.

One opportunity for nesting swallows will be provided within the developed site. Swallows prefer to nest in covered structures. Provision can be made in open-fronted log-sheds, car ports or porches, although if using the latter, droppings can be an issue on cars or at the front door. A swallow nest cups could be installed in these areas. Alternatively, a purpose made covered nest box structure can be installed at the ridge of a gable wall or at the eaves of a building (See Appendix 8 for nest cup details and ridge overhang swallow nest boxes).

6.6 Maintenance of bird nesting and bat roosting features in perpetuity

The installed bat roosting features will be maintained in perpetuity with future occupiers being made aware of their purpose, function and importance by the developer at the point of sale of the dwellings. Ideally bat boxes should be installed on gable walls as close to the gable apex as possible.

6.7 Post development monitoring programme

On completion of work, confirmation of the works carried out and photographs of the works including retained access points and the bat mitigation features will be submitted to Natural Resources Wales.

It is considered that no further post-construction monitoring will be necessary of the bat boxes / bat bricks installed in the new dwellings. This is considered appropriate and in accordance with English Nature²²'s Bat Mitigation Guidelines (2004) for proportional mitigation (see Appendix 6).

Post-development monitoring of the brown long eared and lesser horseshoe roost in Building 6 will be undertaken for two years, following implementation of the mitigation measures to assess if the mitigation measures are effective. Monitoring will comprise at least one annual visit by a suitably qualified and licensed bat worker during the main summer flight season (1st of May to mid-August inclusive) to check for continued bat presence. The monitoring will comprise an internal inspection of the roost and an activity survey (dusk emergence or dawn re-entry). A report will be submitted to the Local Planning Authority following completion of the monitoring surveys together with the details of any proposed remedial measures required. This will be submitted within four weeks of undertaking the monitoring.

²² Natural England Guidance is used because no Welsh equivalent guidance has been produced by Natural Resources Wales.

7.0 References and bibliography

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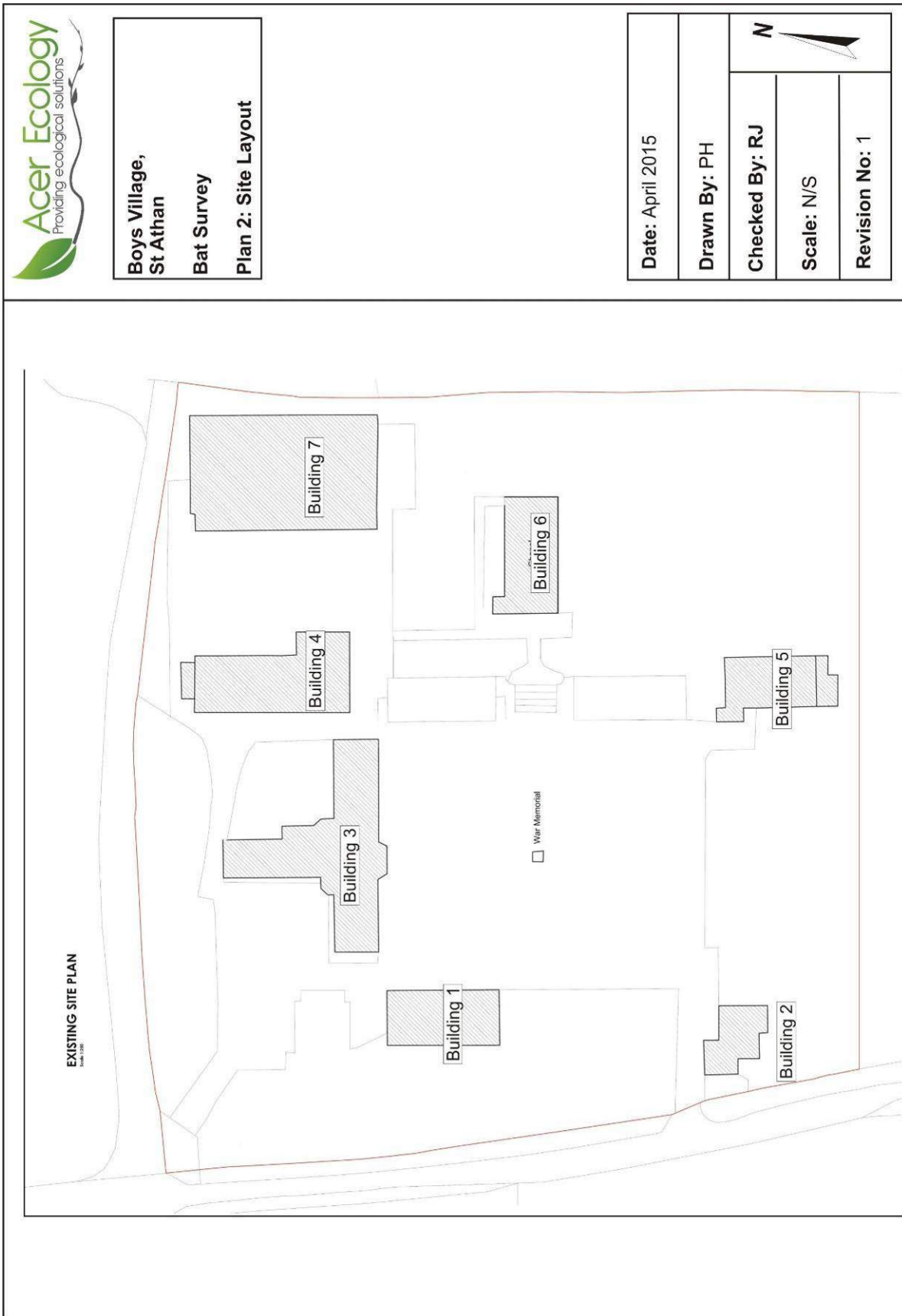
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Plan 2: Site Layout



Boys Village,
St Athan

Bat Survey

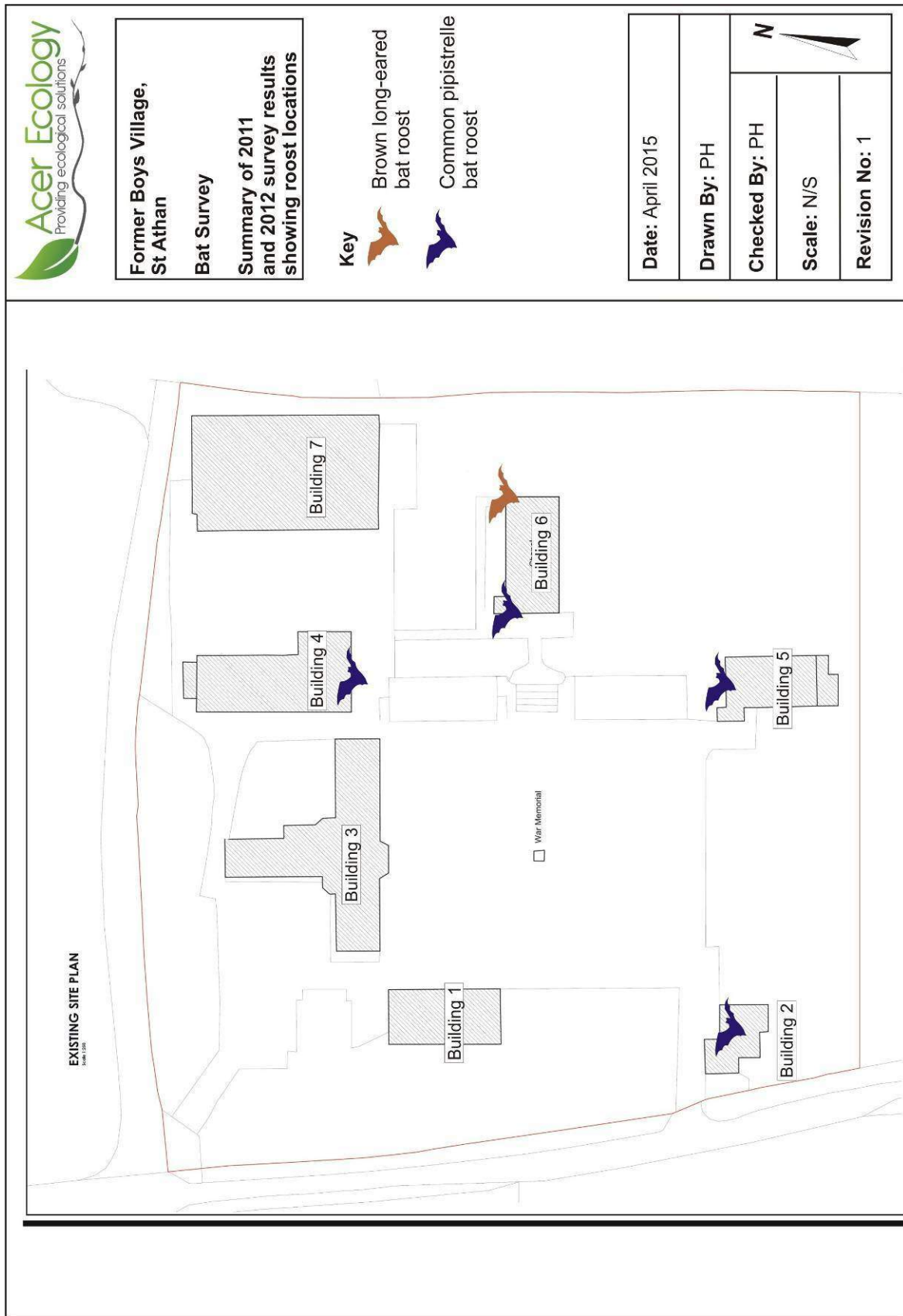
Plan 2: Site Layout

Date: April 2015	N 
Drawn By: PH	
Checked By: RJ	
Scale: N/S	
Revision No: 1	

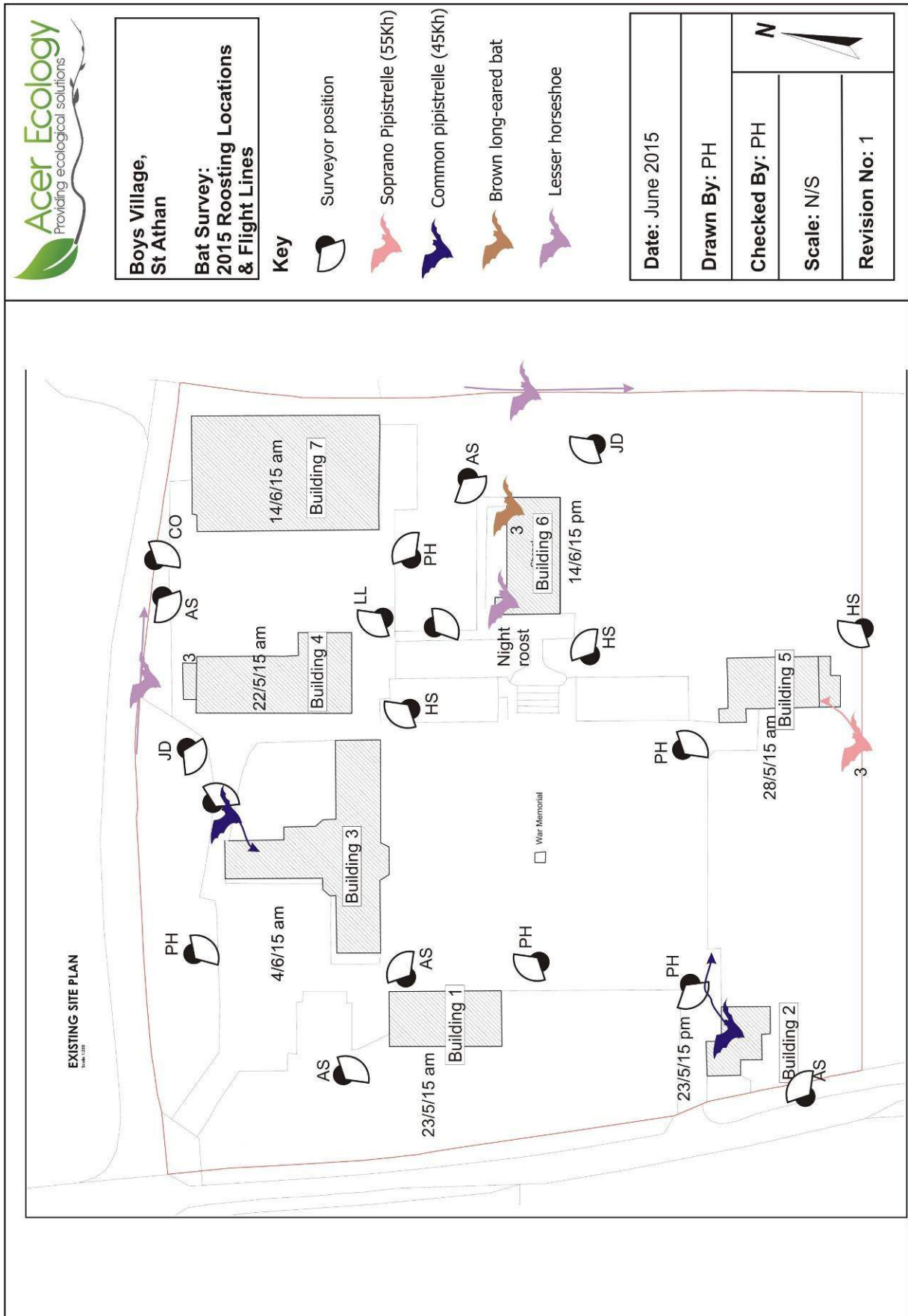
Plan 3: Development Proposals



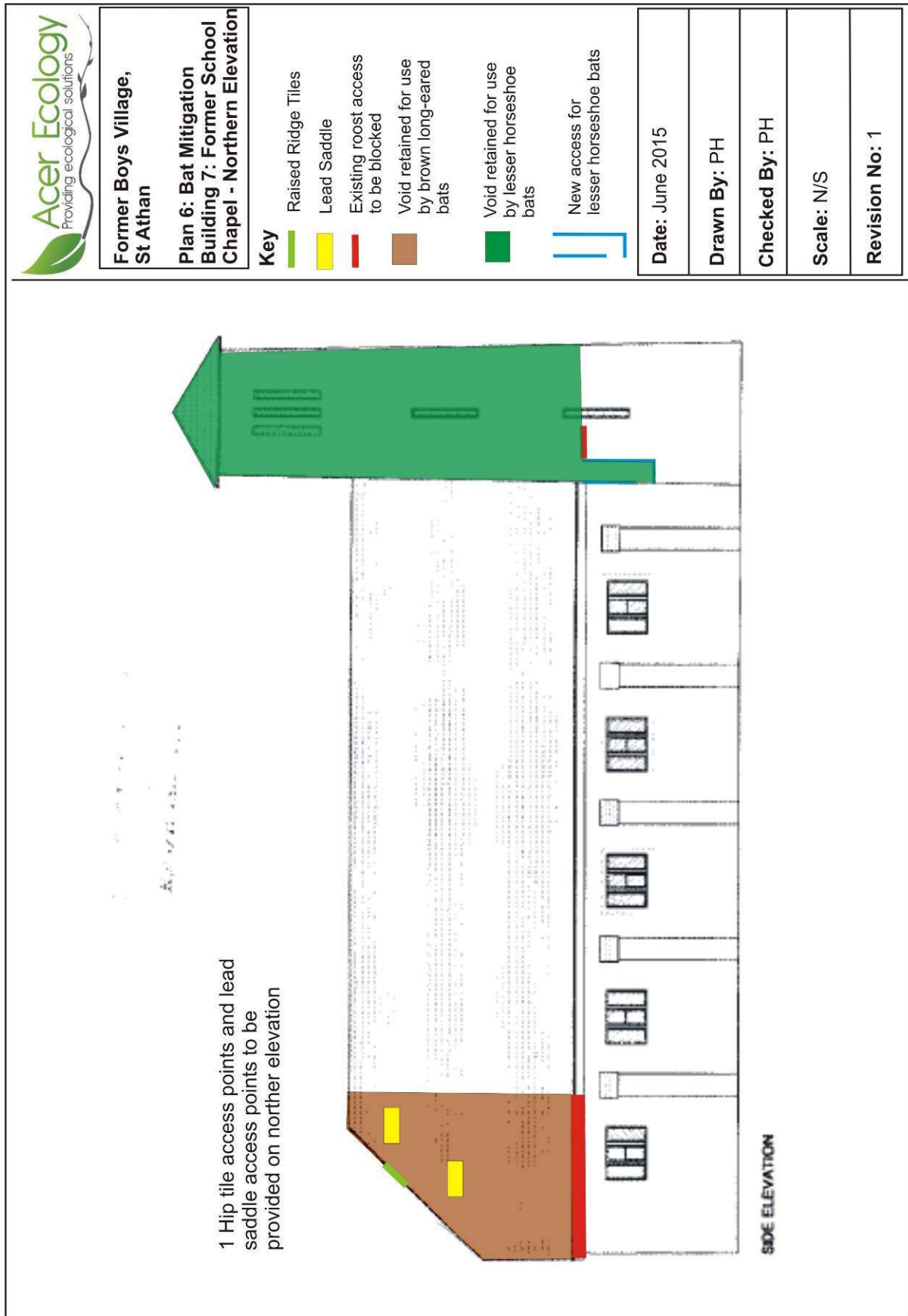
Plan 4: Summary of 2011 and 2012 survey results showing roosting locations



Plan 5: Proposed Surveyor Positions, 2015 Roosting Locations & Flight Lines



Plan 6: Proposed Mitigation – Former School Chapel



Acer Ecology

Appendix 1: Bat ecology and legislation protecting bats and their roosts

Bat ecology

There are 18 resident species of bat found in the UK, with additional species recorded as migrants or vagrants. All are small, nocturnal, flying, insectivorous mammals that are under considerable conservation threat and many having undergone massive population declines over the last century. Some species, such as pipistrelle bats still remain relatively common and widespread in the UK, while others, such as greater horseshoe bats, have an extremely restricted distribution.

Most bats will use a variety of roosts of different types throughout the year. The winter hibernation sites typically have cool, humid conditions with a stable microclimate and low levels of disturbance. Most British bats hibernate in caves, or artificial structures that fulfil such requirements such as mines, tunnels and cellars. Bats emerge from hibernation around late March or early April and move into transition or intermediary roosts. Around early May, female bats gather in colonies to form summer or maternity roosts, and it is here where they will give birth between late May and early July. A colony may consist of many individuals (sometimes hundreds of bats) of mixed age and sex. Roosts may be in a variety of situations, including tree holes, caves, buildings and other secure crevices or internal spaces with appropriate stable temperatures and humidity. Bats may change roost locations many times during the course of a year and colonies may split up and reform during this period. Males occupy solitary roosts in autumn, to which they attract females for mating.

Legislation

All British bat species and any place used for shelter or protection, or a breeding site or resting place (their roosts) are fully protected under the amended Wildlife and Countryside Act 1981 through inclusion in Schedule 5. The roosts are protected irrespective of whether bats are present at the time. All bats are also protected under Regulation 41 (and listed on Schedule 2) of the Conservation of Habitats & Species Regulations 2012 (the 'Habitats Regulations') (as amended) which defines 'European Protected species of animal'.

These pieces of legislation make it illegal to deliberately or recklessly:

- kill, injure or capture bats;
- disturb bats (whether it is a roost or not);
- damage, destroy, or obstruct access to bat roosts;
- possess or transport a bat or any part of a bat unless acquired legally;
- sell, barter or exchange bats or parts of bats.

Disturbance is defined as that which is likely to impair bats ability:

- to survive, to breed or reproduce, or to rear or nurture their young; or
- to hibernate or migrate; or
- to affect significantly the local distribution or abundance of the species to which they belong.

Habitats Regulations Licensing

Acer Ecology

If a European Protected Species will be affected by a development Natural Resources Wales (NRW) can issue licences under the Habitats Regulations to permit otherwise prohibited acts. Licences for certain activities can be granted providing “3 tests” are satisfied, that is:

1. the purposes of “preserving public health or safety, or for reasons of overriding public interest, including those of a social or economic nature and beneficial consequences of primary importance for the environment”.
2. there must be “no satisfactory alternative”; and.
3. the derogation is “not detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range”.

Licences are issued by NRW, with NRW assessing Test 3, and the LPA assessing tests 1 & 2 (where proposals are not subject to planning, then NRW alone will assess all three tests). Where Planning regulations apply, NRW will only issue a licence after determination of the planning application.

Planning Policy Wales (Edition 7, July 2014)

Section 5.5.12 of Planning Policy Wales (PPW) July 2014 states that ‘*Local planning authorities are under a duty to have regard to the requirements of the Habitats Directive in exercising their functions*’ and they should ‘*take the above three requirements for derogation into account when considering development proposals where a European protected species is present*’. The possession of planning consent does not alleviate or over-ride the requirements of the Habitats Regulations and is no guarantee that a derogation will be obtained.

Furthermore section 5.5.11 of Planning Policy Wales (PPW) July 2014 states that ‘*The presence of a species protected under European or UK legislation is a material consideration when a local planning authority is considering a development proposal which, if carried out, would be likely to result in disturbance or harm to the species or its habitat*’ and ‘*an ecological survey to confirm whether a protected species is present and an assessment of the likely impact of the development on a protected species may be required in order to inform the planning decision*’.

Natural Environment and Rural Communities (NERC) Act 2006

Under the NERC Act, Local authorities have a duty to have regard to the conservation of biodiversity in exercising their functions. The duty affects all public authorities and aims to raise the profile and visibility of biodiversity, to clarify existing commitments with regard to biodiversity, and to make it a natural and integral part of policy and decision making. Seven of the UK species of bat (soprano pipistrelle, barbastelle, Bechstein’s, noctule, brown long-eared, lesser horseshoe and greater horseshoe bats) have been listed on the UK Biodiversity Action Plans (2007) as conservation priorities. These species, in addition to common pipistrelle are also listed as species of principal importance for the conservation of biodiversity in Wales under the Natural Environment and Rural Communities (NERC) Act 2006.

Acer Ecology

Appendix 2A: Features for assessing the value of buildings for roosting bats²³

Likelihood of bats being present	Feature of the building or built structure and its location	Building 1	Building 2	Building 3	Building 4
Increased likelihood	• Pre 20th century or early 20th century construction.				
	• Agricultural buildings of traditional brick, stone or timber construction.				
	• Large and complicated roof void with unobstructed flying spaces.				
	• Large (>20 cm) roof timbers with mortise joints, cracks and holes.	✓			
	• Entrances for bats to fly through.	✓	✓	✓	✓
	• Poorly maintained fabric providing ready access points for bats into roofs and walls but at the same time not being too draughty and cool.	✓			
	• Roof warmed by the sun, in particular south facing roofs.		✓	✓	
	• Weatherboarding and/or hanging tiles with gaps especially on south facing walls.	✓	✓	✓	✓
	• Low level of disturbance by humans	✓	✓	✓	✓
	• For rarer species, building or built structure is located in the core area of the distribution.				
	• Buildings and built structures in proximity ²⁴ to each other providing a variety of roosting opportunities throughout the year.	✓	✓	✓	✓
	• Buildings or built structures close ²⁵ to good foraging habitat, in particular mature trees, parkland, woodland or wetland, especially in a rural setting.	✓	✓	✓	✓
• Building located close to known roosts ²⁶ .					
	Total	✓ = 7	✓ = 6	✓ = 6	✓ = 5
Decreased likelihood	• Modern, well maintained buildings or built structures that provide few opportunities for access by bats.				
	• Small cluttered roof space.				
	• Buildings and built structures comprised primarily of prefabricated steel and sheet materials.				
	• Cool, shaded, light or draughty roof voids.		✓		
	• Roof voids with a dense cover of cobwebs and no sections of clean ridge board.				
	• High level of regular disturbance.				
	• Highly urbanised location with few or no mature trees, parkland, woodland or wetland.				
• High levels of external lighting	✓	✓	✓	✓	
	Total	✓ = 1	✓ = 2	✓ = 1	✓ = 1

²³ Table 8.2 in Hundt (2012)

²⁴ No distance is defined within the BCT guidelines, however, 50m is used here.

²⁵ No distance is defined within the BCT guidelines, however, 200m is used here.

²⁶ No distance is defined within the BCT guidelines, however 250m is used here.

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Likelihood of bats being present	Feature of the building or built structure and its location	Building 5	Building 6	Building 7
Increased likelihood	<ul style="list-style-type: none"> Pre 20th century or early 20th century construction. 			
	<ul style="list-style-type: none"> Agricultural buildings of traditional brick, stone or timber construction. 			
	<ul style="list-style-type: none"> Large and complicated roof void with unobstructed flying spaces. 			
	<ul style="list-style-type: none"> Large (>20 cm) roof timbers with mortise joints, cracks and holes. 		✓	
	<ul style="list-style-type: none"> Entrances for bats to fly through. 	✓	✓	✓
	<ul style="list-style-type: none"> Poorly maintained fabric providing ready access points for bats into roofs and walls but at the same time not being too draughty and cool. 	✓	✓	
	<ul style="list-style-type: none"> Roof warmed by the sun, in particular south facing roofs. 		✓	
	<ul style="list-style-type: none"> Weatherboarding and/or hanging tiles with gaps especially on south facing walls. 		✓	
	<ul style="list-style-type: none"> Low level of disturbance by humans 	✓	✓	✓
	<ul style="list-style-type: none"> For rarer species, building or built structure is located in the core area of the distribution. 			
	<ul style="list-style-type: none"> Buildings and built structures in proximity to each other providing a variety of roosting opportunities throughout the year. 	✓	✓	✓
	<ul style="list-style-type: none"> Buildings or built structures close to good foraging habitat, in particular mature trees, parkland, woodland or wetland, especially in a rural setting. 	✓	✓	✓
	<ul style="list-style-type: none"> Building located close to known roosts. 			
	Total	✓ = 5	✓ = 8	✓ = 4
Decreased likelihood	<ul style="list-style-type: none"> Modern, well maintained buildings or built structures that provide few opportunities for access by bats. 			
	<ul style="list-style-type: none"> Small cluttered roof space. 			
	<ul style="list-style-type: none"> Buildings and built structures comprised primarily of prefabricated steel and sheet materials. 			✓
	<ul style="list-style-type: none"> Cool, shaded, light or draughty roof voids. 			
	<ul style="list-style-type: none"> Roof voids with a dense cover of cobwebs and no sections of clean ridge board. 			
	<ul style="list-style-type: none"> High level of regular disturbance. 			
	<ul style="list-style-type: none"> Highly urbanised location with few or no mature trees, parkland, woodland or wetland. 			
<ul style="list-style-type: none"> High levels of external lighting 	✓	✓	✓	
	Total	✓ = 1	✓ = 1	✓ = 2

Acer Ecology

Appendix 3: Raw data from dusk emergence and dawn re-entry surveys

22nd May 2015 – Building 4

Surveyor: Andrew Smith observing the northern and eastern side the building		
Time	Species	Activity
4:22	Common pipistrelle	Flying along eastern side of building towards church
4:42	Common pipistrelle	Heard not seen
Surveyor: Lea Likozar observing the southern end of the building		
Time	Species	Activity
4:17	Long-eared	Flying low to ground from west to east
4:20	Long-eared	Heard, not seen
4:25	Long-eared	Heard, not seen
4:25	Common pipistrelle	Heard, not seen
4:37	Common pipistrelle	Heard, not seen
4:38	Common pipistrelle	Heard, not seen
4:39	Soprano pipistrelle	Flew from west to east to the south of building
4:41	Lesser horseshoe	Flying close to ground flew into building, circling in and out of building before flying off towards the south
5:02	Soprano pipistrelle	Flew along western side of building towards Paul
Surveyor: Paul Hudson observing the western side of the building		
Time	Species	Activity
4:17	Long-eared	Flew in from north, flying in grassland to the west of the building for approximately 10 seconds before flying off to the south.
4:18	Common pipistrelle	Heard not seen
4:39	Soprano pipistrelle	Brief call. Heard, not seen
4:41	Common pipistrelle	Bat flew in from west and flew along hedgerow to the north of the building towards Andrew
4:57	Soprano pipistrelle	Brief call. Heard, not seen
5:05	Soprano pipistrelle	Flew along western side of building from the south and away from the site towards the north.

23rd May 2015 – Building 2

Surveyor: Paul Hudson observing the eastern and northern sides of the building		
Time	Species	Activity
9:38	Common pipistrelle	Emerged from roof on north-eastern part of building.
9:41-10:13	Common pipistrelle	Up to two common pipistrelles foraging in grassland area between buildings 2 and 5 constantly throughout survey. Occasionally flying in close proximity to building.
9:39	Noctule	Flying high over site
9:41	Noctule	Flying high over site
9:44	Noctule	Heard not seen
10:18	Noctule	Heard not seen
Surveyor: Andrew Smith observing the southern and western side the building		
Time	Species	Activity
9:39	Common pipistrelle	Foraging in grassland to the east of building
9:41-10:13	Common pipistrelle	Up to two common pipistrelles foraging in grassland area between buildings 2 and 5 constantly throughout survey. Occasionally flying in close proximity to building
9:42	Soprano pipistrelle	Foraging in hedgerow to the west of building
9:47	Soprano pipistrelle	Foraging in hedgerow to the west of building
10:06	Soprano pipistrelle	Flying along hedgerow from south to north to the west of building
10:16	Soprano pipistrelle	Flying along hedgerow from south to north to the west of building

Acer Ecology

10:28	Soprano pipistrelle	Flying along hedgerow from south to north to the west of building
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24th May 2015 – Building 1

Surveyor: Paul Hudson observing the eastern and southern sides of the building		
Time	Species	Activity
3:35	Common pipistrelle	Heard not seen
3:40	Long eared	Heard not seen
3:48	Soprano pipistrelle	Bat flying to the east of the building from north to south and then further south away from the building
4:01	Long eared	Heard not seen
4:22	Common pipistrelle	Heard not seen
4:32	Common pipistrelle	Bat flying to the east of the building from north to south and then further south away from the building
4:34	Long eared	Heard not seen
Surveyor: Andrew Smith observing the northern and western sides the building		
Time	Species	Activity
3:34	Soprano pipistrelle	Flying along hedgerow to the west of building from South towards North.
3:47	Common pipistrelle	Heard not seen
3:48	Soprano pipistrelle	Bat flying to the east of the building from north to south
4:00	Common pipistrelle	Heard not seen
4:20	Common pipistrelle	Heard not seen
4:24	Common pipistrelle	Heard not seen
4:32	Common pipistrelle	Bat flying to the east of the building from north to south
4:41	Common pipistrelle	Heard not seen

28th May - Building 5

Surveyor: Hal Starkie observing the southern and eastern sides the building		
Time	Species	Activity
3:49	Noctule	Heard not seen
3:52	Noctule	2 bats flying high over site from west to east
3:53	Common pipistrelle	Flying in grassland to the south of building
3:56	Common pipistrelle	Flying in grassland to the south of building
3:59	Soprano pipistrelle	Heard not seen
4:02	Soprano pipistrelle	Heard not seen
4:03	Common pipistrelle	3 bats constantly flying around close to building
4:19		
4:20	Common pipistrelle	2 bats returned to building entering via the open doorway. Internal roosting location not determined.
4:25	Common pipistrelle	1 bat returned to building entering via the open doorway. Internal roosting location not determined.
Surveyor: Paul Hudson observing the northern and western sides of the building		
Time	Species	Activity
3:47	Common pipistrelle	Heard, not seen
3:49	Noctule	Heard not seen
3:52	Noctule	Heard not seen
3:52	Soprano pipistrelle	Heard not seen
3:56	Undetermined pipistrelle (50Khz)	Heard not seen
3:58	Lesser horseshoe	Heard not seen
3:59	Common pipistrelle	Heard, not seen
4:01	Common pipistrelle	Heard, not seen

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4:02	Soprano pipistrelle	Heard bnot seen. Foraging with feeding buzzes heard
4:07-4:13	Common pipistrelle	1 individual in grassland to west of building. Intermittently flying close to building,
4:17	Common pipistrelle	Heard not seen
4:22	Common pipistrelle	Heard not seen. Common pipistrelle flying close to north-eastern corner of building before flying off to the east and south.
4:24	Common pipistrelle	Heard not seen.
4:25	Common pipistrelle	Heard not seen.
4:29	Common pipistrelle	Heard not seen.

4th June - Building 3

Surveyor: Hal Starkie observing the southern and eastern sides the building		
Time	Species	Activity
3:57	Soprano pipistrelle	Bat foraging in grassland directly in front of western end of building
3:59	Noctule	Heard not seen
4:08	Common pipistrelle	Heard not seen
4:15	Common pipistrelle	Heard not seen
Surveyor: Paul Hudson observing the northern and western sides of the building		
Time	Species	Activity
3:55	Lesser horseshoe	Heard not seen
3:57	Soprano pipistrelle	Heard not seen
4:02	Common pipistrelle	Heard not seen
4:04	Common pipistrelle	Heard not seen
Surveyor: Andrew Smith observing the southern and western sides the building		
Time	Species	Activity
3:57	Soprano pipistrelle	Bat foraging in grassland directly in front of western end of building.
4:12	Long-eared	Seen not heard
4:16	Common pipistrelle	Seen not heard
4:20	Common pipistrelle	Seen not heard
Surveyor: Jess Dangerfield observing the northern and eastern sides the building		
Time	Species	Activity
3:53	Common pipistrelle	Heard, not seen
3:56	Lesser horseshoe	Commuting from west to east along hedgerow to north of building
4:04	Common pipistrelle	Bat returned to roost entering building via opening at northern end of building
	Common pipistrelle	Bat returned to roost entering building via opening at northern end of building
4:10	Common pipistrelle	Bat returned to roost entering building via opening at northern end of building
4:12	Common pipistrelle	Bat returned to roost entering building via opening at northern end of building

14th June 2015 - Building 7

Surveyor: Paul Hudson observing the southern and western sides the building		
Time	Species	Activity
3:32	Common pipistrelle	Heard not seen
3:59	Noctule	Heard not seen
4:10	Long-eared	Heard not seen
4:12	Long-eared	Heard not seen
Surveyor: Cari Ormerod observing the northern and western sides of the building		
Time	Species	Activity
3:55	Lesser horseshoe	Heard not seen
3:57	Soprano pipistrelle	Heard not seen

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4:02	Common pipistrelle	Heard not seen
4:04	Common pipistrelle	Heard not seen
4:16	Common pipistrelle	Commuting from west to east across the site directly in front of the building

14th June 2015 – Building 6

Surveyor: Jess Dangerfield observing the south-east corner of the building		
Time	Species	Activity
21:44	Soprano Pipistelle	Flew from the west side of the building to the east side into the trees
21:47	Soprano Pipistelle	Flew near the east Elevation
21:30	Soprano Pipistelle	Foraging along the tree line to the east elevation
21:30	Common Pipistelle	Foraging along the tree line to the east elevation
22:06	Myotis Species	Possible building entrance through south elevation windows
22:14	Soprano Pipistelle	Foraging Heard not seen
22:14	Common Pipistelle	Foraging Heard not seen
22:25	Soprano Pipistelle	Foraging Heard not seen
22:29	Myotis Species	Heard not seen
22:37	Common Pipistelle	Flying from north - east elevation towards the tree line
22:53	Soprano Pipistelle	Heard not seen
22:53	Common Pipistelle	Heard not seen
22:51	Soprano Pipistelle	Heard not seen
22:56	Soprano Pipistelle	Heard not seen
23:12	Serotine Pipistelle	Heard not seen
Surveyor: Hal Starkie observing the southern and western elevations of the building		
Time	Species	Activity
21:52	Soprano Pipistelle	Heard not seen
21:54	Common Pipistelle	Foraging at the south - east and southern elevation of the building, until 22:14
22:24	Common Pipistelle	Heard not seen
22:37	Soprano Pipistelle	Flew from west to east over the building structure
22:43	Myotis Species	Flew from west to east over the building structure
22:52	Soprano Pipistelle	Heard not seen
Surveyor: Paul Hudson observing the north-eastern corner of the building		
Time	Species	Activity
21.47	Soprano Pipistelle	Heard not seen
21.47	Common Pipistelle	Heard not seen
21:50	Soprano Pipistelle	Heard not seen
21:51	Common Pipistelle	Flew above the building structure south to north
21:54	Soprano Pipistelle	Heard not seen
21:54	Common Pipistelle	Heard not seen
21:55	Serotine Pipistelle	Heard not seen
21.57	Common Pipistelle	Flew south to east at a height from head to roof structure
21:58	Common Pipistelle	Heard not seen
21:59	Common Pipistelle	Heard not seen
21:59	Pipistelle Species	Heard not seen
22:00	Pipistelle Species	Flew from south east corner to the west
22:00	Common Pipistelle	Heard not seen
22.00	Soprano Pipistelle	Heard not seen
22:02	Common Pipistelle	Heard not seen
22:03	Common Pipistelle	Heard not seen
22:04	Serotine Pipistelle	Heard not seen
22:05	Common Pipistelle	Emerged from the church structure, may have flew in earlier

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22:05	Common Pipistelle	Flew south east to west of building
22:07	Common Pipistelle	Flew from the south west corner to the east of the building
22:10	Soprano Pipistelle	Heard not seen
22:10	Common Pipistelle	Heard not seen
22:13	Common Pipistelle	Heard not seen
22:15	Common Pipistelle	Heard not seen
22:16	Soprano Pipistelle	Heard not seen, Flew north to South of building
22:16	Common Pipistelle	Heard not seen
22:20	Common Pipistelle	Heard not seen
22:28	Common Pipistelle	Heard not seen
22:30	Lesser Horseshoe Bat	Heard not seen
22:31	Lesser Horseshoe Bat	Heard not seen
22:31	Common Pipistelle	Heard not seen
22:33	Common Pipistelle	Heard not seen
22:37	Common Pipistelle	Heard not seen
22:39	Noctule	Heard not seen
22:39	Lesser Horseshoe Bat	Heard not seen
22:44	Lesser Horseshoe Bat	Seen flying into tower and up the access hole. Perching on ceiling.
22:44	Common Pipistelle	Heard not seen
Surveyor: Andrew Smith observing the northern and eastern elevations of the building		
Time	Species	Activity
21:22	Soprano Pipistelle	Heard not seen
21:50	Soprano Pipistelle	Flight around the grassland in front of the church building and treeline to the north, between head and roof height
21:51	Common Pipistelle	Heard not seen
21:52	Common Pipistelle	Flew around the grassland in front of the church building and treeline to the north, between head and roof height
21:52	Soprano Pipistelle	Flew around the grassland in front of the church building and treeline to the north, between head and roof height
21:53	Common Pipistelle	heard not seen
21:54	Common Pipistelle	flew between head and structure roof, use of trees to the east if structure
21:57	Common Pipistelle	flew between head and structure roof, emerged from the third large window
21:59	Pipistelle Species	heard not seen
22:02	Common Pipistelle	flew between head and structure roof, using the trees
22:03	Common Pipistelle	Heard not seen
22:05	Long-eared	Emerged from building via hole in ceiling
22:06	Long-eared	Emerged from building via hole in ceiling
22:07	Long-eared	Emerged from building via hole in ceiling
22:07	Soprano Pipistelle	Heard not seen
22:15	Soprano Pipistelle	Heard not seen
22:24	Common Pipistelle	Heard not seen
22:26	Soprano Pipistelle	Heard not seen
22:35	Lesser Horseshoe Bat	Heard not seen
22:36	Myotid Species	Heard not seen
22:37	Soprano Pipistelle	Heard not seen
22:38	Common Pipistelle	Heard not seen

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22:40	Lesser Horseshoe Bat	Heard not seen
22:43	Common Pipistelle	Heard not seen
22:43	Common Pipistelle	Heard not seen
22:43	Lesser Horseshoe Bat	Heard not seen
22:45	Common Pipistelle	Heard not seen
22:51	Noctule	Heard not seen

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Appendix 4: Photographic record, April 2015, September and August 2012



Plate 1: Building 1 – South-east elevation



Plate 2: Eroded soffit of building 1



Plate 3: Access into soffit box of building 1

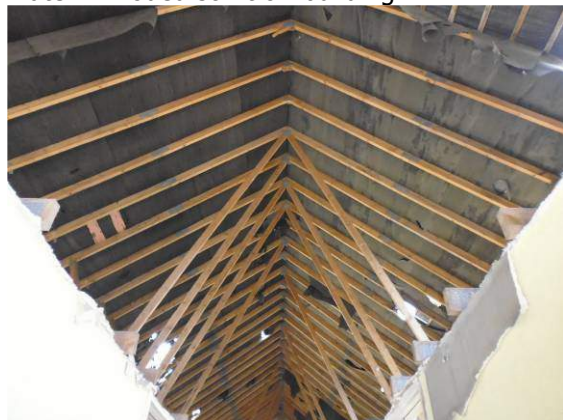


Plate 4: Exposed timbers and roof structure of building 1



Plate 5: Loose lining within building 1



Plate 6: Building 2 - Northern elevation

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Plate 7: Numerous missing tiles and exposed cavities behind fascias of building 2



Plate 8: Internal roof structure of building 2



Plate 9: Building 3: South-east elevation



Plate 10: Building 3 - North-west elevation



Plate 11: Gaps into soffits of building 3



Plate 12: Internal view of roofspace of northern section of building 3

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Plate 13: Southern elevation of building 4



Plate 14: Eroded bargeboards at southern elevation



Plate 15: Internal view of central portion of building 4



Plate 16: Building 4 – Roost Access (2012)



Plate 17: Gaps between plaster roof and slates at south of building 4



Plate 18: Building 5 – Western elevation

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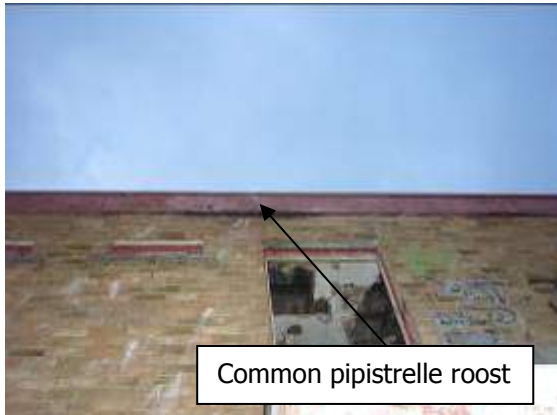


Plate 19: Gaps between fascias of building 5 (2012)



Plate 20: Holes in concrete ceiling of building 5



Plate 21: Building 6: South-western elevation



Plate 22: Building 6: North-western elevation



Plate 23: Building 6: Slipped tiles and gaps in roof



Plate 24: Hole in the bargeboard of the western elevation of building 6, near the bell tower



Plate 25: Building 6: Eastern elevation



Plate 26: Stand of broadleaved trees to east of

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Plate 27: Internal view of building 6

building 6



Plate 28: Access to roof void at east of building 6 (2012)



Plate 29: Internal view of void

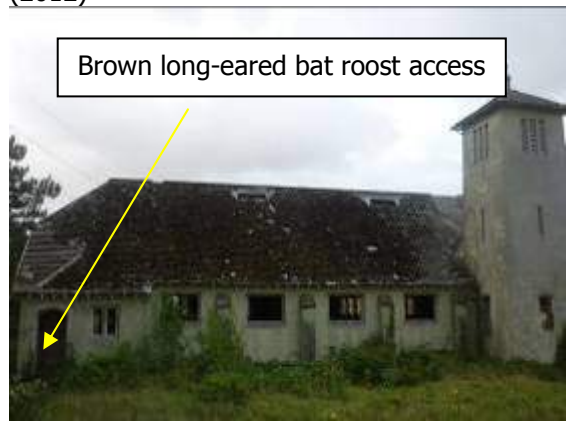


Plate 30: Building 6 – Northern elevation (2012)



Plate 31: Building 6 – Western elevation (2012)



Plate 32: Bell tower



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Plate 33: Building 6 – Central Section of Roof Void from below showing coombed ceiling (2012)



Plate 34: Building 7 – South-western elevation



Plate 35: Internal view of building 7 showing high number of large holes in roof



Plate 36: Building 7 – Internal view



Plate 37: Gaps beneath asbestos bargeboards at northern elevation of building 7



Plate 38: Moderate sized gap at apex of northern elevation wall




Plate 39: Cavity wall at northern elevation



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Appendix 5: Guidelines for Proportionate Mitigation

Low	Roost status	Mitigation/compensation requirement (depending on impact)
Conservation significance 	Feeding perches of common/rarer species	Flexibility over provision of bat-boxes, access to new buildings etc. No conditions about timing or monitoring
	Individual bats of common species	
	Small numbers of common species. Not a maternity site	Provision of new roost facilities where possible. Need not be exactly like-for-like, but should be suitable, based on species' requirements. Minimal timing constraints or monitoring requirements
	Feeding perches of Annex II species	
	Small numbers of rarer species. Not a maternity site	
Hibernation sites for small numbers of common/rarer species	Timing constraints. More or less like-for-like replacement. Bats not to be left without a roost and must be given time to find the replacement. Monitoring for 2 years preferred.	
Maternity sites of common species		
	Maternity sites of rarer species	Timing constraints. Like-for-like replacement as a minimum. No destruction of former roost until replacement completed and usage demonstrated. Monitoring for at least 2 years.
	Significant hibernation sites for rarer/rarest species or all species assemblages	
	Sites meeting SSSI guidelines	Oppose interference with existing roosts or seek improved roost provision. Timing constraints. No destruction of former roost until replacement completed and significant usage demonstrated. Monitoring for as long as possible.
High	Maternity sites of rarest species	

Appendix 6: House Sparrow Nest Box

Schwegler 1SP Sparrow Terrace

Sparrows are gregarious and prefer to nest close to each other, so this triple-nest box provides room for three families under one roof. It's made from long-lasting, breathable woodcrete to provide the optimum environment for sparrows to nest and rear their chicks.



Positioning: On buildings of all kinds in typical habitats including industrial buildings and barns at a height of at least 2m (eg. under eaves)

Suitable for: House and tree sparrows and individual redstarts

Material: Woodcrete PLUS

Height: 240mm

Width: 430mm

Depth: 220mm

Weight: 15kg

Appendix 7: Open Fronted Thrush Nest Box



Environmental changes such as urbanisation and deforestation have contributed to a shortage of natural nesting sites and has played a part in the decline of many UK native bird species. This FSC-certified wood nest box provides a man-made alternative to help conserve our wild birds.

With its open front and larger size, this nest box has been specially designed for blackbirds, but you may find that robins and wrens are also attracted to this box. Blackbirds can have up to five successful broods in one year so don't remove any old nests until the breeding season is over (October onwards).

Where to Site

Choose a sheltered, shaded spot at least 2 m above ground. Fix to a tree or wall using the hanger at the top of the box.

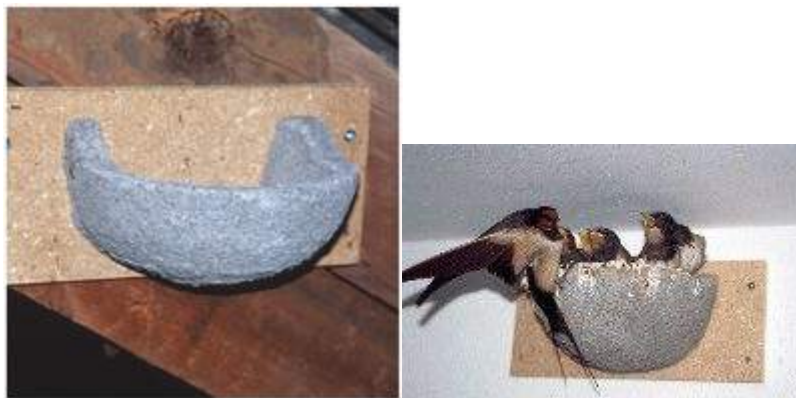
Cleaning and Hygiene

To ensure late-breeding birds are not disturbed in the nest, leave cleaning until October. Completely remove all nest material from the box. If further cleaning is required, use hot water, not pesticides. The use of gloves is recommended, washing hands afterwards.

Appendix 8: Swallows Nest

Schwegler No 10 Swallow Nest

It is important that swallows have access to the nest during the breeding period; Swallows can occupy the nests as soon as they return in March / April from their winter quarters in Africa.



Positioning: Distance between top of nest and ceiling should be at least 6 cm. Although Barn Swallows are sociable birds, the nests should not be placed directly adjacent to one another but at intervals of approximately 1 m.

Site: Inside buildings of all kinds, porches, livestock sheds, barns, sewage works, etc. Always ensure unobstructed access through open windows and skylights.

Material: Nesting bowl made of wood-concrete and wooden panel of formaldehyde-free chipboard.

Height: 110mm

Length: 250mm

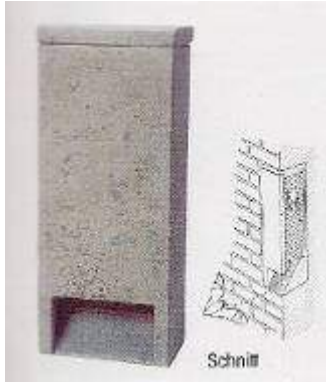
Depth: 140mm

Weight: 1kg approx.

Ridge Overhang Swallow Nest box



Appendix 9: Examples of Bat Boxes and Bricks Suitable for Buildings



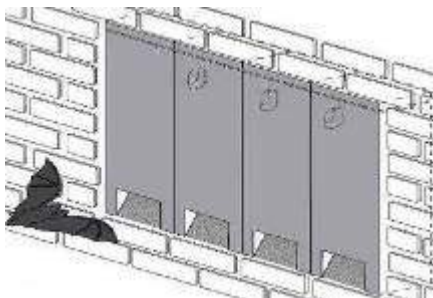
Schwegler 1FR can be installed within brick masonry just leaving the entrance and can be rendered over.



Ibstock Enclosed Bat Box B is designed specifically for the pipistrelle bat.



Schwegler WI integral Summer & Winter Bat Box.



Schwegler 2FR Bat Tube is the same design as the 1FR but with holes in the sides. Multiple tubes to be placed next to each other to form a much larger roost.



Schwegler 27 wall can be installed within brick masonry. It can be rendered over.



Schwegler 1FQ wall-mounted bat box.



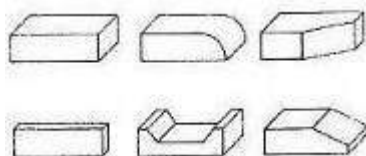
Schwegler 1FE Bat Access Panel can be surface-mounted or integrated. The open back enables bats access through exterior walls.



Ibstock Bat Box with Engraved Motif C is designed specifically for the pipistrelle bat and is available in all brick colours.



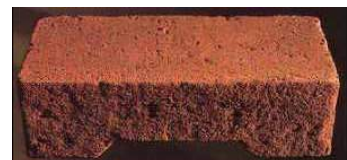
Ibstock Free Access Bat Box allows bats to access the cavity wall of the building.



Modified bricks for creating bat access points. A standard brick is shown top left. Purpose made bat bricks can also be used.



Norfolk Bat Brick allows bats to access the cavity wall of the building. The slits are the perfect size for Natterer's bat, Daubenton's bat, Brandt's bat and Brown long-eared.



Marshall's Bat Access Brick (Also available in stone) allows bats access into the cavity wall of the building.