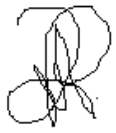
Bat Survey Report

Kingston Cottage, West Grafton, Marlborough, Wiltshire, SN8 3BY

Surveys conducted May-July 2023

Document Control Sheet

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	Name	Position	Signature	Date
Prepared by:	Nick Kirke	Ecologist	NK	03/07/23
Checked by:	Lisha Price	Ecologist		04/07/23

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SUMMARY

An internal and external daytime inspection for evidence of bats and bat roosting potential was conducted by ecologists from from ABR Ecology Ltd on the 21st of March 2023 at Kingston Cottage, Marlborough.

The proposed works seek to add a double storey extension to the North elevation of the building.

The Site consists of a detached house in the rural area of West Grafton, Wiltshire.

The building was carefully inspected, and the bat roosting potential was assessed according to the scale negligible, low, moderate, or high and the house was deemed to have moderate bat roosting potential.

Bats were recorded emerging on the first survey and as such, three bat activity, dusk and dawn, surveys were carried out during optimal weather conditions over a period of 2 months to illustrate the use of the building as a bat roost over a period of time. Surveys needed to take place between May and September, with two surveys during the bat maternity period May to August.

A total of five bat access points and five roosting areas were identified during the surveys.

Roost A is a day roost for one common pipistrelle under the hanging tiles of the dormer on the south side of the NW dormer.

Roost B is a day roost for one common pipistrelle under the hanging tiles of the dormer on the south side of the NW dormer.

Roost C is a day roost for one common pipistrelle under a roof tile by the gutter-line on the south elevation.

Roost D is a day roost for one common pipistrelle under a roof tile on the northern side of the roof.

Roost E is a day roost for one common pipistrelle under the barge board on the northern elevation.

The planned works will destroy roosts D and E. Two day-roosts for a total of two common pipistrelles will be destroyed due to the planned works it will be necessary to apply for a European Protected Species Licence (EPS) with Natural England (NE) and a bat mitigation plan will need to be designed from the survey results to minimise disturbance and reinstate bat roosting areas and access points on the house.

It is recommended that works only take place in the daytime to avoid any light or noise disturbance to bats or birds which may be nesting or foraging nearby.

1. INTRODUCTION

1.1 Site Description

Kingston Cottage, West Grafton, Marlborough, Wiltshire, SN8 3BY comprises a residential property consisting of a detached house in the rural area of West Grafton, Wiltshire. The immediate surrounding landscape comprises residential housing and gardens, an unlit country lane to the west, arable farmland to the east with good hedgerow connectivity and mature trees. The wider landscape comprises pasture and arable farmland with hedgerow connectivity and pockets of woodland. The River Bourne is situated 870m southwest of the property. The surrounding landscapes are considered to provide good foraging opportunities and commuting corridors for bats.

1.2 Proposed works

The proposed works seek to add a double storey extension to the North elevation of the building.

See Appendix 3 for proposed elevations

1.1 Aims of the survey

A Phase 1 bat survey was carried out by ABR Ecology Ltd with the aim to look for evidence of bats roosting and for the presence of structures within the buildings which hold bat roosting potential. Moderate bat roosting potential was identified, and Phase 2 emergence and dawn surveys were there carried out.

1.2 General information about bats and buildings

Loft spaces can potentially be utilised by bat species such as e.g. Brown Long-eared bats or Serotine bats which are known to commonly roost inside loft spaces. This can generally be discovered via droppings inside the loft as the droppings will stay protected from weather elements.

External features of the building can potentially be used as roosting sites by e.g. Pipistrelle bat species (*Pipistrellus* spp). Pipistrelle bats are the most common bats out of the British species and they are known to almost exclusively roost inside buildings utilising areas such as cavity walls, soffits and fascia boards, and between tiles and roofing felt. It is not practical to carry out a full physical examination of such building features, which is why activity surveys must be done during summer months (May-September) when the bats are fully active.

Access points of 1-2 centimetres only are used by bats to enter and exit their roosting sites. Most buildings will have gaps of such size in roof areas as ventilation of the roof void would otherwise not be possible.

2. METHODOLOGY

The surveys were undertaken in accordance with the methods described in the Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn), Bat Conservation Trust (BCT).

2.1 External and internal inspection - Phase 1

The buildings were surveyed during the daytime on 21st March 2023 by ecologists from ABR Ecology Ltd. Please consult the original report for the full methodology used.

The building was inspected for evidence of bats in the form of live or dead bats, droppings, urine staining and insect feeding remains such as moth and butterfly wings. A careful visual search using a Clulite torch was conducted of the loft space. An endoscope (Ridgid) was used for spot checks of internal and external gaps. The exterior of the building was surveyed for droppings on walls and window ledges.

2.2 Bat roosting potential – Phase 1

The buildings were examined internally and externally to identify structural features that hold bat roosting potential.

The bat roosting potential was assessed according to the scale negligible, low, moderate, high or confirmed:
Negligible: Negligible habitat features on site likely to be used by roosting bats. For example; a simple wooden garden shed, a corrugated iron barn or precast concrete modular garage may fit this category.
Low: A structure with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost Sites do not provide enough space, shelter, protection, appropriate conditions and/ or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for maternity or hibernation).
Moderate: A structure with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions, and surrounding habitat but unlikely to support a roost of high conservation status.
High: A structure with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat.
Confirmed: This category is used where evidence of bats such as live or dead bats or bat droppings are present, or where there are records of a bat roost in the building.

2.3 Emergence survey methodology - Phase 2

Emergence surveys of the buildings were conducted by Sarah Wrenn, Nick Kirke (Bat licence 2020-50736), Ashley Johnson (2022-10735) and Myfanwy Price of Plan Ecology Ltd on 19th May and 13th June 2023. The surveys started 15 minutes before the official sunset and were completed 1½ hour after sunset. Bat passes were recorded with EchoMeter Touch 2 pro bat detectors. Infrared cameras (Sony AX53) and associated equipment was used to assist the surveys. A series of large infrared lights are used to light up areas for the camera once it is dark enough to use night mode.

2.4 Dawn survey methodology - Phase 2

A dawn survey of the building was conducted by Nick Kirke, Ashley Johnson and Lisha Price of Plan Ecology Ltd on 2nd July 2023. The survey began 2 hours before official sunrise time and finished 15 minutes after. Bat passes were recorded with EchoMeter Touch bat detectors. Dawn surveys, in general, provide a better overview of a building as the morning light increases the visibility of any bats flying around to enter their roost, and the bats tend to spend longer time on re-entry than they will on emergence. The bats may do a "swarming behaviour" in the morning just outside of their roost access point. Infrared cameras (Sony AX53) and associated equipment was used to assist the surveys. A series of large infrared lights are used to light up areas for the camera when it is dark enough to use night mode.

2.5 Weather conditions

This information was taken from the BBC Weather online forecast for Marlborough, to illustrate that the survey was conducted during suitable weather conditions. Bats are generally fully active in the months of May - September at temperatures above 10°C if there are favourable weather conditions such as no strong winds (less than 15 mph) and no overnight rain.

Survey date	Sunset/ Sunrise	Weather 22:00/04:00	Temp	Wind speed	Humidity
19th May 2023	20:57	Clear	13°C	6 mph	75%
13th June 2023	21:24	Clear	21°C	8 mph	53%
2nd July 2023	04:54	Clear	12°C	7 mph	83%

2.6 Sound Analysis

The recordings made during the surveys were analysed on kaleidoscope software. All bat call recordings were compared to published reference material such as British Bat Calls Jon Russ (2012) and to a private reference library of previous recordings made from known bat species.

3. RESULTS

3.1 External and internal inspection results – Phase 1

Bat roosting potential: The building was carefully inspected, and the potential features were examined in the accessible spaces using an endoscope. Bat roosting potential was identified in the form of the barge boards and hanging wall tiles on the dormers. The bat roosting potential was assessed according to the scale negligible, low, moderate, or high and the house was deemed to have moderate bat roosting potential.

See ABR Ecology Ltd Preliminary Bat Roost Assessment for photographs.

Evidence of bats: No evidence of bats was found during the roost assessment.

3.2 Emergence survey results – Phase 2

19th May 2023: Common pipistrelle (*Pipistrellus pipistrellus*), Noctule (*Nyctalus noctula*) and Serotine (*Eptesicus serotinus)* bats were recorded and observed forging and commuting near the property.

One Common pipistrelle emerged from NW dormer hanging wall tile on the south face.
One Common pipistrelle emerged from roof tile on South elevation near gutter-line.

13th June 2023: Myotis species and Serotine (*Eptesicus serotinus)* bats were recorded foraging near the property.

One Common pipistrelle emerged hanging wall tile dormer right hand side.

Dawn survey results – Phase 2

2nd July 2023: Common pipistrelle and Noctule bats were seen foraging near the building.

One Common pipistrelle was recorded entering roof tiles near the hip end on the North elevation.

One Common pipistrelle was recorded entering under barge board on the North elevation.

See Appendix 1 for activity survey details.

3.3 Identified Bat Roosting Areas

A total of five bat access points and five roosting areas were identified during the surveys.

Roost A is a day roost for one common pipistrelle under the hanging tiles of the dormer on the south side of the NW dormer.

Roost B is a day roost for one common pipistrelle under the hanging tiles of the dormer on the south side of the NW dormer.

Roost C is a day roost for one common pipistrelle under a roof tile by the gutter-line on the south elevation.

Roost D is a day roost for one common pipistrelle under a roof tile on the northern side of the roof.

Roost E is a day roost for one common pipistrelle under the barge board on the northern elevation.

See Appendix 2 for position of bat access points.

4. ASSESSMENT

4.1 Constraints on study information

All accessible areas of the building could be surveyed without restrictions.

The phase 1 survey was carried out on one visit during the month of March. As such, seasonal variations could not be observed and potentially only a selection of all species that occur within the survey area will have been noted. The Survey therefore provides a general assessment of potential nature conservation value. However, it is considered that the combination of biological records from the desk study and the site visit provides an accurate representation of the various species and habitat types present or potentially present within the survey area.

Bat survey results are generally considered to be valid within 18 months of the survey date or until the next active bat season of May-September. The County Council Ecologists and/or Natural England may ask for updated surveys if the reports are older than one year.

4.2 Potential impacts on bat foraging and commuting habitat.

There will be no negative impact on bat commuting and foraging areas as the building will not increase significantly in footprint enough to have an effect.

4.3 Legislation and policy guidance

As population numbers have fallen, all bats and their roosts are protected under The Wildlife and Countryside Act 1981 (as amended) and The Conservation of Habitats and Species Regulations 2017.

Under this legislation it is an offence to:

- deliberately capture (or take), injure or kill a bat;
- intentionally, recklessly or deliberately disturb a bat (in relation to the Wildlife and Countryside Act 1981 (as amended) the offence applies whilst the species is occupying a structure or place which it uses for shelter or protection; in relation to the Conservation of Habitats and Species Regulations 2017 it applies anywhere);
- damage or destroy the breeding or resting place (roost) of a bat;
- possess a bat (alive or dead), or any part of a bat;
- intentionally or recklessly obstruct access to a bat roost;
- sell (or offer for sale) or exchange bats (alive or dead), or parts of bats.

Please refer to the original legislation for the definitive interpretation.

5. RECOMMENDATIONS

5.1 Discussion of results

A total of five bat access points and five roosting areas were identified during the surveys.

Roost A is a day roost for one common pipistrelle under the hanging tiles of the dormer on the south side of the NW dormer.

Roost B is a day roost for one common pipistrelle under the hanging tiles of the dormer on the south side of the NW dormer.

Roost C is a day roost for one common pipistrelle under a roof tile by the gutter-line on the south elevation.

Roost D is a day roost for one common pipistrelle under a roof tile on the northern side of the roof.

Roost E is a day roost for one common pipistrelle under the barge board on the northern elevation.

The planned works will destroy roosts D and E. Two day-roosts for a total of two common pipistrelles will be destroyed due to the planned works it will be necessary to apply for a European Protected Species Licence (EPS) with Natural England (NE) and a bat mitigation plan will need to be designed from the survey results to minimise disturbance and reinstate bat roosting areas and access points on the house.

5.2 Survey Effort

The building was deemed to have moderate bat roosting potential and two bat activity surveys were recommended. Following emerging bats on the first survey a further survey was recommended as there were confirmed roosts present. Three activity surveys were therefore carried in accordance with the Bat Conservation Trust Bat Survey Guidelines. These guidelines are used by Local Planning Authority ecology team during the planning application process to determine the level of survey effort that is needed.

Activity dusk and dawn surveys were conducted over a period of about 2 months to illustrate the use of the building as a bat roost over a period of time. The surveys were conducted during a time of the year when bats are generally fully active, and a bat maternity roost would be present and were done during optimal weather conditions.

A total of five bat access points and five roosting areas were identified during the surveys.

Roost A is a day roost for one common pipistrelle under the hanging tiles of the dormer on the south side of the NW dormer.

Roost B is a day roost for one common pipistrelle under the hanging tiles of the dormer on the south side of the NW dormer.

Roost C is a day roost for one common pipistrelle under a roof tile by the gutter-line on the south elevation.

Roost D is a day roost for one common pipistrelle under a roof tile on the northern side of the roof.

Roost E is a day roost for one common pipistrelle under the barge board on the northern elevation.

See Appendix 4 for roosts impacts.

No further surveys are recommended to prepare for this particular scenario. It is not believed that additional surveys could add any further information to aid the licence and design the bat mitigation plan.

Ecological Enhancement Opportunities

The National Planning Policy Framework (NPPF), issued in March 2012 (Updated 2021), states that 'development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate.'
Recommendations for ecological enhancement are provided below….

- Minimising light and noise pollution on the site. In particular minimising the hours the construction site is lit.
- Nesting bird potential can be enhanced with the inclusion of a bird brick.

6. Bat Mitigation Plan

Timing schedule for works: Removal of roof tiles and roofing materials should be carried out when overnight temperatures are above 8°C for four consecutive nights to safeguard any hibernating bats which may be present, optimal times to undertake the destructive works are when food sources are abundant between April and October. If roof or wall areas would be suddenly exposed during frost the bats would be unable to move and save themselves.

Temporary Bat Roost: One 1FF Schwegler Bat Box or similar will be put up on a suitable tree on site as a safe place to move any bats to. The licenced ecologist will identify a suitable tree and bat box prior to installation. This box will need to stay in place until completion of all works and installation of all the mitigation features to be included.

Internal Building Inspection prior to works: The building will be inspected by a licenced bat worker on the morning before work of removing any roof tiles or the barge board.

On site supervision during works: A licensed bat worker will hold a "tool box talk" to the building contractors prior to works commencing and will be *onsite during the removal of the roof tiles and north elevation barge board in case bats or evidence of bats are found and will be on standby during further works. Evidence found may be used to tweak and improve the mitigation plan where possible. Roof tiles and barge board will be carefully removed by hand.*

Precautions if bats are found during works: If bats are found during building works, they will be safeguarded by the licensed bat worker supervising the works. If bats are found during building works, they may be moved by a licensed bat worker to an escape proof ventilated container with a cloth to hang from and hide behind, and suitable food and water will be provided. The bat will be kept inside the container during daytime for safekeeping from the building works, cold temperatures, and daytime predators. The bat will then be released on the same site one hour after sunset and will be able to move to a safe nearby roosting area of its own choice; alternatively depending on conditions they may be placed in the bat boxes attached to the trees as temporary mitigation the entranced sealed until after sunset in order keep them safe until release.

Roof Tile Access: A bat access tile will be inserted in the roof of the new extension to mitigate for the loss of Roost D. Bitumen 1F liner should be placed under this tile and vertical batons used to contain the roost space underneath to ensure bats do not enter areas with breathable liner which are known to fray and cause tangling and subsequent fatalities in bats.

Wall Mounted Bat Shelter: A wall mounted bat shelter should be placed on the North elevation to provide mitigation for the loss of Roost E under the barge board. The shelter will provide a similar roost space. The shelter should be placed near to the roof line and as far away from windows and light sources as possible.

See Appendix 5 for the design and details of the bat mitigation.

Inspection of new bat mitigation: The new bat mitigation will be inspected by a licenced bat worker on completion before the scaffolding has been removed.

Limited external lighting on site: Extra care will be taken to ensure that external lights are kept to a minimum and will not illuminate the bat access points or flight paths to nearby trees. The light will be aimed to illuminate only the immediate area required by using as sharp a downward angle as possible.

A shield or hood will be used to control or restrict the area to be lit and limit "light spillage" on the site.

7. REFERENCES

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

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Russ, J. 1999. *The Bats of Britain and Ireland*. Alana Books, Alana Ecology Ltd. United Kingdom.

APPENDIX 1: Activity Survey & Sound Analysis Results

Emergence 1 Survey 19th May 2023

Surveyors Sarah Wrenn, Nick Kirke and Ashley Johnson

Time	Species	Activity	Flight Direction
20:42	Survey start		
20:57	Official sunset		
21:09	**Common pipistrelle**	**Emerged from NW dormer hanging wall tile on the south face**	
21:10	**Common pipistrelle**	**Emerged from roof tile on South elevation near gutterline.**	
21:31	Myotis species	Foraging around the road on west side	S-N
21:39	Noctule	HNS	
21:53	Serotine	Commuting	S-N
22:27	Survey End		

Emergence 2 Survey 13th June 2023

Surveyors Sarah Wrenn, Ashley Johnson and Myfanwy Price

Time	Species	Activity	Flight Direction
21:09	Survey start		
21:24	Official sunset		
21:57	**Common pipistrelle**	**Emerged hanging wall tile dormer right hand side.**	
22:11	Serotine	Foraging	E-W
22:34	Myotis	HNS	
22:54	Survey end		

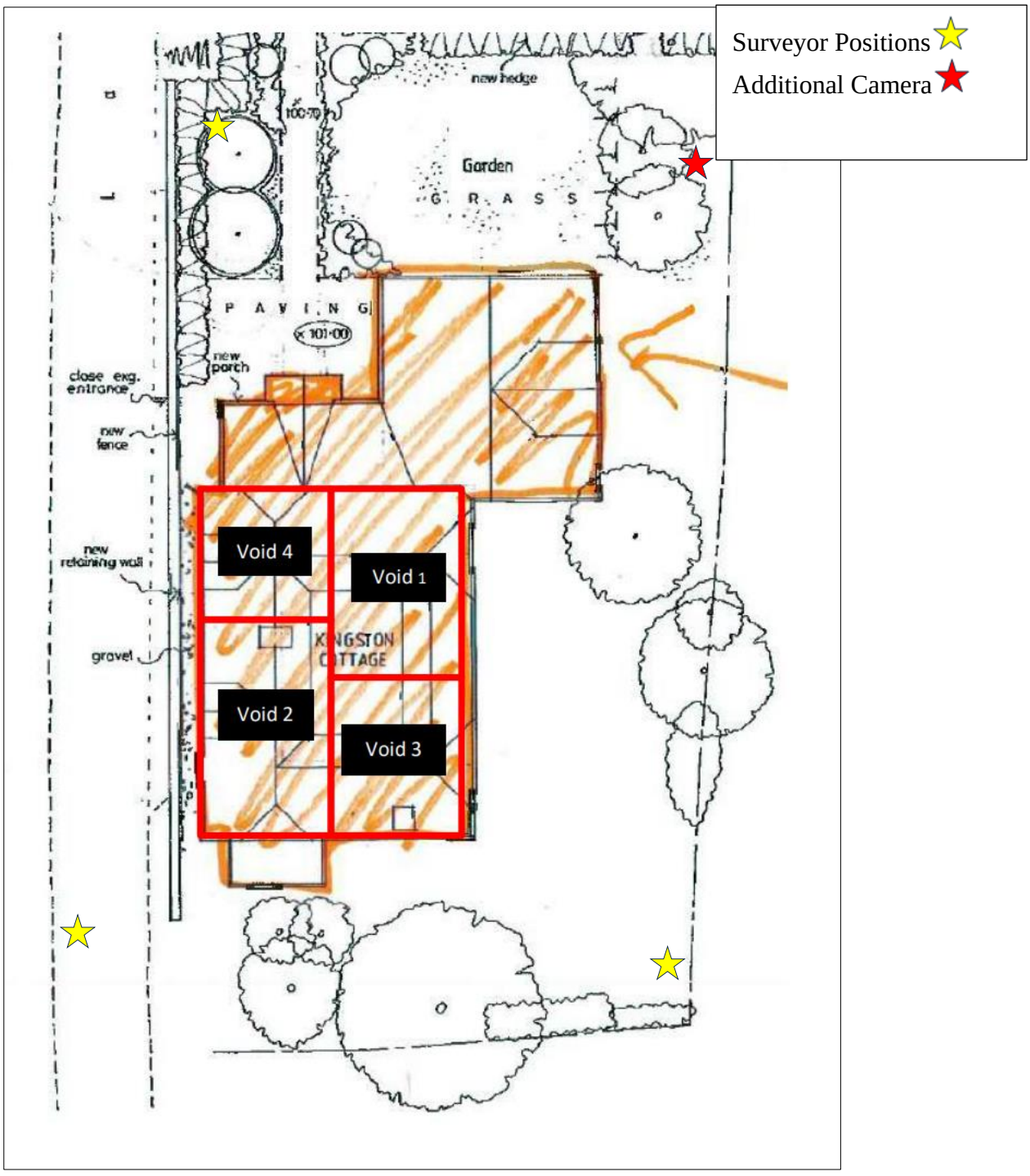
Dawn Survey 2nd July 2023

Surveyors Nick Kirke, Ashley Johnson and Lisha Price

Time	Species	Activity	Flight Direction
03:24	Survey start		
03:37	Noctule	HNS	
03:47	Common pipistrelle	Foraging HNS	
03:51	**Common pipistrelle**	**Entering roof tiles near hip end on N elevation.**	
04:15	**Common pipistrelle**	**Entered under barge board on N elevation.**	
04:54	Official sunrise		
05:09	Survey end		







Surveyor Positions to cover identified potential features.

APPENDIX 2: Bat access point



Roost A



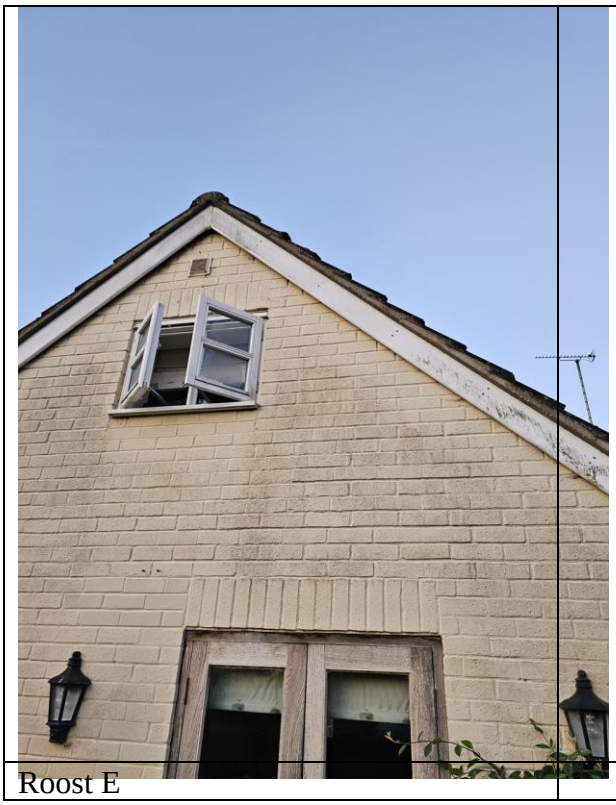
Roost B



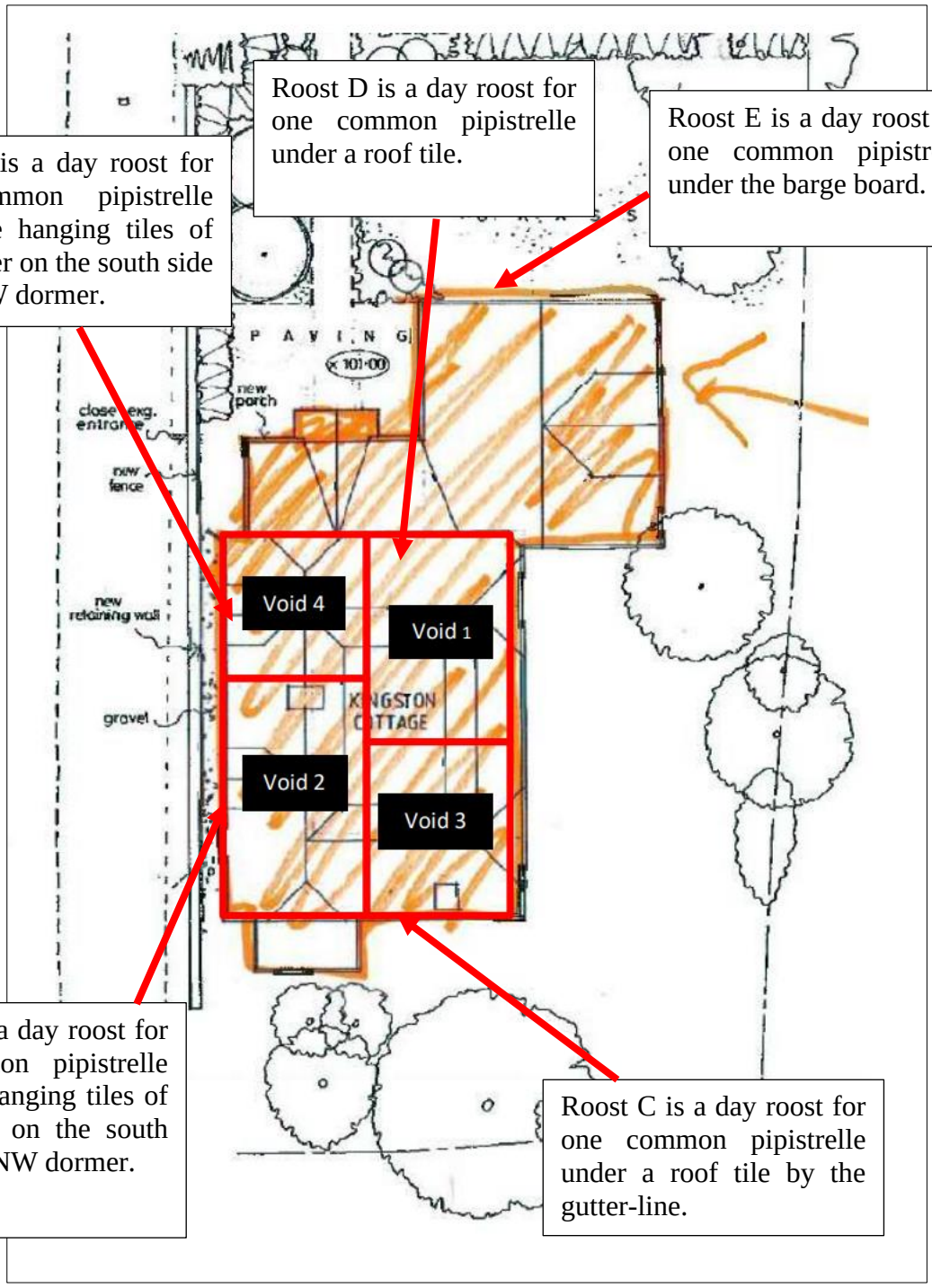
Roost C



Roost D



Roost E


Roost A is a day roost for one common pipistrelle under the hanging tiles of the dormer on the south side of the NW dormer.
Roost D is a day roost for one common pipistrelle under a roof tile.
Roost E is a day roost for one common pipistrelle under the barge board.
Void 4
Void 1
Void 2
Void 3
Roost B is a day roost for one common pipistrelle under the hanging tiles of the dormer on the south side of the NW dormer.
Roost C is a day roost for one common pipistrelle under a roof tile by the gutter-line.

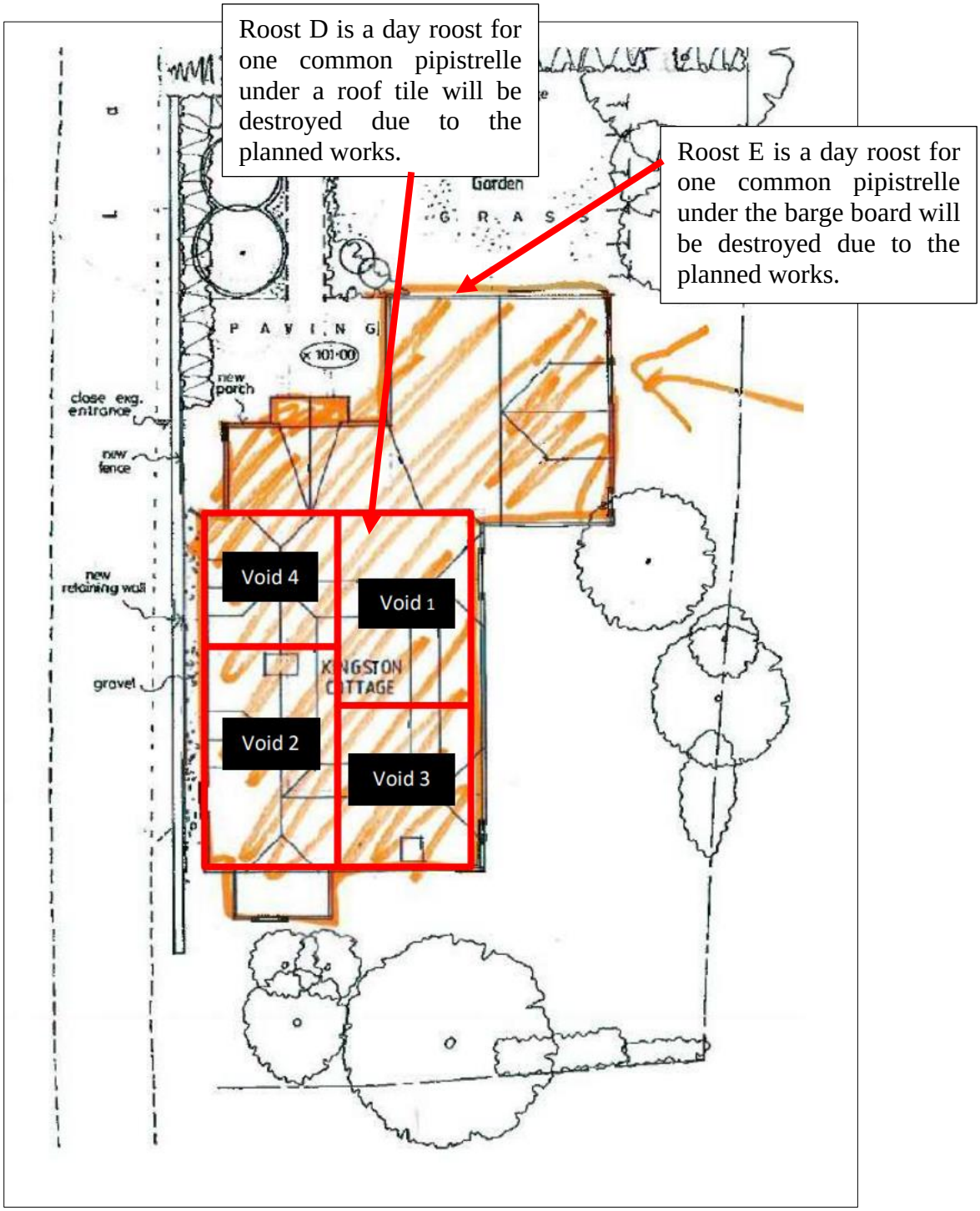
APPENDIX 3: Proposed Plans






EAST ELEVATION
SOUTH ELEVATION

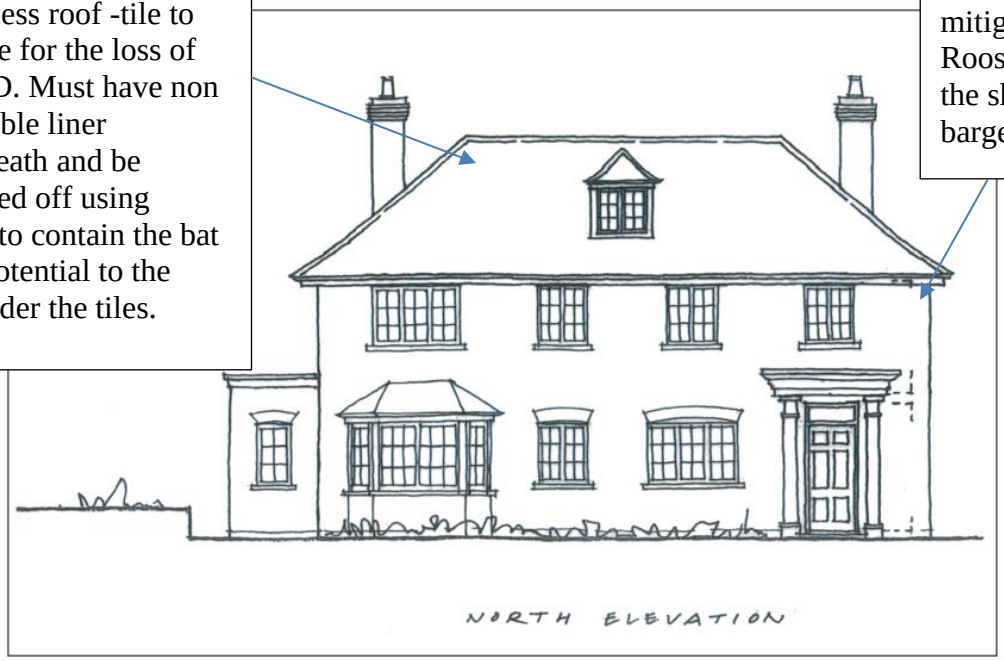
APPENDIX 4: Roost Impacts



APPENDIX 5: Mitigation Proposals

Bat access roof -tile to mitigate for the loss of Roost D. Must have non breathable liner underneath and be sectioned off using batons to contain the bat roost potential to the area under the tiles.

2FE Schwegler wall mounted bat shelter to mitigate for the loss of Roost E and replicated the shelter behind the barge board.



2FE Schwegler Wall Mounted Bat Shelter



The Schwegler Wall-Mounted Bat Shelter 2FE has two applications: it can either be fixed to outside walls to provide a summer hideaway for bats, or it can be installed inside buildings to provide winter hibernation quarters. For winter use, damp cellars, bunkers, bridges or caves protected from ice and frost are examples of ideal locations. During the summer months the common pipistrelle, whiskered bat and barbastelle are among the species which will roost in the Schwegler 2FE as a daytime hideaway. Daubenton's bat, Natterer's bat and the common long-eared bat will also use it, often sleeping huddled together in small groups. A partition inside the Schwegler 2FE also suits the habits of the greater mouse-eared bat. In the winter, all species that hibernate in caves will use the 2FE. The interior has shaped cavities in various sizes where the animals can roost giving optimum body contact, and offering a home to a very wide range of species. The outside surface has an attractive logo in the shape of a bat, making it easy for the amateur to recognise that this is a bat home. Each purchase includes two 2FE bat shelters.

Material: Schwegler wood-concrete, we recommend painting with airpermeable paint when installled on external walls.

Installation: Installing the Schwegler 2FE is very easy using just two screws to fix it to a wood, brick, stone or concrete wall. If the wall surface is uneven we recommend sealing the three edges of the Schwegler 2FE with silicone, foam insulating tape or a similar method. This will ensure it is free from draughts, which is preferred by bats.

Siting: For using the Schwegler 2FE as a summer home, mount it on a wall surface facing south or east. For winter use, install it in a location free from ice and frost such as damp cellars, bunkers, bridges or caves. You can also install it in an attic or other unheated room.

Cleaning and checking: The Schwegler 2FE is maintenance-free since bats' droppings simply fall out. A torch is all you need to check if it is occupied.

Bat Tile Access Set



The Bat Access Tile set provides purpose made access points within your roof tiles or ridge tiles. Available in five traditional roof tile colours, or in Natural Clay (without sand face), the Bat Access Tile Set presents a bat optimized entrance to the under-felt, or to the loft when the under-felt is opened. Each set comprises three roof tiles. The top `tunnel' tile offers the bat an 18mm high x 165mm long (approx.) tunnel to an entrance hole in the undertiles. This allows the bat to crawl into the roost area. The two tiles beneath the `tunnel' tile have small cutaway sections to facilitate access for the bat. An advantage of the tiles large double camber is that it provides the maximum amount of natural air flow under the tiles. The carefully designed access, along with this air flow between the tiles and the under-felt, aims to provide conditions where the bats are protected from any extremes of heat.